



**Faculty of Agricultural and Environmental
Sciences, including School of Human Nutrition
Programs, Courses and University Regulations
2023-2024**

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Note: Throughout this publication, "you" refers to students newly admitted, readmitted or returning to McGill.

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1 About the Faculty of Agricultural and Environmental Sciences, including School of 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 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, Macdonald Campus is home to the Faculty of Agricultural and Environmental Sciences, the School of 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 Bieler School of Environment, and is also home to the Farm Management and Technology Program. The current enrolment exceeds 2,000 undergraduate and graduate students.

3 Macdonald Campus Facilities

3.1 Morgan Arboretum

The Morgan Arboretum is one of McGill's teaching and research stations. It 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. The Arboretum features 25 kilometres of ski, snowshoe, and walking trails in a variety of forest ecosystems that are available for members of the Morgan Arboretum and visitors. A nature interpretation program is also offered at different times of the year. Conservation projects and forest operations, such as the production of maple syrup and firewood, are routinely done on a small scale basis. More information is available at mcgill.ca/nrs/facilities/arboretum.

3.2 Macdonald Campus Library

Located in the Barton Building, the Macdonald Campus Library offers outstanding collections, facilities, and services to support a broad range of information needs. The Library's collections encompass a vast range of research material with a specific focus on the areas of agricultural sciences, nutrition, and environmental sciences.

The Library's website leads users to a wealth of information, including the library catalogue, article databases, McGill theses, and instructive web pages on how to gain access to the material and services available to users. The Library's eZone computers provide specialized software such as ArcGIS, STATA, and EndNote. Printer-photocopiers, comfortable seating, three group study rooms equipped with LCD monitors, and a 24-hour study area are also available to you.

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. Research workshops are provided throughout the year.

More information is available at mcgill.ca/library/branches/macdonald, or feel free to drop by.

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. These labs offer computers running Microsoft Office software, a variety of course-related software, and access to uPrint printers.

The IT Services Walk-in Centre, located in the Macdonald-Stewart Building, Room MS 2-025, is open Monday to Friday from 9:00 a.m. to 4:45 p.m. For support on all central IT services, contact the ICS Service Desk by email at ITsupport@mcgill.ca or call 514-398-3398.

For more information and to search the IT Knowledge Base, visit the IT Services web page at mcgill.ca/it.

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 lyman.mcgill.ca.

3.5 Brace Centre for Water Resources Management

The Brace Centre for Water Resources Management spans two faculties, the Faculty of Engineering and the Faculty of Agriculture and Environmental Sciences, whose members carry out advanced multidisciplinary research related to addressing today's complex water challenges. The centre is also a local chapter of the Quebec water research network, CentrEau. The centre's members engage in research, teaching, and specialized training, and draw on a wide range of facilities available within the University and the Montreal region. More information is available at mcgill.ca/brace.

4 About Agricultural & Environmental Sciences (Undergraduate)

4.1 Location

McGill University, Macdonald Campus
21, 111 Lakeshore Road
Sainte-Anne-de-Bellevue QC H9X 3V9
Canada
Telephone: 514-398-7925
Website: mcgill.ca/macdonald

The Faculty of Agricultural and Environmental Sciences and the School of Human Nutrition are located on the Macdonald Campus of McGill University, 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 who attend classes on both campuses.

4.2 The Faculty of Agricultural and Environmental Sciences, including School of Human Nutrition (Undergraduate)

The Faculty of Agricultural and Environmental Sciences and the School of 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.

4.3 Administrative Officers

Dean, Faculty of Agricultural and Environmental Sciences, and Associate Vice-Principal (Macdonald Campus)

Anja Geitmann

Associate Deans

Valérie Orsat; Salwa Karboune; Jean-Benoit Charron; Alice Cherestes

Manager, Student Affairs

Silvana Pellecchia

Director, Academic and Administrative Services

Christine Butler

Assistant Director, Athletics and Recreation

Jill Barker

General Manager, Macdonald Campus Farm

Janice Pierson

Supervisor, Buildings and Grounds

TBA

Manager, Residence Life and Accommodations

Lindsay O'Connell

4.4 Faculty Admission Requirements

For information about admission requirements and application deadlines for this Faculty, please refer to the *Undergraduate Admissions Guide* found at mcgill.ca/applying.

Applications are submitted directly online at 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 QC H9X 3V9
Telephone: 514-398-7925
Email: studentinfo.macdonald@mcgill.ca
Website: mcgill.ca/macdonald/prospective

For information about interfaculty transfers, see [University Regulations and Resources](#) > *Undergraduate* > *Registration* > *Interfaculty Transfer*.

4.5 Student Information

Friendly staff are on hand to answer your questions about academics, residence, athletics, student life, health concerns, and much more.

4.5.1 Student Rights and Responsibilities

The regulations and policies governing student rights and responsibilities at McGill University are published jointly by the Dean of Students' Office and the Secretariat, and they can be found at mcgill.ca/secretariat/policies-and-regulations.

4.5.2 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), transfer credits, Academic Standing, examinations (deferrals, conflicts, rereads), exchange programs, interfaculty transfers, program changes, registration (course change, withdrawals), scholarships (entrance and in-course), second degrees, second majors, minors, study away, and graduation (convocation).

Website: mcgill.ca/macdonald/studentinfo/sao.

4.5.3 Student Services

Please see [University Regulations and Resources > Undergraduate > Student Services > : Student Services – Macdonald Campus](#). Further information is also available on our website: mcgill.ca/macdonald-studentservices.

All *eligible* McGill students are entitled to use the Student Services located on both campuses, regardless of the faculty they are enrolled in.

4.5.4 Macdonald Campus Residences

Please see [University Regulations and Resources > Undergraduate > Residential Facilities > : University Residences – Macdonald Campus; mcgill.ca/students/housing/residence-options/macdonald](#); or email residences.macdonald@mcgill.ca.

4.5.5 Student Life

All undergraduate and Farm Management and Technology students are members of the [Macdonald Campus Students' Society](#) (MCSS). The MCSS, through the Students' Council, is involved in numerous campus activities such as social events, academic affairs, and the coordination of clubs and organizations.

The [Macdonald Campus Graduate Students' Society](#) (MCGSS) represents graduate students on the Macdonald Campus. MCGSS is part of McGill's [Post-Graduate Students' Society](#) (PGSS) which represents all graduate students at McGill.

4.5.6 Fees

Please refer to the [Student Accounts](#) website for information and step-by-step instructions regarding fees.

4.5.6.1 Tuition Fees

Detailed information about your fees are on your e-bill and account summary by term on which can be found on Minerva.

General information on tuition and other fees is found in [University Regulations & Resources > Undergraduate > : Fees](#).

4.5.6.2 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. The Macdonald Campus bookstore is open from 10:00 am to 5:00 pm, Monday to Friday. In addition to clothing and stationery, you can also purchase course materials online and pick them up at the Macdonald Campus Bookstore.

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.

4.5.7 Immunization for Dietetics Majors

As a student in the Dietetics Major, you are required to initiate and complete the Compulsory Immunization Program for Health Care Students in Fall of U1, in the NUTR 208 Professional Practice Stage 1A course. Students will meet with our health nurse at the beginning of U1 and should have all previous vaccination records available at that time. Participation in any further Professional Practice (Stage) courses in the Dietetics program will only be permitted if all immunization requirements are complete. Updates to your immunizations may be required during your program. For full details, see mcgill.ca/wellness-hub/hub-clinical-services/medical-notes-and-immunization-reviews.

4.5.8 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 > Undergraduate > Admission to Professional and Graduate Studies > : Language Requirements for Professions](#).

4.6 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.

4.6.1 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, and 122 credits for the Concurrent Degrees in Food Science and Nutritional Sciences, including any missing basic science prerequisites.

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 6.1: 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.

Students transferring from another university must complete a minimum of 60 McGill credits in order to receive a McGill degree. A minimum of 72 McGill credits is required for the B.Eng. (Bioresource Engineering) degree.

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.

4.6.2 Minimum Grade Requirement

You must obtain grades of C or better in any required, complementary, or 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.

4.6.3 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.

4.6.4 Categories of Students

4.6.4.1 Full-time Students

Full-time students in Satisfactory Standing take a minimum of 12 credits per academic term. A normal course load is considered to be 15 credits per term. The maximum number of credits allowed per academic term is 18 credits. Students who wish to be considered for Faculty in-course scholarships must be registered for 27 graded credits during the fall/winter academic year.

Students in Probationary Standing are not permitted to take more than 14 credits per term. In exceptional circumstances, the Committee on Academic Standing may give permission to attempt more.

4.6.4.2 Part-time Students

Part-time students take fewer than 12 credits per term.

4.6.5 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 Academic 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 Human Nutrition have additional standards in place for the professional program (Dietetics). See [section 6.5.1: Bachelor of Science \(Nutritional Sciences\) \(B.Sc.\(Nutr.Sc.\)\) - Major Dietetics \(115 credits\)](#).

4.6.5.1 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. Please inquire at the Student Affairs Office, Laird Hall 106, to obtain an application.

4.6.6 Credit System

The credit assigned to a particular course reflects 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 and other contact hours such as laboratory periods, tutorials, and problem periods as well as personal study hours. For a standard three credit course, a student should expect to do nine hours of work per week.

Refer to [University Regulations and Resources](#) > Undergraduate > Student Records > : [Credit System](#).

4.6.6.1 School of Continuing Studies Courses

Not all School of Continuing Studies credit courses are recognized for credit within Faculty degree programs. Please contact the Faculty Adviser in the Student Affairs Office before registering for such courses.

4.6.7 Academic Credit Transfer

Transfer credits based on courses taken at other institutions (completed with a grade that is equal to or higher than the grade/CGPA required to graduate from the host university) 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 university level institutions (completed with a grade that is equal to or higher than the grade/CGPA required to graduate from the host university) 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. 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 BCI (*Bureau de coopération interuniversitaire*, previously known as 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 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 one month 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 further details, consult [University Regulations and Resources](#) > Undergraduate > Student Records > : [Transfer Credits](#) and [Undergraduate > Registration > : Quebec Inter-University Transfer Agreement](#), or go to www.bci-qc.ca to access the online application.

4.6.8 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.

4.6.8.1 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 and signed to the Student Affairs Office (saoadvisor.macdonald@mcgill.ca). 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 complete the program change form. The program change form must be submitted to the Student Affairs Office (saoadvisor.macdonald@mcgill.ca). The Minor Approval form and the Program Change form are available on the Faculty website and in the Student Affairs Office, Laird Hall, Room 106.

4.6.9 Course Change Information

1. **Courses:** please refer to [University Regulations and Resources > Undergraduate > Registration > : Course Change Period](#), and the [Important Dates website](#).
2. **Course withdrawal** (Transcript notation of “W”): please refer to [University Regulations and Resources > Undergraduate > Registration > : Course Withdrawal](#), and the [Important Dates website](#).
3. **Other changes:** information about changes may be obtained from the Student Affairs Office of the Faculty.

4.6.10 Graduate Courses Available to Undergraduates

Undergraduates who want to take graduate courses must have a cumulative grade point average (CGPA) of at least 3.2. Final approval must be obtained from Enrolment Services. Be advised that graduate courses taken for credit toward an undergraduate degree will not be credited toward a graduate program.

Please see a Faculty Adviser in the [Student Affairs Office](#), Laird Hall, 106 for more information.

4.6.11 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.

4.6.12 Incomplete Grades

Please refer to [University Regulations and Resources > Undergraduate > Student Records > : Incomplete Courses](#).

4.6.13 Examinations

You should refer to [University Regulations and Resources > Undergraduate > : Examinations: General Information](#) for information about final examinations and deferred examinations. Examination schedules are posted on the McGill [website](#); normally 4 weeks after the start of classes for the **Tentative** Exam Schedule, and 6 weeks 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.

4.6.13.1 Reassessments and Rereads

Please refer to [University Regulations and Resources > Undergraduate > Examinations: General Information > Final Examinations > : Reassessments and Rereads: Faculty of Agricultural and Environmental Sciences](#).

4.6.13.2 Deferred Examinations

Please refer to [University Regulations and Resources > Undergraduate > Examinations: General Information > Final Examinations > : Final Examinations: Deferred Examinations](#).

4.6.14 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 4.6.1: 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.



Note for B.Eng.(Bioresource) students: If you are completing a B.Eng.(Bioresource) degree, you must complete a minimum residency requirement of 72 credits at McGill. Note that the total credits for your program (143 credits) includes those associated with the year 0 (Freshman) courses.

4.6.15 Graduation Honours

For information on the designation of graduation honours and awards, see [University Regulations and Resources](#) > Undergraduate > Graduation > [Graduation Honours](#).

4.6.16 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 see mcgill.ca/macdonald/studentinfo/undergrads/scholarships.

5 Overview of Programs Offered

The Faculty of Agricultural and Environmental Sciences and the School of Human Nutrition offer degrees, certificates, and diplomas in:

- Bachelor of Engineering (Bioresource Engineering)
- Bachelor of Science (Agricultural and Environmental Sciences)
- Bachelor of Science (Food Science)
- Bachelor of Science (Nutritional Sciences)
- Concurrent degree in Food Science and Nutritional Sciences
- Certificate in Ecological Agriculture
- Certificate in Food Science
- Diploma in Environment
- 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 Bieler School of Environment.

Several programs offered by the Faculty and School can lead to professional accreditation. These include:

- 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 and the *Ordre des agronomes du Québec*;
- the Dietetics Major – membership in the Dietitians of Canada and the *Ordre professionnel des diététistes du Québec*;
- 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 a variety of areas. Further information about these programs is available in the Faculty of Agricultural and Environmental Studies [Graduate and Postdoctoral Studies](#) section.

Programs Offered by the Faculty of Agricultural and Environmental Sciences

[section 6.2: Bachelor of Science \(Agricultural and Environmental Sciences\) – B.Sc.\(Ag.Env.Sc.\)](#)

[section 6.3: Bachelor of Engineering \(Bioresource\) – B.Eng.\(Bioresource\)](#)

[section 6.4: Bachelor of Science \(Food Science\) - B.Sc.\(F.Sc.\)](#)

[section 6.5: Bachelor of Science \(Nutritional Sciences\) – B.Sc.\(Nutr.Sc.\)](#)

[section 5.7: Concurrent Bachelor of Science in Food Science – B.Sc.\(F.Sc.\) and Bachelor of Science in Nutritional Sciences – B.Sc.\(Nutr.Sc.\) \(Overview\)](#)

[section 5.8: Honours Programs \(Overview\)](#)

[section 5.9: Minor Programs \(Overview\)](#)

[section 5.10: Post-Baccalaureate Certificate Programs \(Overview\)](#)

Programs Offered by the Faculty of Agricultural and Environmental Sciences

[section 5.11: Diploma Program \(Undergraduate\) \(Overview\)](#)

[section 5.12: Diploma in Collegial Studies \(Overview\)](#)

[section 5.13: Environmental Sciences Programs \(Overview\)](#)

5.1 Internship Opportunities

Internships allow students to gain practical, hands-on experience and develop skill sets that are frequently in high demand by employers. Internships involve a work placement 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 your employer and your instructor.

5.1.1 FAES 200 / FAES 300 Internship Program

As a full-time undergraduate student (with a CGPA of 2.7 or higher) in the Faculty of Agricultural and Environmental Sciences, you have the opportunity to participate in the Internship program.

The internship should be a minimum length of 10 weeks, with the student working 35 hours a week or more. **FAES 200** is a non-credit (pass or fail) course. **FAES 300** is a 3-credit course, and you will receive a final grade on your transcript. The internship should be related to your field of study.

5.1.2 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. The internship should be a minimum length of 12 weeks. Through observations of the enterprise's functioning, the decision-making process, and the economic constraints, you should obtain a better understanding of the technical, economic, and social challenges faced by enterprises in your field of study. AGRI 310 is a 3-credit course.

5.1.3 AGRI 410D1 and AGRI 410D2 Agrology Internship

As a qualified student in the B.Sc.(Ag.Env.Sc.), you have the opportunity to participate in a 420-hour-minimum internship related to your field of study.

AGRI 410 is part of the Professional Agrology Specialization and constitutes practical training as required by the *Ordre des agronomes du Québec*. Each internship placement must be approved by the instructor.

5.1.4 AGRI 499 Agricultural Development Internship

AGRI 499 is a supervised internship which provides practical experience working on agricultural issues related to international development. The internship can take many forms, including work in a developing country, for an agency that focuses on international development, or on a research project that aims at solving problems faced by developing populations. Each internship placement must be approved by the instructor.

5.2 Exchange Programs (Overview)

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 [Study Abroad & Field Studies and mcgill.ca/macdonald/studentinfo/undergrads/studying-away-mcgill > Undergraduate > : Exchange Programs](#).

5.3 Bachelor of Science in Agricultural and Environmental Sciences – B.Sc.(Ag.Env.Sc.) (Overview)

Students register in one *major* and at least one *specialization*. They may design their own program by choosing any major, and at least one specialization (see notes below for the majors in Environment and specializations in Agricultural Economics). By choosing two different specializations, students have the option of developing their own interdisciplinary interests. They may also choose to do a minor. The multidisciplinary specialization is designed for those interested in broad training.



Note: Students choosing the major in Environment will select a domain instead of a specialization.



Note: Specializations in the Agricultural Economics major are restricted to Agricultural Economics students.

All the required and complementary courses for the major must be completed in full. Within each specialization, at least 18 credits must be unique, i.e., they only count for that specialization and do not overlap with either the major or a second specialization. At least 12 credits must be from 400-level courses or higher.

These programs are also available as *honours* programs for students after they have completed their U2 year if they meet the requirements. See individual programs for details.

5.3.1 Majors and Honours

Graduates of programs marked with an asterisk (*) can be eligible for membership in the *Ordre des agronomes du Québec* and other provincial institutes of agriculture.

- Agricultural Economics *
- Agro-environmental Sciences *
- Environmental Biology
- Global Food Security
- Life Sciences (Biological and Agricultural)
- Environment – see [Bieler School of Environment > Undergraduate > Major in Environment - B.Sc.\(Ag.Env.Sc.\) and B.Sc.](#)

Full program descriptions are listed at [section 6.2.1: B.Sc.\(Ag.Env.Sc.\) Major and Honours Programs](#).



Note: In the program description for each major is a suggested list of specializations that complement that major.

5.3.2 Specializations

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.

The following are specializations for the major programs listed above in Agricultural Economics, Agro-Environmental Sciences, Environmental Biology, Global Food Security, and Life Sciences (Biological and Agricultural).

Full program descriptions are also listed at [section 6.2.2: Specializations](#).

- Agribusiness, [section 6.2.2.1: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Agribusiness \(24 credits\)](#)
- Animal Biology, [section 6.2.2.2: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Animal Biology \(24 credits\)](#)
- Animal Health and Disease, [section 6.2.2.3: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Animal Health and Disease \(24 credits\)](#)
- Animal Production, [section 6.2.2.4: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Animal Production \(24 credits\)](#)
- Applied Ecology, [section 6.2.2.5: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Applied Ecology \(24 credits\)](#)
- Ecological Agriculture, [section 6.2.2.6: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Ecological Agriculture \(24 credits\)](#)
- Environmental Economics, [section 6.2.2.7: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Environmental Economics \(24 credits\)](#)
- International Agriculture, [section 6.2.2.8: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - International Agriculture \(24 credits\)](#)
- Life Sciences (Multidisciplinary), [section 6.2.2.9: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Life Sciences \(Multidisciplinary\) \(24 credits\)](#)
- Microbiology and Molecular Biotechnology, [section 6.2.2.10: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Microbiology and Molecular Biotechnology \(24 credits\)](#)
- Plant Biology, [section 6.2.2.11: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Plant Biology \(24 credits\)](#)
- Plant Production, [section 6.2.2.12: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Plant Production \(24 credits\)](#)
- Professional Agrology, [section 6.2.2.13: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Professional Agrology \(24 credits\)](#)
- Professional Agrology for Agribusiness, [section 6.2.2.14: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Professional Agrology for Agribusiness \(24 credits\)](#)
- Soil and Water Resources, [section 6.2.2.15: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Soil and Water Resources \(24 credits\)](#)
- Wildlife Biology, [section 6.2.2.16: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Wildlife Biology \(24 credits\)](#)

5.4 Bachelor of Engineering in Bioresource Engineering – B.Eng.(Bioresource) (Overview)

Bioresource engineering is a unique branch of engineering that encompasses biological engineering, agricultural engineering, food engineering, environmental engineering, and other traditional engineering disciplines, focusing on applying professional engineering skills to biological systems. The fundamental basis of bioresource engineering is transdisciplinary interactions between engineering science and design, with biological, physical, chemical, and other natural sciences. Bioresource engineers strive to design and implement solutions to sustain food supply and the well-being of society while maintaining high-quality of the environment for generations to come.

Together with other B.Eng. programs offered by peer engineering departments in the Faculty of Engineering, Bioresource Engineering is accredited through Engineers Canada Accreditation Boards. Therefore, graduates of the bachelor bioresource engineering program are eligible for registration as professional engineers in any province in Canada, as well as some international jurisdictions. The available Professional Agrology option also qualify graduates to apply for registration to the *Ordre des agronomes du Québec* and similar licensing bodies in other provinces.

The Complementary portion of the Bioresource Engineering curriculum is organized according to three non-restrictive streams, including: Bio-Environmental Engineering, Bio-Process Engineering, and Bio-Production Engineering.

Students who follow the **Bio-Environmental Engineering** stream will learn to be responsible stewards of the environment and natural resources. This stream includes the study of soil and water quality management and conservation, organic waste treatment, urban and rural ecology, sustainability engineering, biodiversity preservation, climate change adaptation, and many other related topics.

Through the **Bio-Process Engineering** stream, students apply engineering to transform agricultural commodities and biomass into products such as food, fibre, fuel, and biochemicals. Topics include 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 follow the **Bio-Production Engineering** stream use natural sciences and engineering skills to design systems and machines for the production of different types of crop, animal-based products, and biomass. Students learn about design of machines and structures, different production systems and technologies, instrumentation and controls, geospatial data management, precision agriculture, and emerging intelligent bio-production concepts.

In addition, students may choose to follow the **Professional Agrology** option of Bioresource Engineering (usually associated with the Bio-Production Engineering stream) as well as the Bioresource Engineering Honors Program. Multiple minors are also available. For details related to curriculum options and to select the most suitable stream, please refer to the Departmental website at mcgill.ca/bioeng.

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 > Undergraduate > Browse Academic Units & Programs > 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.



Note: If you are completing a B.Eng.(Bioresource) degree, you must complete a minimum residency requirement of 72 credits at McGill. The total credits for your program (143 credits) include those associated with the year 0 (Freshman) courses.

See [section 6.3: Bachelor of Engineering \(Bioresource\) – B.Eng.\(Bioresource\)](#) for a list of B.Eng.(Bioresource) programs offered.

5.5 Bachelor of Science in Food Science – B.Sc.(F.Sc.) (Overview)

Refer to [section 6.4: Bachelor of Science \(Food Science\) - B.Sc.\(F.Sc.\)](#) for a full list of B.Sc.(F.Sc.) programs offered.

Food Science

- Food Chemistry Option
- Food Science Option

The Food Science program has been designed to combine the basic sciences—particularly chemistry—with specialty courses that are directly related to the discipline.

For academic advising, please consult mcgill.ca/macdonald/studentinfo/advising.

5.6 Bachelor of Science in Nutritional Sciences – B.Sc.(Nutr.Sc.) (Overview)

Nutritional Sciences Majors

- Dietetics (professional program leading to professional licensing as Dietitian/Nutritionist)
- Nutrition (available in four concentrations):

Food Function and Safety

Global Nutrition
 Health and Disease
 Sports Nutrition

- Food Science/Nutritional Sciences (concurrent degree)

Refer to [section 6.5: Bachelor of Science \(Nutritional Sciences\) – B.Sc.\(Nutr.Sc.\)](#) for a full list of B.Sc.(Nutr.Sc.) programs offered.

For academic advising, please consult mcgill.ca/macdonald/studentinfo/advising.

Freshman Adviser

Professor Alice Cherestes
 Macdonald-Stewart Building, Room 1-020
 Telephone: 514-398-7980

5.7 Concurrent Bachelor of Science in Food Science – B.Sc.(F.Sc.) and Bachelor of Science in Nutritional Sciences – B.Sc.(Nutr.Sc.) (Overview)

Please refer to [section 6.4.4: About the Concurrent B.Sc.\(F.Sc.\) and B.Sc.\(Nutr.Sc.\)](#) for details.

5.8 Honours Programs (Overview)

Honours Programs

- [section 6.2.1.2: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Agricultural Economics \(42 credits\)](#)
- [section 6.2.1.4: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Agro-Environmental Sciences \(54 credits\)](#)
- [section 6.2.1.6: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Environmental Biology \(54 credits\)](#)
- [section 6.2.1.8: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Global Food Security \(54 credits\)](#)
- [section 6.2.1.10: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Life Sciences \(Biological and Agricultural\) \(54 credits\)](#)
- [section 6.3.2: Bachelor of Engineering \(Bioresource\) \(B.Eng.\(Bioresource\)\) - Honours Bioresource Engineering \(113 credits\)](#)
- [section 6.4.2: Bachelor of Science \(Food Science\) \(B.Sc.\(F.Sc.\)\) - Honours Food Science - Food Science Option \(90 credits\)](#)
- [section 6.5.7: Bachelor of Science \(Nutritional Sciences\) \(B.Sc.\(Nutr.Sc.\)\) - Honours in Nutrition \(90 credits\)](#)
- [section 6.4.4.2: 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 Honours \(Concurrent\) \(122 credits\)](#)
- [: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Environment \(69 credits\)](#), listed under the [Bieler School of Environment](#)

5.9 Minor Programs (Overview)

Minor Programs

- Agribusiness Entrepreneurship – [section 6.6.2: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Minor Agribusiness Entrepreneurship \(18 credits\)](#)
- Agricultural Economics – [section 6.6.3: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Minor Agricultural Economics \(24 credits\)](#)
- Agricultural Production – [section 6.6.4: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Minor Agricultural Production \(24 credits\)](#)
- Animal Biology – [section 6.6.5: Bachelor of Engineering \(Bioresource\) \(B.Eng.\(Bioresource\)\) - Minor Animal Biology \(24 credits\)](#)
- Animal Health and Disease – [section 6.6.6: Bachelor of Engineering \(Bioresource\) \(B.Eng.\(Bioresource\)\) - Minor Animal Health and Disease \(24 credits\)](#)
- Applied Ecology – [section 6.6.7: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Minor Applied Ecology \(24 credits\)](#)
- Ecological Agriculture – [section 6.6.8: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Minor Ecological Agriculture \(24 credits\)](#)
- Environmental Engineering – [section 6.6.9: Minor in Environmental Engineering](#)

- Human Nutrition – [section 6.6.10: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Minor Human Nutrition \(24 credits\)](#)
- International Agriculture – [section 6.6.11: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Minor International Agriculture \(24 credits\)](#)
- Environment – listed under [Bieler School of Environment > Undergraduate > Minor in Environment > : Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) or Bachelor of Science \(B.Sc.\) - Minor Environment \(18 credits\)](#)
- Some minors of interest to FAES students can also be found at : [Minor in Management for Non-Management Students](#) – listed under [Desautels Faculty of Management](#)

5.10 Post-Baccalaureate Certificate Programs (Overview)

The Faculty offers the following post-baccalaureate certificate programs.

Post-Baccalaureate Certificate Programs

- Ecological Agriculture
- Food Science

Please refer to [section 6.7: Post-Baccalaureate Certificate Programs](#) for program descriptions and details.

5.11 Diploma Program (Undergraduate) (Overview)

Diploma Program (Undergraduate)

- Diploma in Environment – see [Bieler School of Environment > Undergraduate > Diploma in Environment > : Diploma \(Dip.\) Environment \(30 credits\)](#)

5.12 Diploma in Collegial Studies (Overview)

Diploma in Collegial Studies

- [section 7.3: Farm Management and Technology Program](#)

5.13 Environmental Sciences Programs (Overview)

5.13.1 Bieler School of Environment

The Bieler School of Environment is a joint initiative of the Faculty of Agricultural and Environmental Sciences, the Faculty of Arts, and the Faculty of Science. 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. Faculty Program in Environment, a Minor in Environment, and a Diploma in Environment. These programs allow you to choose to study on both the Macdonald and Downtown campuses.

5.13.2 Environmental Programs on the Macdonald Campus

A number of integrated environmental science programs are 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 a well-rounded training in a specific interdisciplinary subject as well as a basis for managing natural resources. For a complete list of the programs, see [section 5: Overview of Programs Offered](#).

5.14 Graduate Programs

Graduate work may be undertaken on the Macdonald Campus, through the following academic units:

- [Animal Science](#)
- [Bioresource Engineering](#)
- [Food Science and Agricultural Chemistry](#)
- [School of Human Nutrition](#)

- [Natural Resource Sciences](#)
- [Institute of Parasitology](#)
- [Plant Science](#)

The advanced courses of study offered lead to the degrees of Master of Science, Master of Science Applied, and Doctor of Philosophy.

Information on these programs and related fellowships is available from the Graduate and Postdoctoral Studies office, Macdonald Campus of McGill University, 21111 Lakeshore Road, Macdonald-Stewart Building, Sainte-Anne-de-Bellevue QC H9X 3V9 or by contacting gradstudies.macdonald@mcgill.ca.

Further information including full program lists is offered in the Faculty of Agricultural and Environmental Sciences [Graduate and Postdoctoral Studies section](#), and details regarding theses, registration, fellowships, etc., can be accessed at mcgill.ca/gps.

6 Browse 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.), a B.Sc. in Food Science (F.Sc.), a B.Sc. in Nutritional Sciences (Nutr.Sc.), a B.Eng. in Bioresource Engineering or concurrent B.Sc. in both Food Science and Nutritional Sciences. The Faculty also offers post-baccalaureate undergraduate Certificate programs in Food Science and Ecological Agriculture as well as a Diploma in Environment.

The Bieler School of Environment also offers several B.Sc.(Ag.Env.Sc.) programs; for more information, please visit the [Bieler School of Environment](#) section.

6.1 Freshman Major

Program Director

Dr. David Titley-Peloquin
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 mathematics and science courses in 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, and/or McGill placement examinations may receive exemption and/or credit for all or part of the freshman courses (basic science courses in biology, chemistry, physics, and mathematics). Students who have completed courses at other universities or colleges may also receive exemptions and/or credits. Students should consult with the Faculty's Student Affairs Office.

6.1.1 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses - Fall (14.5 credits)

| | | |
|----------|------|------------------------|
| AEBI 120 | (3) | General Biology |
| AECH 110 | (4) | General Chemistry 1 |
| AEMA 101 | (3) | Calculus 1 |
| AEPH 112 | (4) | Introductory Physics 1 |
| AGRI 195 | (.5) | Freshman Seminar 1 |

Required Courses - Winter (12.5 credits)

| | | |
|----------|------|------------------------|
| AECH 111 | (4) | General Chemistry 2 |
| AEMA 102 | (4) | Calculus 2 |
| AEPH 114 | (4) | Introductory Physics 2 |
| AGRI 196 | (.5) | Freshman Seminar 2 |

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>.

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.

6.1.2 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses - Fall (14.5 credits)

| | | |
|----------|------|---------------------|
| AEBI 120 | (3) | General Biology |
| AECH 110 | (4) | General Chemistry 1 |
| AEMA 101 | (3) | Calculus 1 |
| AEPH 113 | (4) | Physics 1 |
| BREE 187 | (.5) | Freshman Seminar 1 |

Required Courses - Winter (15.5 credits)

| | | |
|----------|------|---------------------|
| AECH 111 | (4) | General Chemistry 2 |
| AEMA 102 | (4) | Calculus 2 |
| AEPH 115 | (4) | Physics 2 |
| BREE 103 | (3) | Linear Algebra |
| BREE 188 | (.5) | Freshman Seminar 2 |

6.1.3 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses - Fall (14.5 credits)

| | | |
|----------|-----|-----------------|
| AEBI 120 | (3) | General Biology |
|----------|-----|-----------------|

| | | |
|----------|------|------------------------|
| AECH 110 | (4) | General Chemistry 1 |
| AEMA 101 | (3) | Calculus 1 |
| AEPH 112 | (4) | Introductory Physics 1 |
| AGRI 195 | (.5) | Freshman Seminar 1 |

Required Courses - Winter (12.5 credits)

| | | |
|----------|------|------------------------|
| AECH 111 | (4) | General Chemistry 2 |
| AEMA 102 | (4) | Calculus 2 |
| AEPH 114 | (4) | Introductory Physics 2 |
| AGRI 196 | (.5) | Freshman Seminar 2 |

Elective - Winter (3 credits)**6.1.4 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Freshman Program (30 credits)**

The B.Sc.(Nutr.Sc.) Freshman Program is designed to provide the required science entrance prerequisites for students entering university for the first time from a high school system (outside of the Quebec CEGEP system).

Required Courses - Fall (14.5 credits)

| | | |
|----------|------|------------------------|
| AEBI 120 | (3) | General Biology |
| AECH 110 | (4) | General Chemistry 1 |
| AEMA 101 | (3) | Calculus 1 |
| AEPH 112 | (4) | Introductory Physics 1 |
| AGRI 195 | (.5) | Freshman Seminar 1 |

Required Courses - Winter (15.5 credits)

| | | |
|----------|------|------------------------|
| AEBI 122 | (3) | Cell Biology |
| AEMA 102 | (4) | Calculus 2 |
| AEPH 114 | (4) | Introductory Physics 2 |
| AGRI 196 | (.5) | Freshman Seminar 2 |
| FDSC 230 | (4) | Organic Chemistry |

6.1.5 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses - Fall (14.5 credits)

| | | |
|----------|------|------------------------|
| AEBI 120 | (3) | General Biology |
| AECH 110 | (4) | General Chemistry 1 |
| AEMA 101 | (3) | Calculus 1 |
| AEPH 112 | (4) | Introductory Physics 1 |
| AGRI 195 | (.5) | Freshman Seminar 1 |

Required Courses - Winter (15.5 credits)

| | | |
|----------|------|------------------------|
| AEBI 122 | (3) | Cell Biology |
| AEMA 102 | (4) | Calculus 2 |
| AEPH 114 | (4) | Introductory Physics 2 |
| AGRI 196 | (.5) | Freshman Seminar 2 |
| FDSC 230 | (4) | Organic Chemistry |

6.2 Bachelor of Science (Agricultural and Environmental Sciences) – B.Sc.(Ag.Env.Sc.)

Please refer to [section 5.3: Bachelor of Science in Agricultural and Environmental Sciences – B.Sc.\(Ag.Env.Sc.\) \(Overview\)](#) for general rules and other information regarding B.Sc.(Ag.Env.Sc.) programs.

6.2.1 B.Sc.(Ag.Env.Sc.) Major and Honours Programs

The faculty offers the following B.Sc.(Ag.Env.Sc.) Major and Honours programs.

The Bieler School of Environment also offers several B.Sc.(Ag.Env.Sc.) programs; for more information, please visit [Bieler School of Environment > Undergraduate > Browse Academic Programs > : Major in Environment - B.Sc.\(Ag.Env.Sc.\) and B.Sc.](#) and [: Honours Program in Environment](#).

6.2.1.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Major Agricultural Economics (42 credits)

The B.Sc.(Agr.Env.Sc.); Major in Agricultural Economics is designed to meet the demand for sustainable development as it relates to the environment and resource use, and the economics and management of the global agriculture and food system. This multidisciplinary program in applied economics involves the application of theory and analytical methods to environmental issues and the agricultural and food system. Training in economic theory and applied areas such as marketing, finance, farm management, public policy, ecology, natural resources, and international development.

Program Prerequisites

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this eCalendar for prerequisites and minimum credit requirements.

Required Courses (36 credits)

| | | |
|----------|-----|---|
| AGEC 200 | (3) | Principles of Microeconomics |
| AGEC 201 | (3) | Principles of Macroeconomics |
| AGEC 231 | (3) | Economic Systems of Agriculture |
| AGEC 320 | (3) | Intermediate Microeconomic Theory |
| AGEC 330 | (3) | Agriculture and Food Markets |
| AGEC 332 | (3) | Farm Management and Finance |
| AGEC 333 | (3) | Resource Economics |
| AGEC 425 | (3) | Applied Econometrics |
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGEC 442 | (3) | Economics of International Agricultural Development |
| ENVB 210 | (3) | The Biophysical Environment |
| MGCR 211 | (3) | Introduction to Financial Accounting |

Complementary Courses (6 credits)

With the approval of the Academic Adviser, one introductory course in each of the following areas:

Statistics

Written/Oral Communication

Specialization (24 credits)

Specializations designed to be taken with the Agricultural Economics Major:

Students taking the Major in Agricultural Economics must take one of the following specializations:

- Agribusiness (24 credits)

- Environmental Economics (24 credits)

Students who take the Specialization in Agribusiness can also take the Specialization in Professional Agrology for Agribusiness (24 credits). Membership to the OAQ requires successful completion of the Agribusiness and Professional Agrology for Agribusiness specializations.

Note: For a complete list of specializations offered for students in the Bachelor of Science in Agricultural and Environmental Sciences, please refer to "Browse Academic Units & Programs > Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.) > Specializations", in this eCalendar.

Electives

To meet the minimum credit requirement for the degree.

6.2.1.2 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Honours Agricultural Economics (42 credits)

This program is currently not offered.

Students can use their electives to complete the Honours program. The courses credited to the Honours program must be in addition to any required or complementary courses taken to satisfy the requirements of the student's major and specialization.

In addition to satisfying the research requirements, students must apply for the Honours program in March or April of their U2 year. It is the responsibility of the student to find a professor who is willing to support and supervise the research project. No student will be accepted into the program until a supervisor has agreed to supervise the student. Applicants must have a minimum CGPA of 3.3 to enter the Honours program and they must earn a B grade (3.0) or higher in the courses making up the Honours program. Students are required to achieve a minimum overall CGPA of 3.3 at graduation to obtain Honours. Students can use their electives to complete the Honours program. The courses credited to the Honours program must be in addition to any required or complementary courses taken to satisfy the requirements of the student's major and specialization.

The Honours program consists of 12 credits of courses that follow one of two plans listed below.

Students who meet all the requirements will have the name of their program changed to include the word "Honours."

A brief description of the research activities involved will be documented and signed by the Program Director of the student's major, the supervisor of the research project, and the student.

Program Prerequisites

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements" in this eCalendar for prerequisites and minimum credit requirements.

Required Courses (33 credits)

| | | |
|----------|-----|---|
| AGEC 200 | (3) | Principles of Microeconomics |
| AGEC 201 | (3) | Principles of Macroeconomics |
| AGEC 231 | (3) | Economic Systems of Agriculture |
| AGEC 320 | (3) | Intermediate Microeconomic Theory |
| AGEC 330 | (3) | Agriculture and Food Markets |
| AGEC 333 | (3) | Resource Economics |
| AGEC 425 | (3) | Applied Econometrics |
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGEC 442 | (3) | Economics of International Agricultural Development |
| AGEC 491 | (3) | Research and Methodology |
| ENVB 210 | (3) | The Biophysical Environment |

Honours Courses

Students choose either Plan A or Plan B.

Honours Plan A

Two 6-credit Honours research courses in the subject area of the student's major, chosen in consultation with the Program Director of the student's major and the professor who has agreed to supervise the research project.

| | | |
|----------|-----|----------------------------|
| FAES 401 | (6) | Honours Research Project 1 |
| FAES 402 | (6) | Honours Research Project 2 |

Honours Plan B

A minimum of two 3-credit Honours courses and 6 credits in 400- or 500-level courses, from the Faculty of Agricultural and Environmental Sciences, selected in consultation with the Program Director of the student's major. The topic of the Honours research project must be on a topic related to their major and selected in consultation with the Program Director of the student's major and the professor who has agreed to supervise the research project.

| | | |
|----------|-----|-------------------|
| FAES 405 | (3) | Honours Project 1 |
| FAES 406 | (3) | Honours Project 2 |

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)*

* Membership to the OAQ requires successful completion of these two specializations.

Note: For a complete list of specializations offered for students in the Bachelor of Science in Agricultural and Environmental Sciences, please refer to "Browse Academic Units & Programs" > "Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.)" > "Specializations" in this eCalendar.

Electives

To meet the minimum credit requirement for the degree.

6.2.1.3 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Major Agro-Environmental Sciences (42 credits)

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 (OAQ).

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Program Prerequisites

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements" in this eCalendar for prerequisites and minimum credit requirements.

Required Courses (36 credits)

| | | |
|----------|-----|---------------------------------|
| AEBI 210 | (3) | Organisms 1 |
| AEMA 310 | (3) | Statistical Methods 1 |
| AGEC 200 | (3) | Principles of Microeconomics |
| AGEC 231 | (3) | Economic Systems of Agriculture |
| AGRI 215 | (3) | Agro-Ecosystems Field Course |
| ANSC 250 | (3) | Principles of Animal Science |
| ENVB 210 | (3) | The Biophysical Environment |
| ENVB 301 | (3) | Meteorology |
| LSCI 204 | (3) | Genetics |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |
| SOIL 315 | (3) | Soil Nutrient Management |

Complementary Courses (6 credits)

6 credits of complementary courses selected as follows:

One of:

| | | |
|----------|-----|---------------------------|
| PLNT 300 | (3) | Cropping Systems |
| PLNT 302 | (3) | Forage Crops and Pastures |

One of:

| | | |
|----------|-----|--------------------------------------|
| ANSC 451 | (3) | Dairy and Beef Production Management |
| ANSC 458 | (3) | Swine and Poultry Production |

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.

6.2.1.4 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Honours Agro-Environmental Sciences (54 credits)

Students can use their electives to complete the Honours program. The courses credited to the Honours program must be in addition to any required or complementary courses taken to satisfy the requirements of the student's Major and Specialization.

In addition to satisfying the Honour requirements, students must apply for the Honours program in March or April of their U2 year. It is the responsibility of the student to find a professor who is willing to support and supervise the research project. No student will be accepted into the program until a supervisor has agreed to supervise the student. Applicants must have a minimum CGPA of 3.3 to enter the Honours program and they must earn a B grade (3.0) or higher in the courses making up the Honours program. Students are required to achieve a minimum overall CGPA of 3.3 at graduation to obtain honours. The Honours program consists of 12 credits of courses that follow one of two plans listed below.

Students who meet all the requirements will have the name of their program changed to include the word "Honours."

A brief description of the Honours project activities involved will be documented and signed by the Program Director of the student's Major, the supervisor of the Honours project, and the student.

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 (OAQ).

Program Prerequisites

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements" in this eCalendar for prerequisites and minimum credit requirements.

Required Courses (36 credits)

| | | |
|----------|-----|---------------------------------|
| AEBI 210 | (3) | Organisms 1 |
| AEMA 310 | (3) | Statistical Methods 1 |
| AGEC 200 | (3) | Principles of Microeconomics |
| AGEC 231 | (3) | Economic Systems of Agriculture |
| AGRI 215 | (3) | Agro-Ecosystems Field Course |
| ANSC 250 | (3) | Principles of Animal Science |
| ENVB 210 | (3) | The Biophysical Environment |
| ENVB 301 | (3) | Meteorology |
| LSCI 204 | (3) | Genetics |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |
| SOIL 315 | (3) | Soil Nutrient Management |

Complementary Courses (18 credits)

3 credits from the following:

| | | |
|----------|-----|---------------------------|
| PLNT 300 | (3) | Cropping Systems |
| PLNT 302 | (3) | Forage Crops and Pastures |

3 credits from the following:

| | | |
|----------|-----|--------------------------------------|
| ANSC 451 | (3) | Dairy and Beef Production Management |
| ANSC 458 | (3) | Swine and Poultry Production |

Honours Courses

12 credits of Honours Plan A or Plan B

Honours Plan A

12 credits of Honours research courses in the subject area of the student's Major, chosen in consultation with the Program Director of the student's Major and the professor who has agreed to supervise the research project.

| | | |
|----------|-----|----------------------------|
| AGRI 401 | (6) | Honours Research Project 1 |
| AGRI 402 | (6) | Honours Research Project 2 |

Honours Plan B

6 credits of Honours project courses in the subject area of the student's Major as well as 6 credits in 400- or 500-level courses, normally selected from the Faculty of Agricultural and Environmental Sciences, in consultation with the Program Director of the student's Major and the professor who has agreed to supervise the project.

| | | |
|----------|-----|-------------------|
| AGRI 405 | (3) | Honours Project 1 |
| AGRI 406 | (3) | Honours Project 2 |

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*

* 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.

6.2.1.5 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Major Environmental Biology (42 credits)

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Program Prerequisites

Please refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this eCalendar for information on prerequisites and minimum credit requirements.

Required Courses (36 credits)

| | | |
|----------|-----|----------------------------------|
| AEBI 210 | (3) | Organisms 1 |
| AEBI 211 | (3) | Organisms 2 |
| AEBI 212 | (3) | Evolution and Phylogeny |
| AEHM 205 | (3) | Science Literacy |
| AEMA 310 | (3) | Statistical Methods 1 |
| ENVB 210 | (3) | The Biophysical Environment |
| ENVB 222 | (3) | St. Lawrence Ecosystems |
| ENVB 305 | (3) | Population and Community Ecology |
| ENVB 410 | (3) | Ecosystem Ecology |
| LSCI 204 | (3) | Genetics |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |

Complementary Courses (6 credits)

6 credits of complementary courses selected from:

| | | |
|----------|-----|--------------------------------|
| ENTO 330 | (3) | Insect Biology |
| ENVB 301 | (3) | Meteorology |
| ENVB 313 | (3) | Phylogeny and Biogeography |
| ENVB 437 | (3) | Assessing Environmental Impact |
| ENVB 497 | (3) | Research Project 1 |
| ENVB 498 | (3) | Research Project 2 |
| FAES 300 | (3) | Internship 2 |
| MICR 331 | (3) | Microbial Ecology |
| PLNT 304 | (3) | Biology of Fungi |
| PLNT 358 | (3) | Flowering Plant Diversity |
| PLNT 460 | (3) | Plant Ecology |
| SOIL 300 | (3) | Geosystems |
| WILD 302 | (3) | Fish Ecology |
| WILD 307 | (3) | Natural History of Vertebrates |
| WOOD 441 | (3) | Integrated Forest Management |

Specialization

At least one specialization of 18-24 credits.

Specializations designed to be taken with the Environmental Biology Major:

- Applied Ecology
- 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 "Browse Academic Units & Programs" > "Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.)" > "Specializations", in this eCalendar. Consult the Academic Adviser for approval of specializations other than those listed above.

Electives

To meet the minimum credit requirement for the degree.

6.2.1.6 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Honours Environmental Biology (54 credits)

Students can use their electives to complete the Honours program. The courses credited to the Honours program must be in addition to any required or complementary courses taken to satisfy the requirements of the student's Major and Specialization.

In addition to satisfying the Honours requirements, students must apply for the Honours program in March or April of their U2 year. It is the responsibility of the student to find a professor who is willing to support and supervise the research project. No student will be accepted into the program until a supervisor has agreed to supervise the student. Applicants must have a minimum CGPA of 3.3 to enter the Honours program and they must earn a B grade (3.0) or higher in the courses making up the Honours program. Students are required to achieve a minimum overall CGPA of 3.3 at graduation to obtain honours.

The Honours program consists of 12 credits of courses that follow one of two plans listed below.

Students who meet all the requirements will have the name of their program changed to include the word "Honours."

A brief description of the Honours project activities involved will be documented and signed by the Program Director of the student's Major, the supervisor of the Honours project, and the student.

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 Prerequisites

Please refer to "Faculty Information and Regulations" > "Minimum Credit Requirements" in this eCalendar for information on prerequisites and minimum credit requirements.

Required Courses (36 credits)

| | | |
|----------|-----|----------------------------------|
| AEBI 210 | (3) | Organisms 1 |
| AEBI 211 | (3) | Organisms 2 |
| AEBI 212 | (3) | Evolution and Phylogeny |
| AEHM 205 | (3) | Science Literacy |
| AEMA 310 | (3) | Statistical Methods 1 |
| ENVB 210 | (3) | The Biophysical Environment |
| ENVB 222 | (3) | St. Lawrence Ecosystems |
| ENVB 305 | (3) | Population and Community Ecology |
| ENVB 410 | (3) | Ecosystem Ecology |
| LSCI 204 | (3) | Genetics |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |

Complementary Courses (18 credits)

6 credits from the following:

| | | |
|----------|-----|-------------------------------------|
| ENTO 330 | (3) | Insect Biology |
| ENVB 301 | (3) | Meteorology |
| ENVB 313 | (3) | Phylogeny and Biogeography |
| ENVB 437 | (3) | Assessing Environmental Impact |
| ENVB 497 | (3) | Research Project 1 |
| ENVB 498 | (3) | Research Project 2 |
| ENVB 529 | (3) | GIS for Natural Resource Management |
| FAES 300 | (3) | Internship 2 |
| MICR 331 | (3) | Microbial Ecology |
| PLNT 304 | (3) | Biology of Fungi |
| PLNT 358 | (3) | Flowering Plant Diversity |
| PLNT 460 | (3) | Plant Ecology |
| SOIL 300 | (3) | Geosystems |
| WILD 302 | (3) | Fish Ecology |
| WILD 307 | (3) | Natural History of Vertebrates |
| WOOD 441 | (3) | Integrated Forest Management |

Honours Courses

12 credits of Honours Plan A or Plan B:

Honours Plan A

12 credits of Honours research courses in the subject area of the student's Major, chosen in consultation with the Program Director of the student's Major and the professor who has agreed to supervise the research project.

| | | |
|----------|-----|----------------------------|
| ENVB 401 | (6) | Honours Research Project 1 |
| ENVB 402 | (6) | Honours Research Project 2 |

OR

Honours Plan B

6 credits of Honours project courses in the subject area of the student's Major as well as 6 credits in 400- or 500-level courses, normally selected from the Faculty of Agricultural and Environmental Sciences, in consultation with the Program Director of the student's Major and the professor who has agreed to supervise the project.

| | | |
|----------|-----|-------------------|
| ENVB 405 | (3) | Honours Project 1 |
| ENVB 406 | (3) | Honours Project 2 |

Specialization

At least one specialization of 18-24 credits.

Specializations designed to be taken with the Environmental Biology Major:

- Applied Ecology
- 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 "Browse Academic Units & Programs" > "Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.)" > "Specializations" in this eCalendar. Consult the Academic Adviser for approval of specializations other than those listed above.

Electives

To meet the minimum credit requirement for the degree.

6.2.1.7 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Major Global Food Security (42 credits)

The program provides a global perspective on agriculture and food security, and addresses issues related to rural development, malnutrition, poverty and food safety with special emphasis on the developing world. Using a multidimensional and multidisciplinary approach, the program provides students with a comprehensive set of courses at McGill in combination with hands-on experience through structured internships and study abroad opportunities. The field experience (short courses, internships or full semester) includes project development in local communities, observing subsistence agriculture in situ and participating in various activities which sensitize students to the challenges that countries face to feed their people. Students will have the opportunity to develop the knowledge base needed for successful careers in government, non-government and international institutions in the areas of international and sustainable development, international research and project management, agri-business, and food and agriculture policy analysis.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Program Prerequisites

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

Required Courses (33 credits)

| | | |
|----------|-----|---|
| AEBI 210 | (3) | Organisms 1 |
| AEMA 310 | (3) | Statistical Methods 1 |
| AGEC 200 | (3) | Principles of Microeconomics |
| AGEC 442 | (3) | Economics of International Agricultural Development |
| AGRI 411 | (3) | Global Issues on Development, Food and Agriculture |
| AGRI 493 | (3) | International Project Management |
| ANSC 250 | (3) | Principles of Animal Science |
| ENVB 210 | (3) | The Biophysical Environment |
| INTD 200 | (3) | Introduction to International Development |
| NUTR 207 | (3) | Nutrition and Health |
| NUTR 341 | (3) | Global Food Security |

Complementary Courses (9 credits)

| | | |
|----------|-----|------------------------------|
| AGRI 215 | (3) | Agro-Ecosystems Field Course |
|----------|-----|------------------------------|

| | | |
|----------|-----|---|
| AGRI 340 | (3) | Principles of Ecological Agriculture |
| AGRI 499 | (3) | Agricultural Development Internship |
| ANSC 420 | (3) | Animal Biotechnology |
| BREE 217 | (3) | Hydrology and Water Resources |
| FDSC 310 | (3) | Post Harvest Fruit and Vegetable Technology |
| NRSC 221 | (3) | Environment and Health |
| NUTR 501 | (3) | Nutrition in Developing Countries |
| PLNT 300 | (3) | Cropping Systems |
| PLNT 435 | (3) | Plant Breeding |
| SOIL 315 | (3) | Soil Nutrient Management |
| SOIL 326 | (3) | Soils in a Changing Environment |

Specialization (24 credits)

Students must also complete at least one Specialization of 24 credits.

6.2.1.8 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Honours Global Food Security (54 credits)

Students can use their electives to complete the Honours program. The courses credited to the Honours program must be in addition to any required or complementary courses taken to satisfy the requirements of the student's Major and Specialization.

In addition to satisfying the Honours requirements, students must apply for the Honours program in March or April of their U2 year. It is the responsibility of the student to find a professor who is willing to support and supervise the research project. No student will be accepted into the program until a supervisor has agreed to supervise the student. Applicants must have a minimum CGPA of 3.3 to enter the Honours program and they must earn a B grade (3.0) or higher in the courses making up the Honours program. Students are required to achieve a minimum overall CGPA of 3.3 at graduation to obtain honours. Students can use their electives to complete the Honours program. The courses credited to the Honours program must be in addition to any required or complementary courses taken to satisfy the requirements of the student's major and specialization.

The Honours program consists of 12 credits of courses that follow one of two plans listed below.

Students who meet all the requirements will have the name of their program changed to include the word "Honours."

A brief description of the Honours project activities involved will be documented and signed by the Program Director of the student's Major, the supervisor of the Honours project, and the student.

The program provides a global perspective on agriculture and food security, and addresses issues related to rural development, malnutrition, poverty and food safety with special emphasis on the developing world. Using a multidimensional and multidisciplinary approach, the program provides students with a comprehensive set of courses at McGill in combination with hands-on experience through structured internships and study abroad opportunities. The field experience (short courses, internships, or full semester) includes project development in local communities, observing subsistence agriculture in situ, and participating in various activities which sensitize students to the challenges that countries face to feed their people. Students will have the opportunity to develop the knowledge base needed for successful careers in government, non-government, and international institutions in the areas of international and sustainable development, international research and project management, agri-business, and food and agriculture policy analysis.

Program Prerequisites

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements" in this eCalendar for prerequisites and minimum credit requirements.

Required Courses (33 credits)

| | | |
|----------|-----|---|
| AEBI 210 | (3) | Organisms 1 |
| AEMA 310 | (3) | Statistical Methods 1 |
| AGEC 200 | (3) | Principles of Microeconomics |
| AGEC 442 | (3) | Economics of International Agricultural Development |
| AGRI 411 | (3) | Global Issues on Development, Food and Agriculture |
| AGRI 493 | (3) | International Project Management |
| ANSC 250 | (3) | Principles of Animal Science |
| ENVB 210 | (3) | The Biophysical Environment |
| INTD 200 | (3) | Introduction to International Development |

| | | |
|----------|-----|----------------------|
| NUTR 207 | (3) | Nutrition and Health |
| NUTR 341 | (3) | Global Food Security |

Complementary Courses (21 credits)

9 credits from the following:

| | | |
|----------|-----|---|
| AGRI 215 | (3) | Agro-Ecosystems Field Course |
| AGRI 340 | (3) | Principles of Ecological Agriculture |
| AGRI 499 | (3) | Agricultural Development Internship |
| ANSC 420 | (3) | Animal Biotechnology |
| BREE 217 | (3) | Hydrology and Water Resources |
| FDSC 310 | (3) | Post Harvest Fruit and Vegetable Technology |
| NRSC 221 | (3) | Environment and Health |
| NUTR 501 | (3) | Nutrition in Developing Countries |
| PLNT 300 | (3) | Cropping Systems |
| PLNT 435 | (3) | Plant Breeding |
| SOIL 315 | (3) | Soil Nutrient Management |
| SOIL 326 | (3) | Soils in a Changing Environment |

Honours Courses

12 credits of Honours Plan A or Plan B:

Honours Plan A

Two 6-credit Honours research courses in the subject area of the student's major, chosen in consultation with the Program Director of the student's major and the professor who has agreed to supervise the research project.

| | | |
|----------|-----|----------------------------|
| FAES 401 | (6) | Honours Research Project 1 |
| FAES 402 | (6) | Honours Research Project 2 |

OR

Honours Plan B

A minimum of two 3-credit Honours courses and 6 credits in 400- or 500-level courses, from the Faculty of Agricultural and Environmental Sciences, selected in consultation with the Program Director of the student's major. The topic of the Honours research project must be on a topic related to their major and selected in consultation with the Program Director of the student's major and the professor who has agreed to supervise the research project.

| | | |
|----------|-----|-------------------|
| FAES 405 | (3) | Honours Project 1 |
| FAES 406 | (3) | Honours Project 2 |

Specialization (24 credits)

Students must also complete at least one Specialization of 24 credits.

6.2.1.9 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Major Life Sciences (Biological and Agricultural) (42 credits)

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Program Prerequisites

Please refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this eCalendar for prerequisites and minimum credit requirements.

Default Specialization: Students who do not select a Specialization will automatically be assigned to the Life Sciences (Multidisciplinary) Specialization upon entering U2.

Required Courses (33 credits)

* Other appropriate Statistics courses may be approved as substitutes by the Program Director.

| | | |
|-----------|-----|------------------------------|
| AEBI 210 | (3) | Organisms 1 |
| AEBI 211 | (3) | Organisms 2 |
| AEBI 212 | (3) | Evolution and Phylogeny |
| AEHM 205 | (3) | Science Literacy |
| AEMA 310* | (3) | Statistical Methods 1 |
| ANSC 400 | (3) | Eukaryotic Cells and Viruses |
| LSCI 202 | (3) | Molecular Cell Biology |
| LSCI 204 | (3) | Genetics |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |
| PARA 438 | (3) | Immunology |

Complementary Courses (9 credits)

9 credits of the complementary courses selected from:

| | | |
|----------|-----|--|
| 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 420 | (3) | Animal Biotechnology |
| BINF 511 | (3) | Bioinformatics for Genomics |
| BTEC 306 | (3) | Experiments in Biotechnology |
| ENVB 210 | (3) | The Biophysical Environment |
| ENVB 222 | (3) | St. Lawrence Ecosystems |
| FAES 300 | (3) | Internship 2 |
| 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 |
| PARA 424 | (3) | Fundamental Parasitology |
| PLNT 304 | (3) | Biology of Fungi |
| PLNT 353 | (3) | Plant Structure and Function |

| | | |
|----------|-----|---------------------|
| PLNT 426 | (3) | Plant Ecophysiology |
| PLNT 435 | (3) | Plant Breeding |

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 "Browse Academic Units & Programs" > "Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.)" > "Specializations" in this eCalendar.

Electives

To meet the minimum credit requirement for the degree.

6.2.1.10 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Honours Life Sciences (Biological and Agricultural) (54 credits)

Students must apply for the Honours program in March or April of their U2 year. It is the responsibility of the student to find a professor who is willing to support and supervise the research project. No student will be accepted into the program until a supervisor has agreed to supervise the student. Applicants must have a minimum CGPA of 3.3 to enter the Honours program and they must earn a B grade (3.0) or higher in the courses making up the Honours program. Students are required to achieve a minimum overall CGPA of 3.3 at graduation to obtain Honours.

Students who meet all the requirements will have the name of their program changed to include the word "Honours."

A brief description of the Honours project activities involved will be documented and signed by the Program Director of the student's Major, the supervisor of the Honours project, and the student.

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Program Prerequisites

Please refer to "Faculty Information and Regulations" > "Minimum Credit Requirements" in this eCalendar for prerequisites and minimum credit requirements.

Required Courses (45 credits)

* Other appropriate Statistics courses may be approved as substitutes by the Program Director.

| | | |
|-----------|-----|------------------------------|
| AEBI 210 | (3) | Organisms 1 |
| AEBI 211 | (3) | Organisms 2 |
| AEBI 212 | (3) | Evolution and Phylogeny |
| AEHM 205 | (3) | Science Literacy |
| AEMA 310* | (3) | Statistical Methods 1 |
| ANSC 400 | (3) | Eukaryotic Cells and Viruses |
| LSCI 202 | (3) | Molecular Cell Biology |
| LSCI 204 | (3) | Genetics |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |
| LSCI 401 | (6) | Honours Research Project 1 |
| LSCI 402 | (6) | Honours Research Project 2 |
| PARA 438 | (3) | Immunology |

Complementary Courses (9 credits)

9 credits of the complementary courses selected from:

| | | |
|----------|-----|--|
| 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 420 | (3) | Animal Biotechnology |
| 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 |
| PARA 424 | (3) | Fundamental Parasitology |
| PLNT 304 | (3) | Biology of Fungi |
| PLNT 353 | (3) | Plant Structure and Function |
| PLNT 426 | (3) | Plant Ecophysiology |
| PLNT 435 | (3) | Plant Breeding |

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
- Plant Science

Note: For a complete list of specializations offered for students in the Bachelor of Science in Agricultural and Environmental Sciences, please refer to "Browse Academic Units & Programs" > "Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.)" > "Specializations" in this eCalendar.

Electives

To meet the minimum credit requirement for the degree.

6.2.2 Specializations

The faculty offers the following specializations, to be paired with a B.Sc.(Ag.Env.Sc.) major. Each major program description has a list of suggested specializations. A different specialization may be selected following a consultation with your academic adviser.

6.2.2.1 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (12 credits)

| | | |
|----------|-----|------------------------------|
| AEBI 210 | (3) | Organisms 1 |
| AGEC 450 | (3) | Agribusiness Management |
| AGEC 491 | (3) | Research and Methodology |
| ANSC 250 | (3) | Principles of Animal Science |

Complementary Courses (12 credits)

9 credits chosen from the following list:

| | | |
|----------|-----|--|
| ACCT 361 | (3) | Management Accounting |
| AGRI 310 | (3) | Internship in Agriculture/Environment |
| BUSA 364 | (3) | Business Law 1 |
| MGCR 222 | (3) | Introduction to Organizational Behaviour |
| MGCR 331 | (3) | Information Technology Management |
| MGCR 341 | (3) | Introduction to Finance |
| MGCR 352 | (3) | Principles of Marketing |
| MGCR 382 | (3) | International Business |
| ORGB 321 | (3) | Leadership |

3 credits of a course in Animal Production or Plant Production approved by the Adviser.

6.2.2.2 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Animal Biology (24 credits)

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (15 credits)

| | | |
|----------|-----|--|
| ANSC 312 | (3) | Animal Health and Disease |
| ANSC 323 | (3) | Mammalian Physiology |
| ANSC 324 | (3) | Developmental Biology and Reproduction |
| ANSC 420 | (3) | Animal Biotechnology |
| PARA 438 | (3) | Immunology |

Complementary Courses (9 credits)

9 credits selected from:

| | | |
|----------|-----|---------------------|
| ANSC 234 | (3) | Biochemistry 2 |
| ANSC 251 | (3) | Comparative Anatomy |

| | | |
|----------|-----|-------------------------------------|
| ANSC 326 | (3) | Fundamentals of Population Genetics |
| ANSC 400 | (3) | Eukaryotic Cells and Viruses |
| ANSC 424 | (3) | Metabolic Endocrinology |
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 555 | (3) | The Use and Welfare of Animals |
| ANSC 560 | (3) | Biology of Lactation |
| ANSC 565 | (3) | Applied Information Systems |
| LSCI 451 | (3) | Research Project 1 |

6.2.2.3 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Animal Health and Disease (24 credits)

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (18 credits)

| | | |
|----------|-----|-----------------------------|
| ANSC 312 | (3) | Animal Health and Disease |
| ANSC 323 | (3) | Mammalian Physiology |
| ANSC 350 | (3) | Food-Borne Pathogens |
| ANSC 424 | (3) | Metabolic Endocrinology |
| MICR 341 | (3) | Mechanisms of Pathogenicity |
| PARA 424 | (3) | Fundamental Parasitology |

Complementary Courses (6 credits)

6 credits of complementary courses selected from:

| | | |
|----------|-----|--|
| ANSC 234 | (3) | Biochemistry 2 |
| ANSC 251 | (3) | Comparative Anatomy |
| ANSC 303 | (2) | Farm Livestock Internship |
| ANSC 324 | (3) | Developmental Biology and Reproduction |
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 555 | (3) | The Use and Welfare of Animals |
| FAES 371 | (1) | Special Topics 01 |

6.2.2.4 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Animal Production (24 credits)

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (24 credits)

| | | |
|----------|-----|-------------------------------|
| ANSC 234 | (3) | Biochemistry 2 |
| 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 and Metabolism |
| ANSC 451 | (3) | Dairy and Beef Production Management |
| ANSC 458 | (3) | Swine and Poultry Production |

6.2.2.5 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Applied Ecology (24 credits)

Food, water, air, the materials we use, and much of the diversity of life and recreation we enjoy are products of ecological systems. We manage ecosystems to provide these services and our use and mis-use often degrades the ability of ecosystems to provide the benefits and services we value. In the Applied Ecology specialization you will develop your ability to understand how ecosystems function. You will apply systems thinking to the challenge of managing ecosystems for agriculture, forestry, fisheries, protected areas and urban development. You will learn concepts and tools that help you to deal with the complexity that an ecosystem perspective brings. 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (9 credits)

| | | |
|----------|-----|-------------------------------------|
| ENVB 305 | (3) | Population and Community Ecology |
| ENVB 437 | (3) | Assessing Environmental Impact |
| ENVB 529 | (3) | GIS for Natural Resource Management |

Complementary Courses (15 credits)

15 credits selected from the following:

| | | |
|----------|-----|--|
| AGRI 340 | (3) | Principles of Ecological Agriculture |
| AGRI 435 | (3) | Soil and Water Quality Management |
| BREE 327 | (3) | Bio-Environmental Engineering |
| ENTO 330 | (3) | Insect Biology |
| ENTO 340 | (3) | Field Entomology |
| ENVB 301 | (3) | Meteorology |
| ENVB 313 | (3) | Phylogeny and Biogeography |
| ENVB 415 | (3) | Ecosystem Management |
| ENVB 500 | (3) | Advanced Topics in Ecotoxicology |
| ENVB 506 | (3) | Quantitative Methods: Ecology |
| ENVB 530 | (3) | Advanced GIS for Natural Resource Management |
| MICR 331 | (3) | Microbial Ecology |
| MICR 450 | (3) | Environmental Microbiology |
| PLNT 304 | (3) | Biology of Fungi |
| PLNT 426 | (3) | Plant Ecophysiology |
| PLNT 460 | (3) | Plant Ecology |
| SOIL 300 | (3) | Geosystems |
| SOIL 326 | (3) | Soils in a Changing Environment |
| SOIL 535 | (3) | Soil Ecology |
| WILD 302 | (3) | Fish Ecology |
| WILD 307 | (3) | Natural History of Vertebrates |
| WILD 350 | (3) | Mammalogy |
| WILD 420 | (3) | Ornithology |

WILD 421 (3) Wildlife Conservation

6.2.2.6 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Ecological Agriculture (24 credits)

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (12 credits)

| | | |
|----------|-----|---------------------------------------|
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGRI 215 | (3) | Agro-Ecosystems Field Course |
| AGRI 340 | (3) | Principles of Ecological Agriculture |
| SOIL 535 | (3) | Soil Ecology |

Complementary Courses (12 credits)

Minimum of 6 agronomic credits from:

| | | |
|----------|-----|--|
| AGRI 310 | (3) | Internship in Agriculture/Environment |
| AGRI 411 | (3) | Global Issues on Development, Food and Agriculture |
| ANSC 312 | (3) | Animal Health and Disease |
| BREE 327 | (3) | Bio-Environmental Engineering |
| ENTO 352 | (3) | Biocontrol of Pest Insects |
| PLNT 307 | (3) | Agroecology of Vegetables and Fruits |
| PLNT 312 | (3) | Urban Horticulture |
| PLNT 434 | (3) | Weed Biology and Control |

Other complementary courses:

| | | |
|----------|-----|------------------------------|
| MICR 331 | (3) | Microbial Ecology |
| NUTR 341 | (3) | Global Food Security |
| PLNT 302 | (3) | Forage Crops and Pastures |
| PLNT 460 | (3) | Plant Ecology |
| WOOD 441 | (3) | Integrated Forest Management |

6.2.2.7 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (12 credits)

| | | |
|----------|-----|----------------------------------|
| AGEC 491 | (3) | Research and Methodology |
| ENVB 305 | (3) | Population and Community Ecology |
| ENVB 437 | (3) | Assessing Environmental Impact |
| ENVB 506 | (3) | Quantitative Methods: Ecology |

Complementary Courses (12 credits)

12 credits chosen from the following list:

| | | |
|----------|-----|---------------------------------------|
| AGRI 310 | (3) | Internship in Agriculture/Environment |
| BREE 217 | (3) | Hydrology and Water Resources |
| BREE 327 | (3) | Bio-Environmental Engineering |
| ECON 225 | (3) | Economics of the Environment |
| ECON 326 | (3) | Ecological Economics |
| ECON 405 | (3) | Natural Resource Economics |
| ENVB 222 | (3) | St. Lawrence Ecosystems |
| ENVB 301 | (3) | Meteorology |
| ENVB 529 | (3) | GIS for Natural Resource Management |
| ENVR 203 | (3) | Knowledge, Ethics and Environment |
| MGPO 440 | (3) | Strategies for Sustainability |
| MICR 331 | (3) | Microbial Ecology |
| NRSC 333 | (3) | Pollution and Bioremediation |
| WILD 421 | (3) | Wildlife Conservation |

6.2.2.8 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - International Agriculture (24 credits)

Students enter this specialization to acquire a global and applied understanding of agriculture as a fundamental tool to help rural development, alleviate poverty and reach food security, especially in the developing world. This program provides students with a combination of coursework at McGill together with a hands-on experience in a developing country, meeting locals and attending courses with McGill professors and/or local instructors. The costs of these field experiences may vary. The field experience (semester, short course or internship) includes developing projects in local communities, observing subsistence agriculture in situ and participating in various activities which contribute to sensitizing the students to the challenges that developing countries face. Students study water resources, sustainable development, nutrition, planning and development, and a host of other fascinating topics, allowing them to sharpen their skills for future career opportunities.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

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)

Students select either Option A or Option B.

Option A

18 credits from the following:

| | | |
|----------|-----|---|
| AGEC 333 | (3) | Resource Economics |
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGRI 215 | (3) | Agro-Ecosystems Field Course |
| AGRI 325 | (3) | Sustainable Agriculture and Food Security |
| AGRI 499 | (3) | Agricultural Development Internship |
| BREE 510 | (3) | Watershed Systems Management |
| ENVB 437 | (3) | Assessing Environmental Impact |
| FDSC 525 | (3) | Food Quality Assurance |
| NUTR 501 | (3) | Nutrition in Developing Countries |

| | | |
|----------|-----|------------------------------|
| PARA 410 | (3) | Environment and Infection |
| PARA 515 | (3) | Water, Health and Sanitation |
| PLNT 300 | (3) | Cropping Systems |

Option B

15 credits from any of the McGill Field Study Semesters

African Field Study Semester

Barbados Field Study Semester

Barbados Interdisciplinary Tropical Studies Field Semester

Panama Field Study Semester

3 credits from the list in Option A

6.2.2.9 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Life Sciences (Multidisciplinary) (24 credits)

Students taking this specialization have a wide variety of Life Sciences course offerings to choose from, which 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Complementary Courses (24 credits)

24 credits selected from the following list:

| | | |
|----------|-----|--|
| 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 350 | (3) | Food-Borne Pathogens |
| ANSC 420 | (3) | Animal Biotechnology |
| ANSC 424 | (3) | Metabolic Endocrinology |
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 560 | (3) | Biology of Lactation |
| ANSC 565 | (3) | Applied Information Systems |
| BINF 511 | (3) | Bioinformatics for Genomics |
| BTEC 306 | (3) | Experiments in Biotechnology |
| BTEC 535 | (3) | Functional Genomics in Model Organisms |
| BTEC 555 | (3) | Structural Bioinformatics |
| ENTO 330 | (3) | Insect Biology |
| ENTO 352 | (3) | Biocontrol of Pest Insects |
| ENVB 301 | (3) | Meteorology |
| ENVB 305 | (3) | Population and Community Ecology |
| ENVB 313 | (3) | Phylogeny and Biogeography |
| ENVB 506 | (3) | Quantitative Methods: Ecology |
| ENVB 529 | (3) | GIS for Natural Resource Management |
| FDSC 442 | (3) | Food Microbiology |

| | | |
|----------|-----|---------------------------------|
| MICR 331 | (3) | Microbial Ecology |
| MICR 338 | (3) | Bacterial Molecular Genetics |
| MICR 341 | (3) | Mechanisms of Pathogenicity |
| MICR 450 | (3) | Environmental Microbiology |
| NUTR 337 | (3) | Nutrition Through Life |
| NUTR 512 | (3) | Herbs, Foods and Phytochemicals |
| PARA 410 | (3) | Environment and Infection |
| PARA 424 | (3) | Fundamental Parasitology |
| PARA 515 | (3) | Water, Health and Sanitation |
| PLNT 304 | (3) | Biology of Fungi |
| PLNT 305 | (3) | Plant Pathology |
| PLNT 310 | (3) | Plant Propagation |
| PLNT 353 | (3) | Plant Structure and Function |
| PLNT 358 | (3) | Flowering Plant Diversity |
| PLNT 426 | (3) | Plant Ecophysiology |
| PLNT 434 | (3) | Weed Biology and Control |
| PLNT 435 | (3) | Plant Breeding |
| PLNT 460 | (3) | Plant Ecology |

6.2.2.10 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Microbiology and Molecular Biotechnology (24 credits)

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 post-graduate studies or professional biomedical schools.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (18 credits)

| | | |
|----------|-----|------------------------------|
| BTEC 306 | (3) | Experiments in Biotechnology |
| MICR 331 | (3) | Microbial Ecology |
| MICR 338 | (3) | Bacterial Molecular Genetics |
| MICR 341 | (3) | Mechanisms of Pathogenicity |
| MICR 450 | (3) | Environmental Microbiology |
| PARA 424 | (3) | Fundamental Parasitology |

Complementary Courses and Suggested Electives (6 credits)

| | | |
|----------|-----|--|
| ANSC 350 | (3) | Food-Borne Pathogens |
| ANSC 420 | (3) | Animal Biotechnology |
| BINF 511 | (3) | Bioinformatics for Genomics |
| BTEC 501 | (3) | Bioinformatics |
| BTEC 535 | (3) | Functional Genomics in Model Organisms |
| BTEC 555 | (3) | Structural Bioinformatics |
| FDSC 442 | (3) | Food Microbiology |
| MIMM 324 | (3) | Fundamental Virology |

PLNT 304 (3) Biology of Fungi

6.2.2.11 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Plant Biology (24 credits)

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (9 credits)

PLNT 353 (3) Plant Structure and Function
 PLNT 358 (3) Flowering Plant Diversity
 PLNT 426 (3) Plant Ecophysiology

Complementary Courses (15 credits)

15 credits of complementary courses selected from:

ANSC 326 (3) Fundamentals of Population Genetics
 BINF 511 (3) Bioinformatics for Genomics
 ENVB 313 (3) Phylogeny and Biogeography
 PLNT 304 (3) Biology of Fungi
 PLNT 305 (3) Plant Pathology
 PLNT 310 (3) Plant Propagation
 PLNT 435 (3) Plant Breeding
 PLNT 460 (3) Plant Ecology

6.2.2.12 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Plant Production (24 credits)

This specialization provides students with 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 are prepared for employment in horticulture or in field crop development, production, and management, in government services, extension, teaching and consulting; or for graduate and 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (18 credits)

PLNT 300 (3) Cropping Systems
 PLNT 305 (3) Plant Pathology
 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
 ENTO 352 (3) Biocontrol of Pest Insects

| | | |
|----------|-----|--------------------------------------|
| 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 |
| SOIL 535 | (3) | Soil Ecology |

6.2.2.13 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Professional Agrology (24 credits)

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 Resources. This Specialization focuses on working in the professional agrology industry and covers agricultural legislation as well as professional conduct.

The credits within this specialization may not count towards the student's Major or other Specialization. All of the 24 credits count only for this Specialization.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>.

Required Courses (15 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 |
| PLNT 430 | (3) | Pesticides in Agriculture |

Complementary Courses (9 credits)

Students choose 9 complementary credits, approved by the Academic Adviser, in agricultural sciences or applied agriculture to meet the requirements of the OAQ.

6.2.2.14 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Professional Agrology for Agribusiness (24 credits)

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 in Agricultural Economics and the Agribusiness Specialization. This Specialization focuses on working in the professional agribusiness industry and covers agricultural legislation as well as professional conduct.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>.

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 (12 credits)

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 |

6.2.2.15 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Soil and Water Resources (24 credits)

** This program is currently not offered. **

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (15 credits)

| | | |
|----------|-----|-----------------------------------|
| AGRI 435 | (3) | Soil and Water Quality Management |
| BREE 217 | (3) | Hydrology and Water Resources |
| SOIL 326 | (3) | Soils in a Changing Environment |
| SOIL 331 | (3) | Environmental Soil Physics |
| SOIL 535 | (3) | Soil Ecology |

Complementary Courses (9 credits)

* Note: Students may take BREE 529 or ENVB 529, but not both.

| | | |
|-----------|-----|-------------------------------------|
| BREE 322 | (3) | Organic Waste Management |
| BREE 327 | (3) | Bio-Environmental Engineering |
| BREE 510* | (3) | Watershed Systems Management |
| BREE 529* | (3) | GIS for Natural Resource Management |
| ENVB 529* | (3) | GIS for Natural Resource Management |
| NRSC 333 | (3) | Pollution and Bioremediation |
| SOIL 300 | (3) | Geosystems |
| SOIL 510 | (3) | Environmental Soil Chemistry |

6.2.2.16 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Wildlife Biology (24 credits)

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (15 credits)

| | | |
|----------|-----|-------------------------------------|
| ENVB 529 | (3) | GIS for Natural Resource Management |
| WILD 307 | (3) | Natural History of Vertebrates |

| | | |
|----------|-----|-----------------------------------|
| WILD 350 | (3) | Mammalogy |
| WILD 401 | (3) | Fisheries and Wildlife Management |
| WILD 420 | (3) | Ornithology |

Complementary Courses (9 credits)

9 credits from the following:

| | | |
|----------|-----|--------------------------------|
| BIOL 307 | (3) | Behavioural Ecology |
| BIOL 427 | (3) | Herpetology |
| ENVB 437 | (3) | Assessing Environmental Impact |
| ENVB 506 | (3) | Quantitative Methods: Ecology |
| PARA 424 | (3) | Fundamental Parasitology |
| PLNT 358 | (3) | Flowering Plant Diversity |
| WILD 302 | (3) | Fish Ecology |
| WILD 421 | (3) | Wildlife Conservation |
| WILD 475 | (3) | Desert Ecology |

6.3 Bachelor of Engineering (Bioresource) – B.Eng.(Bioresource)

For more information on this major, please see [section 5.4: Bachelor of Engineering in Bioresource Engineering – B.Eng.\(Bioresource\) \(Overview\)](#).

6.3.1 Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) - Major Bioresource Engineering (113 credits)

The B.Eng.(Bioresource); Major in Bioresource Engineering program focuses on biological, agricultural, food, environmental areas, and applying professional engineering skills to biological systems. The design and implementation of technology for the creation of bio-based products, including food, fiber, fuel, and biomaterials, while sustaining a healthful environment. Graduates of this program are eligible for registration as professional engineers in any province across Canada, as well as in some international jurisdictions.

Required Courses (62 credits)

| | | |
|----------|-----|--|
| AEMA 202 | (3) | Intermediate Calculus |
| AEMA 305 | (3) | Differential Equations |
| BREE 205 | (3) | Engineering Design I |
| BREE 210 | (3) | Mechanical Analysis and Design |
| BREE 216 | (3) | Bioresource Engineering Materials |
| BREE 252 | (3) | Computing for Engineers |
| BREE 301 | (3) | Biothermodynamics |
| BREE 305 | (3) | Fluid Mechanics |
| BREE 312 | (3) | Electric Circuits and Machines |
| BREE 319 | (3) | Engineering Mathematics |
| BREE 327 | (3) | Bio-Environmental Engineering |
| BREE 341 | (3) | Mechanics of Materials |
| BREE 415 | (3) | Design of Machines and Structural Elements |
| BREE 420 | (3) | Engineering for Sustainability |
| BREE 451 | (1) | Undergraduate Seminar 1 - Oral Presentation |
| BREE 452 | (1) | Undergraduate Seminar 2 Poster Presentation |
| BREE 453 | (1) | Undergraduate Seminar 3 - Scientific Writing |

| | | |
|----------|-----|---|
| BREE 485 | (1) | Senior Undergraduate Seminar 1 |
| BREE 490 | (3) | Engineering Design 2 |
| BREE 495 | (3) | Engineering Design 3 |
| BREE 504 | (3) | Instrumentation and Control |
| FACC 250 | (0) | Responsibilities of the Professional Engineer |
| FACC 300 | (3) | Engineering Economy |
| FACC 400 | (1) | Engineering Professional Practice |
| MECH 289 | (3) | Design Graphics |

Complementary Courses (51 credits)

Set A

3 credits from the following:

| | | |
|----------|-----|-----------------------|
| AEMA 310 | (3) | Statistical Methods 1 |
| CIVE 302 | (3) | Probabilistic Systems |

3 credits from the following:

| | | |
|----------|-----|------------------------|
| CHEE 315 | (3) | Heat and Mass Transfer |
| MECH 346 | (3) | Heat Transfer |

Set B - Natural Sciences and Mathematics

Minimum of 3 credits chosen from the following list:

| | | |
|----------|-----|----------------------------------|
| AEBI 210 | (3) | Organisms 1 |
| AEBI 211 | (3) | Organisms 2 |
| ENVB 210 | (3) | The Biophysical Environment |
| ENVB 305 | (3) | Population and Community Ecology |
| LSCI 202 | (3) | Molecular Cell Biology |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |
| MICR 331 | (3) | Microbial Ecology |
| PLNT 300 | (3) | Cropping Systems |

With 6 credits chosen in consultation with the Academic Adviser.

Set C - Social Sciences

Minimum of 3 credits from the following list:

| | | |
|----------|-----|--|
| ENVR 201 | (3) | Society, Environment and Sustainability |
| ENVR 203 | (3) | Knowledge, Ethics and Environment |
| SEAD 530 | (3) | Economics for Sustainability in Engineering and Design |
| SOCI 235 | (3) | Technology and Society |

Note: ENVR courses have limited enrolment.

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

27 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 322 | (3) | Organic Waste Management |
| BREE 325 | (3) | Food Process Engineering |
| BREE 329 | (3) | Precision Agriculture |
| BREE 403 | (3) | Biological Material Properties |
| BREE 412 | (3) | Machinery Systems Engineering |
| BREE 416 | (3) | Engineering for Land Development |
| BREE 419 | (3) | Structural Design |
| BREE 497 | (3) | Bioresource Engineering Project |
| BREE 501 | (3) | Simulation and Modelling |
| BREE 502 | (3) | Drainage/Irrigation Engineering |
| BREE 509 | (3) | Hydrologic Systems and Modelling. |
| BREE 510 | (3) | Watershed Systems Management |
| BREE 515 | (3) | Soil Hydrologic Modelling |
| BREE 518 | (3) | Ecological Engineering |
| BREE 519 | (3) | Advanced Food Engineering |
| BREE 520 | (3) | Food, Fibre and Fuel Elements |
| BREE 522 | (3) | Bio-Based Polymers |
| BREE 529 | (3) | GIS for Natural Resource Management |
| BREE 530 | (3) | Fermentation Engineering |
| BREE 531 | (3) | Post-Harvest Drying |
| BREE 532 | (3) | Post-Harvest Storage |
| BREE 533 | (3) | Water Quality Management |
| BREE 535 | (3) | Food Safety Engineering |

6.3.2 Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) - Honours Bioresource Engineering (113 credits)

The B.Eng.(Bioresource); Honours in Bioresource Engineering program focuses on biological, agricultural, food, environmental areas, and applying professional engineering skills to biological systems. The design and implementation of technology for the creation of bio-based products, including food, fibre, fuel, and biomaterials, while sustaining a healthful environment. Graduates of this program are eligible for registration as professional engineers in any province across Canada, as well as in some international jurisdictions.

Required Courses (62 credits)

| | | |
|----------|-----|-----------------------------------|
| AEMA 202 | (3) | Intermediate Calculus |
| AEMA 305 | (3) | Differential Equations |
| BREE 205 | (3) | Engineering Design 1 |
| BREE 210 | (3) | Mechanical Analysis and Design |
| BREE 216 | (3) | Bioresource Engineering Materials |
| BREE 252 | (3) | Computing for Engineers |
| BREE 301 | (3) | Biothermodynamics |

| | | |
|----------|-----|---|
| BREE 305 | (3) | Fluid Mechanics |
| BREE 312 | (3) | Electric Circuits and Machines |
| BREE 319 | (3) | Engineering Mathematics |
| BREE 327 | (3) | Bio-Environmental Engineering |
| BREE 341 | (3) | Mechanics of Materials |
| BREE 415 | (3) | Design of Machines and Structural Elements |
| BREE 420 | (3) | Engineering for Sustainability |
| BREE 451 | (1) | Undergraduate Seminar 1 - Oral Presentation |
| BREE 452 | (1) | Undergraduate Seminar 2 Poster Presentation |
| BREE 453 | (1) | Undergraduate Seminar 3 - Scientific Writing |
| BREE 485 | (1) | Senior Undergraduate Seminar 1 |
| BREE 490 | (3) | Engineering Design 2 |
| BREE 495 | (3) | Engineering Design 3 |
| BREE 504 | (3) | Instrumentation and Control |
| FACC 250 | (0) | Responsibilities of the Professional Engineer |
| FACC 300 | (3) | Engineering Economy |
| FACC 400 | (1) | Engineering Professional Practice |
| MECH 289 | (3) | Design Graphics |

Complementary Courses (51 credits)

Honours Courses

Students choose either Plan A or Plan B

Honours Plan A

12 credits of Honours research courses in the subject area of the student's major in consultation with the Program Director of the student's major and the professor who has agreed to supervise the research project.

12 credits from:

| | | |
|----------|-----|----------------------------|
| FAES 401 | (6) | Honours Research Project 1 |
| FAES 402 | (6) | Honours Research Project 2 |

OR

Honours Plan B

A minimum of 6 credits of Honours courses and 6 credits in 500-level BREE courses, selected in consultation with the Program Director of the student's major. The topic of the Honours research project must be on a topic related to their major and selected in consultation with the program Director of the student's major and the professor who has agreed to supervise the research project.

6 credits from:

| | | |
|----------|-----|-------------------|
| FAES 405 | (3) | Honours Project 1 |
| FAES 406 | (3) | Honours Project 2 |

Plus 6 credits of BREE courses at the 500 level.

Set A

3 credits from the following:

| | | |
|----------|-----|-----------------------|
| AEMA 310 | (3) | Statistical Methods 1 |
|----------|-----|-----------------------|

CIVE 302 (3) Probabilistic Systems

3 credits from the following:

CHEE 315 (3) Heat and Mass Transfer

MECH 346 (3) Heat Transfer

Set B - Natural Sciences and Mathematics

3 credits chosen from the list below:

AEBI 210 (3) Organisms 1

AEBI 211 (3) Organisms 2

ENVB 210 (3) The Biophysical Environment

ENVB 305 (3) Population and Community Ecology

LSCI 202 (3) Molecular Cell Biology

LSCI 211 (3) Biochemistry 1

LSCI 230 (3) Introductory Microbiology

MICR 331 (3) Microbial Ecology

PLNT 300 (3) Cropping Systems

Plus 6 credits chosen in consultation with the Academic Adviser.

Set C - Social Sciences

Minimum of 3 credits from the following list:

ENVR 201 (3) Society, Environment and Sustainability

ENVR 203 (3) Knowledge, Ethics and Environment

SEAD 530 (3) Economics for Sustainability in Engineering and Design

SOCI 235 (3) Technology and Society

Note: ENVR courses have limited enrolment.

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

15 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 322 (3) Organic Waste Management

BREE 325 (3) Food Process Engineering

BREE 329 (3) Precision Agriculture

BREE 403 (3) Biological Material Properties

BREE 412 (3) Machinery Systems Engineering

BREE 416 (3) Engineering for Land Development

BREE 419 (3) Structural Design

BREE 497 (3) Bioresource Engineering Project

| | | |
|----------|-----|-------------------------------------|
| BREE 501 | (3) | Simulation and Modelling |
| BREE 502 | (3) | Drainage/Irrigation Engineering |
| BREE 509 | (3) | Hydrologic Systems and Modelling. |
| BREE 510 | (3) | Watershed Systems Management |
| BREE 515 | (3) | Soil Hydrologic Modelling |
| BREE 518 | (3) | Ecological Engineering |
| BREE 519 | (3) | Advanced Food Engineering |
| BREE 520 | (3) | Food, Fibre and Fuel Elements |
| BREE 522 | (3) | Bio-Based Polymers |
| BREE 529 | (3) | GIS for Natural Resource Management |
| BREE 530 | (3) | Fermentation Engineering |
| BREE 531 | (3) | Post-Harvest Drying |
| BREE 532 | (3) | Post-Harvest Storage |
| BREE 533 | (3) | Water Quality Management |
| BREE 535 | (3) | Food Safety Engineering |

6.3.3 Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) - Major Bioresource Engineering - Professional Agrology (113 credits)

The B.Eng.(Bioresource); Major in Bioresource Engineering; Professional Agrology program focuses on biological, agricultural, food, environmental areas, and applying professional engineering skills to biological systems. The design and implementation of technology for the creation of bio-based products, including food, fibre, fuel, and biomaterials, while sustaining a healthful environment. Graduates of this program are eligible for registration as professional engineers in any province across Canada, as well as in some international jurisdictions. This program qualifies graduates to apply for registration in the Ordre des agronomes du Québec and similar licensing bodies in other provinces in addition to the professional engineer licensing.

Required Courses (65 credits)

| | | |
|----------|-----|--|
| AEMA 202 | (3) | Intermediate Calculus |
| AEMA 305 | (3) | Differential Equations |
| AGRI 330 | (1) | Agricultural Legislation |
| AGRI 430 | (2) | Professional Practice in Agrology |
| BREE 205 | (3) | Engineering Design 1 |
| BREE 210 | (3) | Mechanical Analysis and Design |
| BREE 216 | (3) | Bioresource Engineering Materials |
| BREE 252 | (3) | Computing for Engineers |
| BREE 301 | (3) | Biothermodynamics |
| BREE 305 | (3) | Fluid Mechanics |
| BREE 312 | (3) | Electric Circuits and Machines |
| BREE 319 | (3) | Engineering Mathematics |
| BREE 327 | (3) | Bio-Environmental Engineering |
| BREE 341 | (3) | Mechanics of Materials |
| BREE 415 | (3) | Design of Machines and Structural Elements |
| BREE 420 | (3) | Engineering for Sustainability |
| BREE 451 | (1) | Undergraduate Seminar 1 - Oral Presentation |
| BREE 452 | (1) | Undergraduate Seminar 2 Poster Presentation |
| BREE 453 | (1) | Undergraduate Seminar 3 - Scientific Writing |
| BREE 485 | (1) | Senior Undergraduate Seminar 1 |

| | | |
|----------|-----|---|
| BREE 490 | (3) | Engineering Design 2 |
| BREE 495 | (3) | Engineering Design 3 |
| BREE 504 | (3) | Instrumentation and Control |
| FACC 250 | (0) | Responsibilities of the Professional Engineer |
| FACC 300 | (3) | Engineering Economy |
| FACC 400 | (1) | Engineering Professional Practice |
| MECH 289 | (3) | Design Graphics |

Complementary Courses (48 credits)

48 credits of the complementary courses selected as follows:

Set A

3 credits from the following:

| | | |
|----------|-----|-----------------------|
| AEMA 310 | (3) | Statistical Methods 1 |
| CIVE 302 | (3) | Probabilistic Systems |

3 credits from the following:

| | | |
|----------|-----|------------------------|
| CHEE 315 | (3) | Heat and Mass Transfer |
| MECH 346 | (3) | Heat Transfer |

Set B - Natural Sciences

Group 1 - Biology

6 credits from the following list:

| | | |
|----------|-----|---------------------------|
| AEBI 210 | (3) | Organisms 1 |
| AEBI 211 | (3) | Organisms 2 |
| LSCI 202 | (3) | Molecular Cell Biology |
| LSCI 204 | (3) | Genetics |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |

Group 2 - Agricultural Sciences

6 credits from the following list:

| | | |
|----------|-----|--------------------------------------|
| ANSC 250 | (3) | Principles of Animal Science |
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 451 | (3) | Dairy and Beef Production Management |
| ANSC 458 | (3) | Swine and Poultry Production |
| PLNT 300 | (3) | Cropping Systems |
| 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 430 | (3) | Pesticides in Agriculture |

Set C - Social Sciences

3 credits from the following list:

| | | |
|----------|-----|--|
| ENVR 201 | (3) | Society, Environment and Sustainability |
| ENVR 203 | (3) | Knowledge, Ethics and Environment |
| SEAD 530 | (3) | Economics for Sustainability in Engineering and Design |
| SOCI 235 | (3) | Technology and Society |

Note: ENVR courses have limited enrolment.

Set D - Engineering

27 credits from Group 1, Group 2, and Group 3.

Minimum of 6 credits from each of Group 1, Group 2 and Group 3 with the option (and approval of the Academic Adviser) of taking 6 credits from courses offered in the Faculty of Engineering.

Group 1 - Soil and Water

| | | |
|----------|-----|-------------------------------------|
| BREE 214 | (3) | Geomatics |
| BREE 217 | (3) | Hydrology and Water Resources |
| BREE 322 | (3) | Organic Waste Management |
| BREE 329 | (3) | Precision Agriculture |
| BREE 416 | (3) | Engineering for Land Development |
| BREE 502 | (3) | Drainage/Irrigation Engineering |
| BREE 509 | (3) | Hydrologic Systems and Modelling. |
| BREE 510 | (3) | Watershed Systems Management |
| BREE 515 | (3) | Soil Hydrologic Modelling |
| BREE 518 | (3) | Ecological Engineering |
| BREE 529 | (3) | GIS for Natural Resource Management |
| 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 |
| BREE 535 | (3) | Food Safety Engineering |

Group 3 - Other Engineering

| | | |
|----------|-----|---------------------------------|
| BREE 314 | (3) | Agri-Food Buildings |
| BREE 403 | (3) | Biological Material Properties |
| BREE 412 | (3) | Machinery Systems Engineering |
| BREE 419 | (3) | Structural Design |
| BREE 497 | (3) | Bioresource Engineering Project |
| BREE 501 | (3) | Simulation and Modelling |

BREE 522 (3) Bio-Based Polymers

6.3.4 Bachelor of Engineering (Bioresource) – B.Eng.(Bioresource) Related Programs

6.3.4.1 Minor in Environmental Engineering

For more information, see [section 6.6.9: Minor in Environmental Engineering](#).

6.3.4.2 Barbados Field Study Semester

For more information, see [Study Abroad & Field Studies > Undergraduate > Barbados Field Semester](#).

6.3.4.3 Internship Opportunities

For more information, see [section 5.1: Internship Opportunities](#).

6.4 Bachelor of Science (Food Science) - B.Sc.(F.Sc.)

Please refer to [section 5.5: Bachelor of Science in Food Science – B.Sc.\(F.Sc.\) \(Overview\)](#) for advising and other information on these B.Sc.(F.Sc.) programs.

6.4.1 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 the Food Science Major with Food Science Option can also qualify for recognition by the Institute of Food Technologists (IFT).

The Food Science Option is completed to 90 credits with free elective courses.

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements" in this eCalendar for prerequisites and minimum credit requirements.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

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 442 | (3) | Food Microbiology |
| FDSC 495D1 | (1.5) | Food Science Seminar |
| FDSC 495D2 | (1.5) | Food Science Seminar |
| FDSC 525 | (3) | Food Quality Assurance |
| LSCI 211 | (3) | Biochemistry 1 |

| | | |
|----------|-----|---------------------------|
| LSCI 230 | (3) | Introductory Microbiology |
| NUTR 207 | (3) | Nutrition and Health |

Additional Required Courses - Food Science Option (21 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 516 | (3) | Flavour Chemistry |
| FDSC 540 | (3) | Sensory Evaluation of Foods |

Elective Courses (18 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.

6.4.2 Bachelor of Science (Food Science) (B.Sc.(F.Sc.)) - Honours Food Science - Food Science Option (90 credits)

Students can use their electives to complete the Honours program. The courses credited to the Honours program must be in addition to any required or complementary courses taken to satisfy the requirements of the student's major and specialization.

In addition to satisfying the research requirements, students must apply for the Honours program in March or April of their U2 year. It is the responsibility of the student to find a professor who is willing to support and supervise the research project. No student will be accepted into the program until a supervisor has agreed to supervise the student. Applicants must have a minimum CGPA of 3.3 to enter the Honours program and they must earn a B grade (3.0) or higher in the courses making up the Honours program. Students are required to achieve a minimum overall CGPA of 3.3 at graduation to obtain honours. Students can use their electives to complete the Honours program. The courses credited to the Honours program must be in addition to any required or complementary courses taken to satisfy the requirements of the student's major and specialization.

The Honours program consists of 12 credits of courses that follow one of two plans listed below.

Students who meet all the requirements will have the name of their program changed to include the word "Honours."

A brief description of the research activities involved will be documented and signed by the Program Director of the student's major, the supervisor of the research project, and the student.

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 Science Option can also qualify for recognition by the Institute of Food Technologists (IFT).

The Food Science Option is completed after 90 credits with free elective courses.

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements" in this eCalendar for prerequisites and minimum credit requirements.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

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 442 | (3) | Food Microbiology |
| FDSC 495D1 | (1.5) | Food Science Seminar |
| FDSC 495D2 | (1.5) | Food Science Seminar |
| FDSC 525 | (3) | Food Quality Assurance |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |
| NUTR 207 | (3) | Nutrition and Health |

Additional Required Courses - Food Science Option (21 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 516 | (3) | Flavour Chemistry |
| FDSC 540 | (3) | Sensory Evaluation of Foods |

Honours Courses

Students choose either Plan A or Plan B.

Honours Plan A

Two 6-credit Honours research courses in the subject area of the student's major, chosen in consultation with the Program Director of the student's major and the professor who has agreed to supervise the research project.

| | | |
|----------|-----|----------------------------|
| FAES 401 | (6) | Honours Research Project 1 |
| FAES 402 | (6) | Honours Research Project 2 |

Honours Plan B

A minimum of two 3-credit Honours courses and 6 credits in 400- or 500-level courses, from the Faculty of Agricultural and Environmental Sciences, selected in consultation with the Program Director of the student's major. The topic of the Honours research project must be on a topic related to their major and selected in consultation with the Program Director of the student's major and the professor who has agreed to supervise the research project.

| | | |
|----------|-----|-------------------|
| FAES 405 | (3) | Honours Project 1 |
| FAES 406 | (3) | Honours Project 2 |

Elective Courses (6 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.

6.4.3 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 eCalendar for prerequisites and minimum credit requirements.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (54 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 442 | (3) | Food Microbiology |
| FDSC 495D1 | (1.5) | Food Science Seminar |
| FDSC 495D2 | (1.5) | Food Science Seminar |
| FDSC 525 | (3) | Food Quality Assurance |
| FDSC 540 | (3) | Sensory Evaluation of Foods |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |
| NUTR 207 | (3) | Nutrition and Health |

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).

| | | |
|----------|-----|--|
| 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 490 | (3) | Research Project 1 |
| FDSC 491 | (3) | Research Project 2 |
| FDSC 515 | (3) | Enzymology |
| FDSC 516 | (3) | Flavour Chemistry |
| FDSC 520 | (3) | Biophysical Chemistry of Food |

Electives (6 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.

6.4.4 About the Concurrent B.Sc.(F.Sc.) and B.Sc.(Nutr.Sc.)

Unique in North America, the concurrent degree program in Food Science and Nutritional Science allows students to complete two degrees at once while offering the best education in these complementary fields. This program opens the door to a multitude of career paths in the nutrition and food industries.

The **Food Science** component of the program focuses on the chemistry of food and the scientific principles underlying food safety, preservation, processing, and packaging, to provide consumers with quality foods. The **Nutritional Science** component deals with the science of human nutrient metabolism and the nutritional aspects of food. The program has been carefully structured to ensure that students receive the training that the industry demands, including a stage placement in the Nutrition or Food Industry.

6.4.4.1 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 (Concurrent) (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 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (80 credits)

| | | |
|----------|-------|---|
| 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 213 | (3) | Analytical Chemistry 1 |
| FDSC 251 | (3) | Food Chemistry 1 |
| FDSC 300 | (3) | Principles of Food Analysis 1 |
| FDSC 305 | (3) | Food Chemistry 2 |
| FDSC 310 | (3) | Post Harvest Fruit and Vegetable Technology |
| 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 400 | (3) | Food Packaging |
| FDSC 442 | (3) | Food Microbiology |
| FDSC 497 | (1.5) | Professional Seminar: Food |
| FDSC 525 | (3) | Food Quality Assurance |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |
| NUTR 207 | (3) | Nutrition and Health |
| NUTR 214 | (4) | Food Fundamentals |
| NUTR 307 | (3) | Metabolism and Human Nutrition |
| NUTR 337 | (3) | Nutrition Through Life |
| NUTR 344 | (4) | Clinical Nutrition 1 |
| NUTR 497 | (1.5) | Professional Seminar: Nutrition |
| NUTR 512 | (3) | Herbs, Foods and Phytochemicals |

Complementary Courses (30 credits)

Complementary courses are selected as follows:

At least 9 credits from the following:

| | | |
|----------|-----|---|
| AGEC 200 | (3) | Principles of Microeconomics |
| AGEC 201 | (3) | Principles of Macroeconomics |
| AGEC 330 | (3) | Agriculture and Food Markets |
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGEC 442 | (3) | Economics of International Agricultural Development |
| AGEC 450 | (3) | Agribusiness Management |
| NUTR 342 | (3) | Applied Human Resources |

At least 9 credits from the following:

| | | |
|----------|-----|-----------------------------------|
| ANSC 551 | (3) | Carbohydrate and Lipid Metabolism |
| ANSC 552 | (3) | Protein Metabolism and Nutrition |
| ENVR 203 | (3) | Knowledge, Ethics and Environment |
| FDSC 516 | (3) | Flavour Chemistry |
| FDSC 536 | (3) | Food Traceability |
| FDSC 537 | (3) | Nutraceutical Chemistry |
| NUTR 322 | (3) | Applied Sciences Communication |
| NUTR 341 | (3) | Global Food Security |
| NUTR 503 | (3) | Nutrition and Exercise |

12 credits from the following:

| | | |
|----------|------|-------------------------------|
| FDSC 480 | (12) | Food Industry Internship |
| NUTR 480 | (12) | Nutrition Industry Internship |

Elective Courses (12 credits)

Electives are selected in consultation with an academic adviser.

* Not all courses may be offered every year, please consult with your adviser when planning your program.

6.4.4.2 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 Honours (Concurrent) (122 credits)

Students can use their electives to complete the Honours program. The courses credited to the Honours program must be in addition to any required or complementary courses taken to satisfy the requirements of the student's major and specialization.

In addition to satisfying the research requirements, students must apply for the Honours program in March or April of their U3 year. It is the responsibility of the student to find a professor who is willing to support and supervise the research project. No student will be accepted into the program until a supervisor has agreed to supervise the student. Applicants must have a minimum CGPA of 3.3 to enter the Honours program and they must earn a B grade (3.0) or higher in the courses making up the Honours program. Students are required to achieve a minimum overall CGPA of 3.3 at graduation to obtain honours. Students can use their electives to complete the Honours program. The courses credited to the Honours program must be in addition to any required or complementary courses taken to satisfy the requirements of the student's major and specialization.

The Honours program consists of 12 credits of courses that follow one of two plans listed below.

Students who meet all the requirements will have the name of their program changed to include the word "Honours."

A brief description of the research activities involved will be documented and signed by the Program Director of the student's major, the supervisor of the research project, and the student.

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 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 eCalendar for prerequisites and minimum credit requirements.

Required Courses (80 credits)

| | | |
|----------|-------|---|
| 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 213 | (3) | Analytical Chemistry 1 |
| FDSC 251 | (3) | Food Chemistry 1 |
| FDSC 300 | (3) | Principles of Food Analysis 1 |
| FDSC 305 | (3) | Food Chemistry 2 |
| FDSC 310 | (3) | Post Harvest Fruit and Vegetable Technology |
| 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 400 | (3) | Food Packaging |
| FDSC 442 | (3) | Food Microbiology |
| FDSC 497 | (1.5) | Professional Seminar: Food |
| FDSC 525 | (3) | Food Quality Assurance |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |
| NUTR 207 | (3) | Nutrition and Health |
| NUTR 214 | (4) | Food Fundamentals |
| NUTR 307 | (3) | Metabolism and Human Nutrition |
| NUTR 337 | (3) | Nutrition Through Life |
| NUTR 344 | (4) | Clinical Nutrition 1 |
| NUTR 497 | (1.5) | Professional Seminar: Nutrition |
| NUTR 512 | (3) | Herbs, Foods and Phytochemicals |

Honours Courses

Students choose either Plan A or Plan B.

Honours Plan A

Two 6-credit Honours research courses in the subject area of the student's major, chosen in consultation with the Program Director of the student's major and the professor who has agreed to supervise the research project.

| | | |
|----------|-----|----------------------------|
| FAES 401 | (6) | Honours Research Project 1 |
| FAES 402 | (6) | Honours Research Project 2 |

Honours Plan B

A minimum of two 3-credit Honours courses and 6 credits in 400- or 500-level courses, from the Faculty of Agricultural and Environmental Sciences, selected in consultation with the Program Director of the student's major. The topic of the Honours research project must be on a topic related to their major and selected in consultation with the Program Director of the student's major and the professor who has agreed to supervise the research project.

| | | |
|----------|-----|-------------------|
| FAES 405 | (3) | Honours Project 1 |
| FAES 406 | (3) | Honours Project 2 |

Complementary Courses (30 credits)

Complementary courses are selected as follows:

At least 9 credits from the following:

| | | |
|----------|-----|---|
| AGEC 200 | (3) | Principles of Microeconomics |
| AGEC 201 | (3) | Principles of Macroeconomics |
| AGEC 330 | (3) | Agriculture and Food Markets |
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGEC 442 | (3) | Economics of International Agricultural Development |
| AGEC 450 | (3) | Agribusiness Management |

At least 9 credits from the following:

| | | |
|----------|-----|-----------------------------------|
| AGEC 242 | (3) | Management Theories and Practices |
| ENVR 203 | (3) | Knowledge, Ethics and Environment |
| NUTR 301 | (3) | Psychology |
| NUTR 322 | (3) | Applied Sciences Communication |
| NUTR 342 | (3) | Applied Human Resources |

12 credits from the following:

| | | |
|----------|------|-------------------------------|
| FDSC 480 | (12) | Food Industry Internship |
| NUTR 480 | (12) | Nutrition Industry Internship |

Elective Courses (12 credits)

Electives are selected in consultation with an academic adviser.

6.4.5 Bachelor of Science (Food Science) – B.Sc.(F.Sc.) Related Programs

6.4.5.1 Certificate in Food Science

Detailed information on this certificate program can be found under [section 6.7.2: Certificate \(Cert.\) Food Science \(30 credits\)](#) in this publication.

6.5 Bachelor of Science (Nutritional Sciences) – B.Sc.(Nutr.Sc.)

Please refer to [section 5.6: Bachelor of Science in Nutritional Sciences – B.Sc.\(Nutr.Sc.\) \(Overview\)](#) for advising and other information regarding the Dietetics and Nutrition majors.

6.5.1 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Major Dietetics (115 credits)

The B.Sc.(Nutr.Sc.) Major in Dietetics is a 3.5 year program that includes 40 weeks of internship Professional Practice (Stage) integrated in each year in a planned sequence to provide the academic and practical training for a career as a dietitian-nutritionist. The program includes innovative courses to promote

food and nutrition expertise, leadership, communication skills, management skills and critical thinking. Graduates of the program are eligible to be registered as a professional dietitian in province(s) of Canada.

This program is accredited by the Partnership for Dietetic Education and Practice (PDEP) and it is recognized in Quebec by the Ordre des diététistes-nutritionnistes du Québec (ODNQ) and meets all the standards and requirements of this professional order.

Required Courses (112 credits)

Required courses and Professional Practice (Stage) courses are sequenced in a specific order over nine terms (3.5-year program). See <https://www.mcgill.ca/nutrition/programs/undergraduate/dietetics> for detailed information regarding the undergraduate program plan.

| | | |
|-----------|-----|--|
| AEMA 310 | (3) | Statistical Methods 1 |
| ANSC 234 | (3) | Biochemistry 2 |
| ANSC 323 | (3) | Mammalian Physiology |
| ANSC 424 | (3) | Metabolic Endocrinology |
| IPEA 500 | (0) | Roles in Interprofessional Teams |
| IPEA 501 | (0) | Communication in Interprofessional Teams |
| IPEA 502 | (0) | Patient-Centred Care in Action |
| IPEA 503 | (0) | Managing Interprofessional Conflict |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |
| NUTR 207 | (3) | Nutrition and Health |
| NUTR 208* | (2) | Professional Practice Stage 1A |
| NUTR 209* | (2) | Professional Practice Stage 1B |
| NUTR 214 | (4) | Food Fundamentals |
| NUTR 217 | (4) | Application: Food Fundamentals |
| NUTR 307 | (3) | Metabolism and Human Nutrition |
| NUTR 310* | (2) | Professional Practice Stage 2A |
| NUTR 311* | (5) | Professional Practice Stage 2B |
| NUTR 322 | (3) | Applied Sciences Communication |
| NUTR 337 | (3) | Nutrition Through Life |
| NUTR 341 | (3) | Global Food Security |
| NUTR 342 | (3) | Applied Human Resources |
| NUTR 343 | (3) | Financial Management and Accounting |
| NUTR 344 | (4) | Clinical Nutrition 1 |
| NUTR 345 | (3) | Food Service Systems Management |
| NUTR 346 | (3) | Applied Food Service Management |
| NUTR 408* | (1) | Professional Practice Stage 3A |
| NUTR 409* | (9) | Professional Practice Stage 3B |
| NUTR 438 | (3) | Interviewing and Counselling |
| NUTR 450 | (3) | Research Methods: Human Nutrition |
| NUTR 505 | (3) | Public Health Nutrition |
| NUTR 508* | (7) | Professional Practice Stage 4A |
| NUTR 509* | (7) | Professional Practice Stage 4B |
| NUTR 511 | (3) | Nutrition and Behaviour |
| NUTR 545 | (4) | Clinical Nutrition 2 |
| NUTR 546 | (4) | Clinical Nutrition 3 |

Elective Courses (3 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.

Elective choice may include, but is not limited to:

| | | |
|----------|-----|--|
| FRSL 219 | (3) | Français intermédiaire 1 : diététique et nutrition |
| NUTR 501 | (3) | Nutrition in Developing Countries |
| NUTR 503 | (3) | Nutrition and Exercise |
| NUTR 520 | (3) | Indigenous Peoples' Nutrition |

Compulsory Immunization

A compulsory immunization program exists at McGill which is required for Dietetics students. Students should complete their immunization upon commencing Year 1 of the Dietetics Major. Confirmation of immunization will be coordinated by the Student Wellness Hub (<https://www.mcgill.ca/wellness-hub/>). Certain deadlines apply.

*Advising Notes for Professional Practice (Stage):

The School firmly applies prerequisite requirements for registration in all required courses in the Dietetics Major. All required courses must be passed with a minimum grade of C. Undergraduate registration for all Professional Practice (Stage) courses is restricted to students in the Dietetics Major with a CGPA greater than or equal to 3.00. The CGPA requirement is firmly applied. Students in the Dietetics Major who have a CGPA below 3.0 for two consecutive years will not be permitted to continue in the program. 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. If a student fails one level of Stage, certain conditions will apply to have the option to repeat the Stage and this may include an interview to assess suitability for the profession, and potential to successfully complete the program. 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.

6.5.2 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Major Nutrition - Food Function and Safety (90 credits)

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 eCalendar for prerequisites and minimum credit requirements.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (63 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 |
| FDSC 525 | (3) | Food Quality Assurance |
| 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 307 | (3) | Metabolism and Human Nutrition |
| NUTR 322 | (3) | Applied Sciences Communication |
| NUTR 337 | (3) | Nutrition Through Life |
| NUTR 344 | (4) | Clinical Nutrition 1 |
| NUTR 401 | (1) | Emerging Issues in Nutrition |
| NUTR 450 | (3) | Research Methods: Human Nutrition |
| NUTR 512 | (3) | Herbs, Foods and Phytochemicals |

Complementary Courses (12 credits)

12 credits of complementary courses are selected as follows:

Common Complementary Courses

6 credits from the following courses:

| | | |
|----------|-----|-----------------------------------|
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 560 | (3) | Biology of Lactation |
| FDSC 537 | (3) | Nutraceutical Chemistry |
| FDSC 545 | (3) | Advances in Food Microbiology |
| NUTR 501 | (3) | Nutrition in Developing Countries |
| NUTR 503 | (3) | Nutrition and Exercise |
| NUTR 505 | (3) | Public Health Nutrition |
| NUTR 507 | (3) | Advanced Nutritional Biochemistry |
| NUTR 511 | (3) | Nutrition and Behaviour |
| NUTR 537 | (3) | Advanced Human Metabolism |
| NUTR 545 | (4) | Clinical Nutrition 2 |
| NUTR 546 | (4) | Clinical Nutrition 3 |
| NUTR 551 | (3) | Analysis of Nutrition Data |
| PARA 438 | (3) | Immunology |

6 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 442 | (3) | Food Microbiology |
| FDSC 516 | (3) | Flavour Chemistry |
| FDSC 520 | (3) | Biophysical Chemistry of Food |
| FDSC 537 | (3) | Nutraceutical Chemistry |
| FDSC 540 | (3) | Sensory Evaluation of Foods |
| NUTR 430 | (3) | Directed Studies: Dietetics and Nutrition 1 |

Elective Courses (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.

6.5.3 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Major Nutrition - Global Nutrition (90 credits)

This Major covers many aspects of human nutrition and food and their impact on health and society at the community and international level. It offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan. The specialization 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 national and international governmental and non-governmental food and health agencies, in world development programs, in the food sector, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in public health, epidemiology, research, medicine, and dentistry or as specialists in nutrition.

Please refer to "Faculty Information and Regulations" > "Minimum Credit Requirements" in this eCalendar for prerequisites and minimum credit requirements.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (63 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 307 | (3) | Metabolism and Human Nutrition |
| NUTR 322 | (3) | Applied Sciences Communication |
| NUTR 337 | (3) | Nutrition Through Life |
| NUTR 344 | (4) | Clinical Nutrition 1 |
| NUTR 401 | (1) | Emerging Issues in Nutrition |
| NUTR 450 | (3) | Research Methods: Human Nutrition |
| NUTR 501 | (3) | Nutrition in Developing Countries |
| NUTR 505 | (3) | Public Health Nutrition |
| NUTR 512 | (3) | Herbs, Foods and Phytochemicals |

Complementary Courses (12 credits)

12 credits of complementary courses are selected as follows:

Common Complementary Courses

6 credits selected from:

| | | |
|----------|-----|---------------------------------|
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 560 | (3) | Biology of Lactation |
| FDSC 537 | (3) | Nutraceutical Chemistry |

| | | |
|----------|-----|-----------------------------------|
| FDSC 545 | (3) | Advances in Food Microbiology |
| NUTR 503 | (3) | Nutrition and Exercise |
| NUTR 507 | (3) | Advanced Nutritional Biochemistry |
| NUTR 511 | (3) | Nutrition and Behaviour |
| NUTR 537 | (3) | Advanced Human Metabolism |
| NUTR 545 | (4) | Clinical Nutrition 2 |
| NUTR 546 | (4) | Clinical Nutrition 3 |
| NUTR 551 | (3) | Analysis of Nutrition Data |
| PARA 438 | (3) | Immunology |

6 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 302 | (3) | New Horizons in Medical Anthropology |
| GEOG 303 | (3) | Health Geography |
| GEOG 403 | (3) | Global Health and Environmental Change |
| NUTR 341 | (3) | Global Food Security |
| NUTR 430 | (3) | Directed Studies: Dietetics and Nutrition 1 |
| NUTR 506 | (3) | Qualitative Methods in Nutrition |
| NUTR 520 | (3) | Indigenous Peoples' Nutrition |
| PARA 410 | (3) | Environment and Infection |
| PARA 515 | (3) | Water, Health and Sanitation |
| PPHS 501 | (3) | Population Health and Epidemiology |
| PPHS 511 | (3) | Fundamentals of Global Health |
| PPHS 529 | (3) | Global Environmental Health and Burden of Disease |

Elective Courses (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.

6.5.4 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 eCalendar for prerequisites and minimum credit requirements.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

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 307 | (3) | Metabolism and Human Nutrition |
| NUTR 322 | (3) | Applied Sciences Communication |
| NUTR 337 | (3) | Nutrition Through Life |
| NUTR 344 | (4) | Clinical Nutrition 1 |
| NUTR 401 | (1) | Emerging Issues in Nutrition |
| NUTR 450 | (3) | Research Methods: Human Nutrition |
| NUTR 512 | (3) | Herbs, Foods and Phytochemicals |
| PARA 438 | (3) | Immunology |

Complementary Courses (15 credits)

15 credits of complementary courses are selected as follows:

Common Complementary Courses

At least 6 credits from the following:

| | | |
|----------|-----|-----------------------------------|
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 551 | (3) | Carbohydrate and Lipid Metabolism |
| ANSC 552 | (3) | Protein Metabolism and Nutrition |
| ANSC 560 | (3) | Biology of Lactation |
| FDSC 537 | (3) | Nutraceutical Chemistry |
| FDSC 545 | (3) | Advances in Food Microbiology |
| NUTR 501 | (3) | Nutrition in Developing Countries |
| NUTR 503 | (3) | Nutrition and Exercise |
| NUTR 511 | (3) | Nutrition and Behaviour |
| NUTR 545 | (4) | Clinical Nutrition 2 |
| NUTR 546 | (4) | Clinical Nutrition 3 |
| NUTR 551 | (3) | Analysis of Nutrition Data |

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 414 | (3) | Advanced Immunology |
| NUTR 430 | (3) | Directed Studies: Dietetics and Nutrition 1 |
| NUTR 551 | (3) | Analysis of Nutrition Data |
| PARA 424 | (3) | Fundamental Parasitology |
| 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 and Hormones |
| PHGY 312 | (3) | Respiratory, Renal, and Cardiovascular Physiology |
| PHGY 313 | (3) | Blood, Gastrointestinal, and Immune Systems Physiology |

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.

6.5.5 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Major Nutrition - Metabolism, Health and Disease (90 credits)

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 emphasizes the influence of diet and nutrition on human health and the pathophysiology of inherited and acquired chronic disease. The links of nutrigenomics, nutrigenetics, and biotechnology with human health and regulation of metabolism are explored. This program does not lead to professional licensure as a dietitian/nutritionist.

Required Courses (63 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 307 | (3) | Metabolism and Human Nutrition |
| NUTR 322 | (3) | Applied Sciences Communication |
| NUTR 337 | (3) | Nutrition Through Life |
| NUTR 344 | (4) | Clinical Nutrition 1 |
| NUTR 401 | (1) | Emerging Issues in Nutrition |
| NUTR 450 | (3) | Research Methods: Human Nutrition |
| NUTR 507 | (3) | Advanced Nutritional Biochemistry |

| | | |
|----------|-----|---------------------------------|
| NUTR 512 | (3) | Herbs, Foods and Phytochemicals |
| NUTR 537 | (3) | Advanced Human Metabolism |

Complementary Courses (12 credits)

12 credits of complementary courses are selected as follows:

Common Complementary Courses

6 credits from the following:

| | | |
|----------|-----|-----------------------------------|
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 560 | (3) | Biology of Lactation |
| FDSC 537 | (3) | Nutraceutical Chemistry |
| FDSC 545 | (3) | Advances in Food Microbiology |
| NUTR 501 | (3) | Nutrition in Developing Countries |
| NUTR 503 | (3) | Nutrition and Exercise |
| NUTR 505 | (3) | Public Health Nutrition |
| NUTR 511 | (3) | Nutrition and Behaviour |
| NUTR 545 | (4) | Clinical Nutrition 2 |
| NUTR 546 | (4) | Clinical Nutrition 3 |
| NUTR 551 | (3) | Analysis of Nutrition Data |
| PARA 438 | (3) | Immunology |

6 credits from the following courses:

| | | |
|----------|-----|--|
| ANAT 214 | (3) | Systemic Human Anatomy |
| ANAT 261 | (4) | Introduction to Dynamic Histology |
| ANAT 262 | (3) | Introductory Molecular and Cell Biology |
| ANAT 322 | (3) | Neuroendocrinology |
| ANSC 312 | (3) | Animal Health and Disease |
| ANSC 324 | (3) | Developmental Biology and Reproduction |
| ANSC 400 | (3) | Eukaryotic Cells and Viruses |
| ANSC 560 | (3) | Biology of Lactation |
| BIOL 300 | (3) | Molecular Biology of the Gene |
| BTEC 306 | (3) | Experiments in Biotechnology |
| MICR 341 | (3) | Mechanisms of Pathogenicity |
| NUTR 430 | (3) | Directed Studies: Dietetics and Nutrition 1 |
| PARA 424 | (3) | Fundamental Parasitology |
| 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 and Hormones |
| PHGY 312 | (3) | Respiratory, Renal, and Cardiovascular Physiology |
| PHGY 313 | (3) | Blood, Gastrointestinal, and Immune Systems Physiology |

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.

6.5.6 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Major Nutrition - Sports Nutrition (90 credits)

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 eCalendar for prerequisites and minimum credit requirements.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (63 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 |
| EDKP 395 | (3) | Exercise Physiology |
| 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 307 | (3) | Metabolism and Human Nutrition |
| NUTR 322 | (3) | Applied Sciences Communication |
| NUTR 337 | (3) | Nutrition Through Life |
| NUTR 344 | (4) | Clinical Nutrition 1 |
| NUTR 401 | (1) | Emerging Issues in Nutrition |
| NUTR 450 | (3) | Research Methods: Human Nutrition |
| NUTR 503 | (3) | Nutrition and Exercise |
| NUTR 512 | (3) | Herbs, Foods and Phytochemicals |

Complementary Courses (12 credits)

12 credits of complementary courses are selected as follows:

Common Complementary Courses

6 credits from the following:

| | | |
|----------|-----|---------------------------------|
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 560 | (3) | Biology of Lactation |
| FDSC 537 | (3) | Nutraceutical Chemistry |

| | | |
|----------|-----|-----------------------------------|
| FDSC 545 | (3) | Advances in Food Microbiology |
| NUTR 501 | (3) | Nutrition in Developing Countries |
| NUTR 505 | (3) | Public Health Nutrition |
| NUTR 507 | (3) | Advanced Nutritional Biochemistry |
| NUTR 511 | (3) | Nutrition and Behaviour |
| NUTR 537 | (3) | Advanced Human Metabolism |
| NUTR 545 | (4) | Clinical Nutrition 2 |
| NUTR 546 | (4) | Clinical Nutrition 3 |
| NUTR 551 | (3) | Analysis of Nutrition Data |
| PARA 438 | (3) | Immunology |

6 credits from:

| | | |
|----------|-----|--|
| ANAT 214 | (3) | Systemic Human Anatomy |
| EDKP 261 | (3) | Motor Development |
| EDKP 330 | (3) | Physical Activity and Public Health |
| EDKP 445 | (3) | Exercise Metabolism |
| EDKP 446 | (3) | Physical Activity and Ageing |
| EDKP 448 | (3) | Exercise and Health Psychology |
| EDKP 449 | (3) | Neuromuscular and Inflammatory Pathophysiology |
| EDKP 485 | (3) | Cardiopulmonary Exercise Pathophysiology |
| EDKP 495 | (3) | Scientific Principles of Training |
| EDKP 542 | (3) | Environmental Exercise Physiology |
| NUTR 430 | (3) | Directed Studies: Dietetics and Nutrition 1 |
| NUTR 551 | (3) | Analysis of Nutrition Data |

Elective Courses (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.

6.5.7 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Honours in Nutrition (90 credits)

B.Sc.(Nutr.Sc.); Honours in Nutrition is intended for students who are interested in gaining a concentrated research experience in Human Nutrition. Students in the B.Sc.(Nutr.Sc.) Nutrition Major program who have a CGPA of at least 3.6, and a grade of at least A- in all NUTR courses can apply to transfer in Winter U2 term. It is the responsibility of each student to find a professor to support and supervise a research project. Graduation requires completion of a minimum of 90 credits, with CGPA of at least 3.6, and a grade of at least A- in all NUTR courses. Students who do not maintain Honours standing may transfer registration to the B.Sc.(Nutr.Sc.) Nutrition Major.

Required Courses (75 credits)

| | | |
|----------|-----|------------------------------|
| 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 307 | (3) | Metabolism and Human Nutrition |
| NUTR 322 | (3) | Applied Sciences Communication |
| NUTR 337 | (3) | Nutrition Through Life |
| NUTR 344 | (4) | Clinical Nutrition 1 |
| NUTR 401 | (1) | Emerging Issues in Nutrition |
| NUTR 450 | (3) | Research Methods: Human Nutrition |
| NUTR 491 | (3) | Honours Research 1 |
| NUTR 492 | (3) | Honours Research 2 |
| NUTR 493 | (3) | Honours Research 3 |
| NUTR 494 | (3) | Honours Research 4 |
| NUTR 507 | (3) | Advanced Nutritional Biochemistry |
| NUTR 537 | (3) | Advanced Human Metabolism |
| NUTR 551 | (3) | Analysis of Nutrition Data |

6.5.8 Bachelor of Science (Nutritional Sciences) – Related Programs

6.5.8.1 Minor in Human Nutrition

Detailed information on this Minor can be found under [section 6.6.10: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Minor Human Nutrition \(24 credits\)](#) in this publication.

6.5.8.2 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 6.4.4.1: 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 \(Concurrent\) \(122 credits\)](#) in this publication.

6.6 Minor Programs

The Faculty of Agricultural and Environmental Sciences offers a number of minor programs; the following are offered by the FAES Dean's Office, or in partnership with another school or faculty.

For a full list of minors offered by the Faculty of Agricultural and Environmental Sciences, refer to [section 5.9: Minor Programs \(Overview\)](#). For registration information, see [section 4.6.8.1: Procedures for Minor Programs](#).

6.6.1 Minor in Environment (Bieler School of Environment)

For information about the Minor in Environment, consult [Bieler School of Environment > Undergraduate > Browse Academic Programs > : Minor in Environment](#).

6.6.2 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Minor Agribusiness Entrepreneurship (18 credits)

This Minor is a collaboration by the Faculty of Agricultural and Environmental Sciences and the Desautels Faculty of Management. It provides students with an understanding of how to conceptualize, develop, and manage successful ventures in the agricultural, ag-tech, bioresource engineering, environmental, and food sectors - including for-profit private companies and social enterprises - and how to champion intrapreneurship activities in larger organizations. The program covers the essentials of management and is interdisciplinary and integrative. Many courses include a diverse set of students from multiple McGill faculties.

Within this Minor, 18 credits must be unique (only count for the Minor and do not overlap with the Major or Specialization), except for students enrolled in programs with more than 72 credits of required and complementary courses, who can count up to 6 credits of courses in the Major or Specialization.

Students in this Minor are not permitted to take the Desautels Minors in Management, Marketing, Finance or Operations Management (for non-Management students).

Minimum requirements: U2 or above; minimum 3.0 CGPA. This Minor has limited enrolment. Students should contact the program director to apply.

Required Courses (12 credits)

| | | |
|----------|-----|------------------------------------|
| INTG 201 | (3) | Integrated Management Essentials 1 |
| INTG 202 | (3) | Integrated Management Essentials 2 |
| MGPO 362 | (3) | Fundamentals of Entrepreneurship |
| MGPO 364 | (3) | Entrepreneurship in Practice |

Complementary Courses (6 credits)

6 credits from the following:

| | | |
|-----------|-----|--|
| AGEC 231 | (3) | Economic Systems of Agriculture |
| AGEC 332 | (3) | Farm Management and Finance |
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGEC 450 | (3) | Agribusiness Management |
| AGRI 411 | (3) | Global Issues on Development, Food and Agriculture |
| AGRI 493 | (3) | International Project Management |
| FAES 300* | (3) | Internship 2 |
| FAES 310 | (3) | Agribusiness Entrepreneurship |

* Note: To be counted towards the Minor in Agribusiness Entrepreneurship, the placement in FAES 300 must be approved by the program coordinator as having entrepreneurial focus.

6.6.3 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (12 credits)

| | | |
|----------|-----|------------------------------|
| AGEC 200 | (3) | Principles of Microeconomics |
| AGEC 201 | (3) | Principles of Macroeconomics |
| AGEC 330 | (3) | Agriculture and Food Markets |
| AGEC 333 | (3) | Resource Economics |

Complementary Courses (12 credits)

12 credits of complementary courses selected from:

| | | |
|----------|-----|---|
| AGEC 231 | (3) | Economic Systems of Agriculture |
| AGEC 242 | (3) | Management Theories and Practices |
| AGEC 320 | (3) | Intermediate Microeconomic Theory |
| AGEC 332 | (3) | Farm Management and Finance |
| AGEC 425 | (3) | Applied Econometrics |
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGEC 442 | (3) | Economics of International Agricultural Development |

| | | |
|----------|-----|---|
| AGEC 450 | (3) | Agribusiness Management |
| AGEC 491 | (3) | Research and Methodology |
| AGEC 492 | (3) | Special Topics in Agricultural Economics 01 |

6.6.4 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Minor Agricultural Production (24 credits)

This Minor program is designed to allow students in non-agricultural production majors to receive credit for courses in agricultural production and to stimulate "cross-over" studies. The 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 to consult their major program adviser and the Academic Adviser of the Minor in their first year. At the time of registration for their penultimate year, students must declare their intent to obtain a Minor Agricultural Production. With the agreement of their major program adviser, they must submit their program of courses already taken, and to be taken in their final year, to the Academic Adviser of the Agricultural Production Minor. The Academic Adviser of the Agricultural Production Minor will then certify which courses the student will apply toward the Minor and that the student's program conforms with the requirements of the Minor.

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 well before their final year.
2. Not all courses are offered every year. For information on available courses, consult Class Schedule at <http://www.mcgill.ca/minerva>. Complete listings can be found in the "Courses" section of this eCalendar.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

General Regulations

To obtain a Minor in Agricultural Production, 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 (12 credits)

| | | |
|----------|-----|------------------------------|
| AEBI 210 | (3) | Organisms 1 |
| ANSC 250 | (3) | Principles of Animal Science |
| ENVB 210 | (3) | The Biophysical Environment |
| PLNT 300 | (3) | Cropping Systems |

Complementary Courses (12 credits)

12 credits chosen from the following list in consultation with the Academic Adviser for the Minor:

| | | |
|----------|-----|--------------------------------------|
| AGRI 215 | (3) | Agro-Ecosystems Field Course |
| AGRI 340 | (3) | Principles of Ecological Agriculture |
| ANSC 451 | (3) | Dairy and Beef Production Management |
| ANSC 458 | (3) | Swine and Poultry Production |
| PLNT 302 | (3) | Forage Crops and Pastures |
| PLNT 307 | (3) | Agroecology of Vegetables and Fruits |

6.6.5 Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) - Minor Animal Biology (24 credits)

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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (15 credits)

| | | |
|----------|-----|--|
| ANSC 312 | (3) | Animal Health and Disease |
| ANSC 323 | (3) | Mammalian Physiology |
| ANSC 324 | (3) | Developmental Biology and Reproduction |
| ANSC 420 | (3) | Animal Biotechnology |
| PARA 438 | (3) | Immunology |

Complementary Courses (9 credits)

9 credits selected from:

| | | |
|----------|-----|-------------------------------------|
| ANSC 234 | (3) | Biochemistry 2 |
| ANSC 251 | (3) | Comparative Anatomy |
| ANSC 326 | (3) | Fundamentals of Population Genetics |
| ANSC 400 | (3) | Eukaryotic Cells and Viruses |
| ANSC 424 | (3) | Metabolic Endocrinology |
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 555 | (3) | The Use and Welfare of Animals |
| ANSC 560 | (3) | Biology of Lactation |
| ANSC 565 | (3) | Applied Information Systems |
| LSCI 451 | (3) | Research Project 1 |

6.6.6 Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) - 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

Required Courses (18 credits)

| | | |
|----------|-----|-----------------------------|
| ANSC 312 | (3) | Animal Health and Disease |
| ANSC 323 | (3) | Mammalian Physiology |
| ANSC 350 | (3) | Food-Borne Pathogens |
| ANSC 424 | (3) | Metabolic Endocrinology |
| MICR 341 | (3) | Mechanisms of Pathogenicity |
| PARA 438 | (3) | Immunology |

Complementary Courses (6 credits)

6 credits selected from the following list:

| | | |
|----------|-----|--|
| ANSC 234 | (3) | Biochemistry 2 |
| ANSC 251 | (3) | Comparative Anatomy |
| ANSC 303 | (2) | Farm Livestock Internship |
| ANSC 324 | (3) | Developmental Biology and Reproduction |

| | | |
|----------|-----|---------------------------------|
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| ANSC 555 | (3) | The Use and Welfare of Animals |

6.6.7 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Minor Applied Ecology (24 credits)

Food, water, air, the materials we use, and much of the diversity of life and recreation we enjoy are products of ecological systems. We manage ecosystems to provide these services and our use and misuse often degrades the ability of ecosystems to provide the benefits and services we value. In the Minor Applied Ecology you will develop your ability to understand how ecosystems function. You will apply systems thinking to the challenge of managing ecosystems for agriculture, forestry, fisheries, protected areas, and urban development. Concepts and tools will be presented that help you to deal with the complexity that an ecosystem perspective brings. The goal of this minor 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

To obtain a Minor in Applied Ecology, students must:

- Ensure all required and complementary courses are passed with a minimum grade of C;
- Select 24 credits from the courses as given below, of which not more than 6 credits may be counted toward the Major and the Minor programs. This restriction does not apply to elective courses in the Major program.

Required Courses (9 credits)

| | | |
|----------|-----|-------------------------------------|
| ENVB 305 | (3) | Population and Community Ecology |
| ENVB 437 | (3) | Assessing Environmental Impact |
| ENVB 529 | (3) | GIS for Natural Resource Management |

Complementary Courses (15 credits)

15 credits from the following:

| | | |
|----------|-----|--|
| AGRI 340 | (3) | Principles of Ecological Agriculture |
| AGRI 435 | (3) | Soil and Water Quality Management |
| BREE 327 | (3) | Bio-Environmental Engineering |
| ENTO 330 | (3) | Insect Biology |
| ENTO 340 | (3) | Field Entomology |
| ENVB 301 | (3) | Meteorology |
| ENVB 313 | (3) | Phylogeny and Biogeography |
| ENVB 415 | (3) | Ecosystem Management |
| ENVB 500 | (3) | Advanced Topics in Ecotoxicology |
| ENVB 506 | (3) | Quantitative Methods: Ecology |
| ENVB 530 | (3) | Advanced GIS for Natural Resource Management |
| MICR 331 | (3) | Microbial Ecology |
| MICR 450 | (3) | Environmental Microbiology |
| PLNT 304 | (3) | Biology of Fungi |
| PLNT 426 | (3) | Plant Ecophysiology |
| PLNT 460 | (3) | Plant Ecology |
| SOIL 300 | (3) | Geosystems |
| SOIL 326 | (3) | Soils in a Changing Environment |
| SOIL 535 | (3) | Soil Ecology |
| WILD 302 | (3) | Fish Ecology |
| WILD 307 | (3) | Natural History of Vertebrates |
| WILD 350 | (3) | Mammalogy |

| | | |
|----------|-----|-----------------------|
| WILD 420 | (3) | Ornithology |
| WILD 421 | (3) | Wildlife Conservation |

6.6.8 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.

For information on academic advising, see: www.mcgill.ca/macdonald/studentinfo/advising

General Regulations

To obtain a Minor in Ecological Agriculture, students must:

- 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.
- 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 (12 credits)

| | | |
|----------|-----|---------------------------------------|
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGRI 215 | (3) | Agro-Ecosystems Field Course |
| AGRI 340 | (3) | Principles of Ecological Agriculture |
| SOIL 535 | (3) | Soil Ecology |

Complementary Courses (12 credits)

| | | |
|----------|-----|--|
| AGRI 310 | (3) | Internship in Agriculture/Environment |
| AGRI 411 | (3) | Global Issues on Development, Food and Agriculture |
| ANSC 312 | (3) | Animal Health and Disease |
| BREE 327 | (3) | Bio-Environmental Engineering |
| ENTO 352 | (3) | Biocontrol of Pest Insects |
| MICR 331 | (3) | Microbial Ecology |
| NUTR 341 | (3) | Global Food Security |
| PLNT 302 | (3) | Forage Crops and Pastures |
| PLNT 307 | (3) | Agroecology of Vegetables and Fruits |
| PLNT 312 | (3) | Urban Horticulture |
| PLNT 434 | (3) | Weed Biology and Control |
| PLNT 460 | (3) | Plant Ecology |
| WOOD 441 | (3) | Integrated Forest Management |

6.6.9 Minor in Environmental Engineering

The Minor program consists of 21 credits in courses that are environment related. By means of a judicious choice of complementary 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 (see [Faculty of Engineering > Undergraduate > Browse Academic Units & Programs > Minor Programs > : Bachelor of Engineering \(B.Eng.\) - Minor Environmental Engineering \(21 credits\)](#)).

Courses Available in the Faculty of Agricultural and Environmental Sciences (Partial Listing)

| | |
|----------|----------------------------------|
| BREE 217 | Hydrology and Water Resources |
| BREE 322 | Organic Waste Management |
| BREE 416 | Engineering for Land Development |
| BREE 518 | Ecological Engineering |
| MICR 331 | Microbial Ecology |

For academic advising, please consult mcgill.ca/macdonald/studentinfo/advising.

6.6.10 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - 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 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

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 210 | (3) | Mammalian Physiology 2 |

3 credits in Nutrition, one of:

| | | |
|----------|-----|---------------------------------|
| ANSC 433 | (3) | Animal Nutrition and Metabolism |
| NUTR 307 | (3) | Metabolism and Human Nutrition |

9 credits from:

| | | |
|----------|-----|---|
| ANSC 551 | (3) | Carbohydrate and Lipid Metabolism |
| ANSC 552 | (3) | Protein Metabolism and Nutrition |
| MIMM 314 | (3) | Intermediate Immunology |
| NUTR 344 | (4) | Clinical Nutrition 1 |
| NUTR 430 | (3) | Directed Studies: Dietetics and Nutrition 1 |
| NUTR 501 | (3) | Nutrition in Developing Countries |
| NUTR 503 | (3) | Nutrition and Exercise |
| NUTR 505 | (3) | Public Health Nutrition |
| NUTR 512 | (3) | Herbs, Foods and Phytochemicals |
| NUTR 551 | (3) | Analysis of Nutrition Data |
| PARA 438 | (3) | Immunology |
| PATH 300 | (3) | Human Disease |

6.6.11 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Minor International Agriculture (24 credits)

Students enter this minor to acquire a global and applied understanding of agriculture as a fundamental tool to help rural development, alleviate poverty and reach food security, especially in the developing world. This program provides students with a combination of coursework at McGill together with a hands-on experience in a developing country, meeting locals and attending courses with McGill professors and/or local instructors. The costs of these field experiences may vary. The field experience (semester, short course or internship) includes developing projects in local communities, observing subsistence agriculture in situ and participating in various activities which contribute to sensitizing the students to the challenges that developing countries face. Students study water resources, sustainable development, nutrition, planning and development, and a host of other fascinating topics, allowing them to sharpen their skills for future career opportunities.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

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)

Students select 18 credits from either Option A or Option B

Option A

18 credits from the following:

| | | |
|----------|-----|---|
| AGEC 333 | (3) | Resource Economics |
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGRI 215 | (3) | Agro-Ecosystems Field Course |
| AGRI 325 | (3) | Sustainable Agriculture and Food Security |
| AGRI 499 | (3) | Agricultural Development Internship |
| BREE 510 | (3) | Watershed Systems Management |
| ENVB 437 | (3) | Assessing Environmental Impact |
| FDSC 525 | (3) | Food Quality Assurance |
| NUTR 501 | (3) | Nutrition in Developing Countries |
| PARA 410 | (3) | Environment and Infection |
| PARA 515 | (3) | Water, Health and Sanitation |
| PLNT 300 | (3) | Cropping Systems |

Option B

15 credits from any of the McGill Field Study Semesters:

Africa Field Study Semester

Barbados Field Study Semester

Barbados Interdisciplinary Tropical Studies Field Semester

Panama Field Study Semester

Plus 3 credits from the list in Option A

6.7 Post-Baccalaureate Certificate Programs

The Faculty offers the following 30-credit post-baccalaureate certificate programs.

6.7.1 Certificate (Cert.) 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.

For information on academic advising, see: <http://www.mcgill.ca/macdonald/studentinfo/advising>

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 (12 credits)

| | | |
|----------|-----|---------------------------------------|
| AGEC 430 | (3) | Agriculture, Food and Resource Policy |
| AGRI 215 | (3) | Agro-Ecosystems Field Course |
| AGRI 340 | (3) | Principles of Ecological Agriculture |
| SOIL 535 | (3) | Soil Ecology |

Complementary Courses (18 credits)

18 credits chosen from the following, in consultation with the Academic Adviser for Ecological Agriculture.

| | | |
|----------|-----|--|
| AGRI 310 | (3) | Internship in Agriculture/Environment |
| AGRI 411 | (3) | Global Issues on Development, Food and Agriculture |
| AGRI 435 | (3) | Soil and Water Quality Management |
| ANSC 312 | (3) | Animal Health and Disease |
| ENTO 352 | (3) | Biocontrol of Pest Insects |
| ENVB 305 | (3) | Population and Community Ecology |
| ENVB 415 | (3) | Ecosystem Management |
| MICR 331 | (3) | Microbial Ecology |
| NUTR 341 | (3) | Global Food Security |

| | | |
|----------|-----|--------------------------------------|
| PARA 424 | (3) | Fundamental Parasitology |
| PLNT 302 | (3) | Forage Crops and Pastures |
| PLNT 307 | (3) | Agroecology of Vegetables and Fruits |
| PLNT 434 | (3) | Weed Biology and Control |
| PLNT 460 | (3) | Plant Ecology |
| SOIL 326 | (3) | Soils in a Changing Environment |
| WOOD 441 | (3) | Integrated Forest Management |

6.7.2 Certificate (Cert.) Food Science (30 credits)

This program is geared toward mature students, who have an undergraduate degree in a science-related discipline, to acquire the basic knowledge in the food science area to enter food-related industries or a food science graduate program. Students must complete a core course that introduces them to the basics of the field of food science and then choose complementary courses that allow a broad-based exposure in areas such as food chemistry/analysis, food microbiology/nutrition, quality assurance/safety, processing/engineering, communication skills, and ethics.

Required Course (3 credits)

| | | |
|----------|-----|------------------------------|
| FDSC 200 | (3) | Introduction to Food Science |
|----------|-----|------------------------------|

Complementary Courses (27 credits)

27 credits (select no more than two 200-level courses)

| | | |
|------------|-------|---|
| AGRI 510 | (3) | Professional Practice |
| BREE 324 | (3) | Elements of Food Engineering |
| BREE 535 | (3) | Food Safety Engineering |
| FDSC 213 | (3) | Analytical Chemistry 1 |
| FDSC 251 | (3) | Food Chemistry 1 |
| FDSC 300 | (3) | Principles of Food Analysis 1 |
| FDSC 305 | (3) | Food Chemistry 2 |
| FDSC 310 | (3) | Post Harvest Fruit and Vegetable Technology |
| FDSC 315 | (3) | Separation Techniques in Food Analysis 1 |
| FDSC 319 | (3) | Food Commodities |
| FDSC 330 | (3) | Food Processing |
| FDSC 400 | (3) | Food Packaging |
| FDSC 405 | (3) | Food Product Development |
| FDSC 442 | (3) | Food Microbiology |
| FDSC 495D1 | (1.5) | Food Science Seminar |
| FDSC 495D2 | (1.5) | Food Science Seminar |
| FDSC 515 | (3) | Enzymology |
| FDSC 516 | (3) | Flavour Chemistry |
| FDSC 519 | (3) | Advanced Food Processing |
| FDSC 520 | (3) | Biophysical Chemistry of Food |
| FDSC 525 | (3) | Food Quality Assurance |
| FDSC 536 | (3) | Food Traceability |
| FDSC 537 | (3) | Nutraceutical Chemistry |
| LSCI 211 | (3) | Biochemistry 1 |
| LSCI 230 | (3) | Introductory Microbiology |

6.8 Field Studies

6.8.1 Africa Field Study Semester

The Africa Field Studies Semester (AFSS) offers students an opportunity to study in East Africa for a semester starting every January. Courses are offered in both natural science and social science, and are taught in environments ranging from desert to tropical rainforest, from manyattas to urban centers. For more information, please visit the [AFSS web site](#).

6.8.2 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 [Study Abroad & Field Studies > Undergraduate > : Barbados Field Semester](#).

6.8.3 Barbados Interdisciplinary Tropical Studies Field Semester

This 15-credit program is offered in collaboration with several partners in Barbados, including the University of the West Indies (UWI) during the summer. McGill students live at the Bellairs Research Institute, while BITS courses are conducted both at UWI and Bellairs. For more information, see [Study Abroad & Field Studies > Undergraduate > : Barbados Interdisciplinary Tropical Studies Field Semester](#).

6.8.4 Panama Field Study Semester

The Panama Field Study Semester is a joint venture between McGill University and the Smithsonian Tropical Research Institute (STRI) in Panama. It is a 15-credit program offered in the Winter term (January to April).

The program presents a hands-on experience gained through an internship/research project organized around multidisciplinary environmental issues. The nature of the semester will centre on practical environmental problems/questions important for Panama. For more information, please visit the PFSS website: mcgill.ca/pfss.

7 Academic Units

The following are academic units (departments, institutes, schools, etc.) within the Faculty of Agricultural & Environmental Sciences.

- [section 7.1: Department of Animal Science](#)
- [section 7.2: Department of Bioresource Engineering](#)
- [section 7.3: Farm Management and Technology Program](#)
- [section 7.4: Department of Food Science and Agricultural Chemistry](#)
- [section 7.5: School of Human Nutrition](#)
- [section 7.6: Department of Natural Resource Sciences](#)
- [section 7.7: Institute of Parasitology](#)
- [section 7.8: Department of Plant Science](#)

The Bieler School of Environment also offers several B.Sc.(Ag.Env.Sc.) programs; for more information, please visit the [Bieler School of Environment](#) section.

7.1 Department of Animal Science

7.1.1 Location

Macdonald Stewart Building, Room MS1-084
Telephone: 514-398-7890
Fax: 514-398-7990
Email: animal.science@mcgill.ca

Website: mcgill.ca/animal

7.1.2 About the Department of Animal Science

The Department of Animal Science has a number of programs for students who wish to study animal science at the undergraduate level. Whether they are interested in the improvement of livestock production from the point of view of nutrition, breeding, reproduction, and welfare; the study of animals in a health context; or even the advancement of biotechnological processes in laboratory research and animal models to better understand human health and disease, there is a specialization that will appeal to their interests.

The Department of Animal Science plays a crucial role in offering 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, and will depend on the student's orientation towards animal production management, animal biotechnology, further studies in animal health, international studies, and/or graduate studies.

Any student with an interest in animals who wishes to become a professional agrolgist (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 Agrolgy.

7.1.3 Animal Science Faculty

Chair

Raj Duggavathi

Emeritus Professors

Roger B. Buckland; Eduardo R. Chavez; Eugene Donefer; John F. Hayes; Urs Kühnlein; Sherman Touchburn

Professor

Xin Zhao

Associate Professors

Vilceu Bordignon; Sergio Burgos; Roger I. Cue; Raj Duggavathi; Elsa Vasseur; Kevin M. Wade; Jianguo (Jeff) Xia

Assistant Professors

Jennifer Ronholm; Alexander Bekele-Yitbarek

Adjunct Professors

Baurhoo Bushansingh; Pierre Lacasse; Bruce Murphy; Débora Santschi

Affiliate Member

René Lacroix

7.2 Department of Bioresource Engineering

7.2.1 Location

Macdonald Stewart Building, Room MS1-028
 McGill University, Macdonald Campus
 21,111 Lakeshore Road
 Sainte-Anne-de-Bellevue QC H9X 3V9
 Canada
 Telephone: 514-398-7773
 Website: mcgill.ca/bioeng

7.2.2 About the Department of Bioresource Engineering

Bioresource Engineering is an accredited engineering program administered by the Faculty of Agricultural and Environmental Sciences. The Bioresource Engineering discipline focuses on the application of engineering principles to biological systems including plants, animals, and ecosystems. Bioresource engineers seek sustainable solutions to enhance the production and processing of food and other biomaterials as well as to preserve and regenerate the quality of soil, water, and other natural resources.

In addition to core engineering sciences and design skills, Bioresource Engineering students take courses dedicated to the infrastructure and processes essential to the emerging circular bioeconomy. Students learn to design, construct, operate, maintain, and innovate equipment, structures, processes, and software related to agriculture, forestry, food, environmental protection, ecological management, bioenergy, and other related industries.

For more information on programs associated with this department, see [section 6.3: B.Eng Bioresource](#).

7.2.3 Bioresource Engineering Faculty

Chair

Viacheslav I. Adamchuk

Graduate Program Director

G.S. Vijaya Raghavan

Associate Graduate Program Director

Zhiming Qi

Emeritus Professors

Robert S. Broughton; Robert Kok

Professors

Viacheslav I. Adamchuk; Jan Adamowski; Chandra A. Madramootoo; Michael O. Ngadi; Valérie Orsat; Shiv O. Prasher; G.S. Vijaya Raghavan

Associate Professors

Abdolhamid Akbarzadeh Shafaroudi; Grant Clark; Mark Lefsrud; Zhiming Qi

Assistant Professors

Benjamin Goldstein; Idaresit Ekaette; E. Miezah Kwofie; Shangpeng Sun

Adjunct Professors

Marie-Josée Dumont; Boris Tartakovsky

Faculty Lecturers

Fernando Altamura; Alice Cherestes; David Titley-Peloquin

Research/Academic Associates

Yvan Garipey; Li (Laura) Liu; Sarah MacPherson

Technical

William Boyd Dumais

Professor Post-Retirement

Arun Mujumdar

Affiliate Members

Georges T. Dodds; Maxime Leduc; Wietske Medema; Marian V. Simpson

7.3 Farm Management and Technology Program

7.3.1 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 QC H9X 3V9
 Telephone: 514-398-7814
 Fax: 514-398-7955
 Email: fmt.macdonald@mcgill.ca
 Website: mcgill.ca/fmt

7.3.2 About the Farm Management and Technology Program

The Farm Management and Technology (FMT) program is a 3-year academic and practical college program, offered on the Macdonald Campus and taught by the staff of the Faculty of Agricultural and Environmental Sciences of McGill University. For further information on the program, please refer to our [website](#).

7.3.3 Diploma of College Studies — 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, Enseignement supérieur, et Recherche (MEESR).

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, 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 related to modern commercial agriculture. Students prepare for their Agricultural Internship during both academic semesters of Year 1 through two Stage courses.

During the second summer, students are registered in Enterprise Management 1. During this period, the students will be responsible for data collection to be used in the next two Enterprise Management courses and the Nutrient Management Plan course when they return to the campus for the Fall semester. These internships will enable the students to relate their academic work to the reality of farming and of the agri-food sector.

Finally, courses in English, Français, Humanities, Physical Education, and two complementary subjects taken during the program will entitle the student to receive a Diploma of College Studies (DEC) from the MEESR.

Program Outline

Fall 1

| | | |
|----------|--------|---|
| FMT4 001 | (1.33) | Fall Stage (152-VSA-MC) |
| FMT4 002 | (1.67) | Soil Tillage (152-VSB-MC) |
| FMT4 003 | (1.33) | Information Management (152-VSC-MC) |
| FMT4 004 | (1.33) | Animal Physiology and Anatomy (152-VSD-MC) |
| FMT4 005 | (2.33) | Introduction to Plant Science (152-VSE-MC) |
| FMT4 006 | (1.33) | Pesticides and the Environment (152-VSF-MC) |
| FMT4 080 | (2) | English Upgrading |
| FMT4 090 | (1) | Physical Activity and Health (109-101-MQ) |

Winter 1

| | | |
|----------|--------|--|
| FMT4 007 | (2) | Health and Safety (152-VSG-MC) |
| FMT4 008 | (2.33) | Animal Genetics and Nutrition (152-VSH-MC) |
| FMT4 009 | (2) | Soil Fertility (152-VSJ-MC) |
| FMT4 010 | (1.33) | Winter Stage (152-VSK-MC) |
| FMT4 011 | (2) | Farm Accounting (152-VSL-MC) |
| FMT4 012 | (1.67) | Machinery Maintenance (152-VSM-MC) |
| FMT4 077 | (2.67) | Introduction to College English |

Summer 1

| | | |
|----------|-----|--------------------------------------|
| FMT4 013 | (2) | Agricultural Internship (152-VSN-MC) |
|----------|-----|--------------------------------------|

Fall 2

Two courses selected from the Elective Production course list below.

| | | |
|----------|--------|--|
| FMT4 014 | (2) | Marketing Strategies (152-VSP-MC) |
| FMT4 015 | (1.33) | Forest Management (152-VSQ-MC) |
| FMT4 005 | (1.33) | Animal Anatomy and Physiology |
| FMT4 008 | (2.33) | Introduction to Animal Science (152-008-MC) |
| FMT4 075 | (2) | Langue française et communication (602-101-03) |
| FMT4 082 | (2.33) | Literary Genres (603-102-04) |
| FMT4 085 | (2.33) | Humanities 1: Knowledge (345-103-04) |

Winter 2

Two courses selected from the Elective Production course list below.

| | | |
|----------|--------|--|
| FMT4 016 | (2) | Budgeting and Administration (152-VSR-MC) |
| FMT4 017 | (1.33) | Agricultural Systems (152-VST-MC) |
| FMT4 083 | (2.33) | Literary Themes (603-103-04) |
| FMT4 091 | (1) | Physical Activity and Effectiveness (109-102-MQ) |
| FMT4 098 | (2) | Français agricole (602-VSG-MC) |

Summer 2

| | | |
|----------|--------|--------------------------------------|
| FMT4 018 | (2.33) | Enterprise Management 1 (152-VSU-MC) |
|----------|--------|--------------------------------------|

Fall 3

| | | |
|----------|--------|---|
| FMT4 019 | (2) | Nutrient Management Plan (152-VSV-MC) |
| FMT4 020 | (2) | Conservation of Soil and Water (152-VSW-MC) |
| FMT4 021 | (2.67) | Enterprise Management 2 (152-VSX-MC) |
| FMT4 022 | (1.67) | Equipment Management (152-VSY-MC) |
| FMT4 078 | (2) | FMT English (603-VSB-MC) |
| FMT4 086 | (2) | Humanities 2: World Views (345-102-03) |
| FMT4 097 | (2) | Landscape Design (504-VSG-MC) |

Winter 3

| | | |
|----------|--------|---|
| FMT4 023 | (1.33) | Building Management (152-VSZ-MC) |
| FMT4 024 | (1.67) | Farm Building Development (152-VTA-MC) |
| FMT4 025 | (2.33) | Enterprise Management 3 (152-VTB-MC) |
| FMT4 026 | (1.67) | Human Resources (152-VTC-MC) |
| FMT4 027 | (1.33) | Precision Agriculture (152-VTD-MC) |
| FMT4 087 | (2) | Humanities 3:Env.& Org. Issues (345-VSH-MC) |
| FMT4 092 | (1) | Physical Activity and Autonomy (109-103-MQ) |

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

| | | |
|----------|--------|---|
| FMT4 028 | (2.67) | Dairy Replacement Management (152-VTE-MC) |
| FMT4 029 | (2.67) | Dairy Performance Management (152-VTF-MC) |
| FMT4 030 | (2.67) | Swine and Poultry Management (152-VTG-MC) |
| FMT4 031 | (2.67) | Beef and Sheep Management (152-VTH-MC) |

Plant Science Category

| | | |
|----------|--------|---|
| FMT4 033 | (2.67) | Vegetable and Fruit Crops (152-VTK-MC) |
| FMT4 034 | (2.67) | Greenhouse Crop Production (152-VTL-MC) |
| FMT4 035 | (2.67) | Field Crop Management 1 (152-VTM-MC) |
| FMT4 036 | (2.67) | Field Crop Management 2 (152-VTN-MC) |

Complementary Courses*

Students must take two complementary courses to meet the program requirements. The program offers the following.

* 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.

| | | |
|----------|-----|-------------------------------|
| FMT4 074 | (2) | Complementary Course 2 |
| FMT4 097 | (2) | 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 prepared and corrected by the MEESR. Students must take this examination on the dates selected by the MEESR.

7.3.4 Farm Management and Technology Program Faculty

Director

Pascal Thériault

Associate Director

David Wees

Faculty Lecturers

Caroline Begg; Peter Enright; Mathieu Leduc; David Wees; Simon Brault; Andréanne La Salle

7.3.5 Academic Rules and Information – FMT

The Farm Management and Technology program follows the rules and regulations of McGill University as well as from the *Ministère de l'Éducation et de l'Enseignement supérieur* (MEES) for the collegial level.

7.3.5.1 Entrance Requirements – FMT

- 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.
- The **minimum academic entrance requirements** are a Quebec Secondary School Diploma (SSD) or its equivalent and the successful completion of the following five courses:
 - Secondary IV: History and Citizenship Education or History of Quebec and Canada
 - Secondary IV: Science and Technology or Applied Science and Technology or Physical Science
 - Secondary IV: Mathematics
 - Secondary V: Language of Instruction
 - Secondary V: Second Language
- The minimum entrance requirements for **students from Ontario** are the Ontario Secondary School Diploma (OSSD), as well as:
 - grade 10 French as a second language
 - science: SNC2P (recommended with TCJ20 or TDJ20 or TMJ20) or SNC2D (desired with TCJ20 or TDJ20 or TMJ20)
 - mathematics: MFM2P or MPM2D

For **other Canadian students**, the minimum French requirement is grade 10 second language. Please contact the department for more information.

For **international students**, a recognized French proficiency test may be required. An English proficiency test may also be required. For details on proof of English proficiency, visit mcgill.ca/applying/requirements/prep.

- All candidates for admission must make arrangements to come to the Macdonald Campus for an interview prior to admission to the program.
- Admission to this program is only in the Fall semester.
- 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 may work with farm equipment during the first semester. As well, most farmers require their employees and trainees (stagiaires) to drive and possess the appropriate driver's license.

7.3.5.2 Important Dates – FMT

7.3.5.2.1 Sessional Dates

The number of teaching and examination days is set by the *Ministère de l'Éducation et de l'Enseignement supérieur* (MEES). The sessional dates vary from year to year. At the present time, each semester has 75 teaching days and seven days of exams.

7.3.5.2.2 Last Day for Withdrawal or Course Additions

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**.

7.3.5.3 Registration – FMT

Students in the Farm Management and Technology program must register online using Minerva at 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.

7.3.5.4 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 graded according to the percentage system. The minimum passing grade 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.

7.3.5.5 Student Rights and Responsibilities

The regulations and policies governing student rights and responsibilities at McGill University are published jointly by the Dean of Students' Office and the Secretariat and can be found at mcgill.ca/secretariat/policies-and-regulations.

7.3.5.6 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.

7.3.6 Fees and Expenses – FMT

7.3.6.1 Fees

Tuition fees are calculated separately from student fees. For eligible Quebec residents in the Farm Management and Technology Program there is no amount charged for tuition, thanks to support from the *Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec*. Out-of-province and international status FMT students registered for full-time studies pay a tuition fee in addition to student fees. Students considered to be studying part-time (less than 8 credits/semester) will be charged half that amount. For information about fees specific to your residency status, consult the Undergraduate fees tables on the [Student Accounts Website](#). Student fees are charged to all students, regardless of residency.

** All fees are subject to change without notice.*

7.3.6.2 Textbooks and Supplies

The cost of textbooks and supplies is estimated at \$250.00 per semester.

7.3.6.3 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 a Financial Aid Counsellor at Student Services. For more information, consult [University Regulations and Resources > Undergraduate > Scholarships and Student Aid](#) or contact Student Services, Macdonald Campus, at 514-398-7992.

7.3.7 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 > Undergraduate > Residential Facilities > University Residences – Macdonald Campus; mcgill.ca/students/housing/macdonald](#) or email residences.macdonald@mcgill.ca.

7.4 Department of Food Science and Agricultural Chemistry

7.4.1 Location

Macdonald-Stewart Building, Room MS1-034
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue QC H9X 3V9
Canada
Telephone: 514-398-7773
Fax: 514-398-7990
Email: info.macdonald@mcgill.ca
Website: mcgill.ca/foodscience

7.4.2 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 a 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)
- Concurrent degree, which includes B.Sc. Food Science/B.Sc. Nutritional Sciences
- Post-Baccalaureate Certificate in Food Science

For more information on these programs, see [section 6.4: Bachelor of Science \(Food Science\) - B.Sc.\(F.Sc.\)](#).

7.4.3 Food Science and Agricultural Chemistry Faculty

Chair

Varoujan A. Yaylayan

Graduate Program Director

Ashraf Ismail

Emeritus Professors

Inteaz Alli; Frederik R. van de Voort

Professors

Hosahalli S. Ramaswamy; Benjamin K. Simpson; Varoujan A. Yaylayan

Associate Professors

Stephane Bayen; Saji George; Ashraf A. Ismail; Salwa Karboune; Xiaonan Lu

Assistant Professors

Jennifer Ronholm; Yixiang Wang

Research/Academic Associates

Najla Ben Akacha; Jacqueline Sedman; Amanda Waglay

7.5 School of Human Nutrition

7.5.1 Location

Macdonald Stewart Building
 McGill University, Macdonald Campus
 21,111 Lakeshore Road
 Sainte-Anne-de-Bellevue QC H9X 3V9
 Canada
 Telephone: 514-398-7773
 Fax: 514-398-7739
 Email: nutrition.dietetics@mcgill.ca
 Website: mcgill.ca/nutrition

7.5.2 About the School of Human Nutrition

The health and well-being of individuals and populations in relation to food choices and metabolism prevails as the unifying theme of the programs in the School of Human Nutrition, a part of the McGill University Health Sciences.

The School offers a **B.Sc.(Nutr.Sc.)** in either the Dietetics Major or the Nutrition Major.

The **Dietetics Major** is an accredited professional program which leads to eligibility to register with a provincial dietetic regulatory body as a registered dietitian. The 3.5 year (115 credits) Dietetics Major is an undergraduate degree which includes 40 weeks of internship (Professional Practice - Stage) which is sequenced and integrated into each year of study. Students are exposed to a variety of practice settings including clinical nutrition, community nutrition, and food service management. The program is designed according to the Integrated Competencies for Dietetics Education and Practice (ICDEP). Accreditation information is available on our website at mcgill.ca/nutrition/programs/undergraduate/dietetics.

The **Nutrition Major** is a 90-credit undergraduate degree. At its core, it deals with how diet, nutrition, and metabolism affect human health and disease risk. It offers exciting opportunities to specialize in one of *four concentrations* (Food Function and Safety; Global Nutrition; Health and Disease; and Sports Nutrition), to incorporate research experience, travel for field studies, or a minor in your program. It does not lead to professional licensure as a Dietitian/Nutritionist; however, it is excellent preparation for further studies including graduate, medical, veterinary, and other professional schools; or for many careers in the food, pharmaceutical, or other industry, government or NGO, or global health organizations.

B.Sc.(F.Sc.)/B.Sc.(Nutr.Sc.): The School also offers a dual degree, the **B.Sc. Food Science/Nutritional Science Major**, which is a 122-credit undergraduate degree. You will obtain a strong background in chemical sciences regarding the physical nature and chemical properties of foods, combined with an advanced understanding of the important role of nutrition and metabolism in health and disease.

For more information on programs associated with this school, see [section 6.5: Bachelor of Science \(Nutritional Sciences\) – B.Sc.\(Nutr.Sc.\)](#).

7.5.3 Degrees Offered by the School of Human Nutrition

Bachelor of Science in Nutritional Sciences – B.Sc.(Nutr.Sc.)

Two undergraduate degree programs are offered by the School.

- The **Dietetics** Major leads to professional qualification
- The **Nutrition** Major offers four concentrations:
 - Food Function and Safety
 - Global Nutrition
 - Health and Disease
 - Sports Nutrition

M.Sc.A., M.Sc., and Ph.D.

Graduate degrees in Human Nutrition are also offered in thesis and non-thesis-based research at the master's level and thesis-based research at the doctoral level. Three options are available in the M.Sc. Applied degree:

- Dietetics Credentialing
- Practicum
- Project

For further information, contact the School or refer to the Agricultural & Environmental Sciences' [Graduate and Postdoctoral Studies](#) section.

7.5.4 Human Nutrition Faculty

Director

Ryan J. Mailloux

Professors Emeriti

Harriet V. Kühnlein, Timothy A. Johns

Professors

Luis B. Agellon, Linda J. Wykes

Associate Professors

Niladri Basu (*Canada Research Chair*) (*joint appt. with Natural Resource Sciences*) (*Assoc. Member of Epidemiology and Biostatistics, Faculty of Medicine and Health Sciences*)

Stéphanie Chevalier (*Assoc. Member Dept of Medicine and Health Sciences*) (*Graduate Program Director*)

Treena Delormier (*Associate Director of the Centre for Indigenous Peoples' Nutrition and Environment*)

Kristine G. Koski

Stan Kubow

Ryan J. Mailloux

Grace S. Marquis

Hugo Melgar-Quiñonez (*Academic Scholar, Margaret A. Gilliam Institute for Global Food Security*)

Assistant Professors

Institute for the Study of International Development (ISID): Nii Addy

Anne-Sophie Brazeau (*Director, Dietetics Education and Practice*)

Daiva Nielsen

Chelsia Gillis

Brittany Jock

Academic Associate

Patrick Cortbaoui (*Managing Director, Margaret A. Gilliam Institute for Global Food Security*)

Senior Faculty Lecturers

Sandy Phillips (*University Coordinator, Professional Practice (Stage) in Dietetics*)

Hugues Plourde

Maureen Rose (*Director, Graduate Dietetics Programs*)

Faculty Lecturers

Paul-Guy Duhamel (*Manager, Food and Nutrition Laboratories*)

Mary Hendrickson

Joane Routhier

Associate Members

Anaesthesia: Franco Carli, Thomas Schricker

Medicine and Health Sciences: Larry Lands, José Morais

Nursing: Rosetta Antonacci

Adjunct Professors

Isabelle Germain (*Agriculture and Agri-Food Canada*); Elizabeth D. Mansfield; Hope Weiler (*on leave*)

Affiliate Members

Kathryn Arcudi (*CIUSSS du Centre-Ouest-de-l'Île-de-Montreal*)

Annyck Besso

Marie-Ève Besner (*Montreal Children's Hospital*)

Sarah Bluden (*LMC Diabetes and Endocrinology*)

Sophie Brousseau (*Ste-Anne's Hospital*)

Jessica Coll

Catherine Delorme (*Ste-Anne's Hospital*)

Thea Demmers (*Université de Montréal*)

Linda Falcon (*Douglas Mental Health Institute*)

Louidgina Khoury

Isabelle Lam

Alexander McLean (*Lakeshore General Hospital*)

Laura Li Ching Ng (*McGill University Health Centre*)

Piraveena Piremathasan

Marilyn Rabin (*Douglas Mental Health Institute*)

Donna Schafer (*CIUSSS Centre-Ouest de l'Île de Montréal*)

Patricia Urrico (*Jewish General Hospital*)

7.5.5 Application Procedures

Entry into the Dietetics major, the Nutrition major and the Freshman Program of the BSc.(Nutr.Sc.) is only possible in September.

Application deadlines:

- Applicants studying outside of Canada: **January 15**
- Applicants from Canadian high schools outside of Quebec: **February 1**
- CEGEP applicants: **March 1**
- Transfer/Second degree applicants from Canadian universities: **May 1**
- Mature students: **May 1**

Applications to the School of Human Nutrition must be submitted online. Online applications and admissions information are available at mcgill.ca/applying.

7.5.6 Admission Requirements**Nutrition:**

- Students applying directly from high school will apply into the BSc.(Nutr.Sc.) Freshman program. Upon successful completion of this program, students will automatically progress into the Nutrition program.
- Students applying with Advanced Levels, Advanced Subsidiary, Cambridge Pre-U Examinations, CAPE, a CEGEP DEC, one year or more of university, or as a Mature student will apply into the Nutrition program.

Dietetics:

- Students wishing to enter the Dietetics Major who are applying from a high school either in Canada or abroad must apply into the BSc.(Nutr.Sc.) Freshman program and apply to transfer after their first year. Transfer to year 1 of the Dietetics program is based on CGPA. Proof of French proficiency will also be required
- Students with a French Baccalaureate or an International Baccalaureate who want to enter Dietetics must apply into the Nutrition program and apply to transfer after their first year.

Students from the following programs can apply directly into the Dietetics program:

- students with a CEGEP DEC
- students with a minimum of one year of university studies
- Mature students with **all** of the math and science prerequisites

Proof of English proficiency:

Some applicants to the School's programs may be asked to prove [English Proficiency](#) as part of the application process.

See the [Applying to Undergraduate Studies](#) website for information on applying to programs in the School of Human Nutrition.

Proof of French proficiency:

Applicants will be required to prove [proficiency in French](#).

7.5.6.1 Quebec CEGEP Students

CEGEP applicants must have obtained, prior to the start of classes, a Diplôme d'études collégiales (DEC).

Prerequisites:

- Math NYA (00UN or 01Y1) **and** NYB (00UP or 01Y2)
- Biology NYA (00UK or 01Y5) **and** Biology II (00XU or 01YJ)
- Chemistry NYA (00UL or 01Y6) **and** Organic Chemistry (00XV or 01YH)
- Physics NYA (00UR or 01Y7) **and** NYB (00US or 01YF) **and** NYC (00UT 01YG)

Dietetics:

Applicants to this program are advised to have all prerequisite courses completed prior to entry. It may be possible to be admitted missing some of the prerequisites; however, this is a highly competitive program and students with all of the prerequisites will be given priority. * If you are admitted missing some prerequisites, you will be required to complete them in addition to your BSc.(Nutr.Sc.) program requirements. **Please note that this will extend the length of your program by one year as without all prerequisite courses completed you will be unable to register for your first stage.** If at all possible, students should try to complete any missing prerequisite courses in the Summer before starting at McGill.

: Students graduating with a DEC in "Sciences, lettres, et arts" (700.A0) are eligible for all programs. They will NOT be disadvantaged during the admission process if they did not complete all prerequisites. They will be required to complete any missing portion of prerequisites at McGill in addition to the B.Sc.(Nutr.Sc.) program requirements. Please note that if they are missing any of the prerequisites, this will extend their program by one year.*

Nutrition:

Students may be accepted with a minimum of three prerequisite courses:

- Math NYA (00UK or 01Y5)

and two of the following:

- Biology NYA (00UK or 01Y5)
- Chemistry NYA (00UL or 01Y6)
- Physics NYA (00UR or 01Y7)

If admitted, any missing prerequisites will be added to their McGill program.

More information can be found on the [Applying to Undergraduate Studies](#) website.

7.5.6.2 Transfer Students

Students wishing to transfer from other universities and colleges are considered for admission on the basis of both their university work and previous studies. Transfer credits are only determined once students have been admitted and all final official transcripts have been received.

Basic science requirements are:

- one semester in each of differential and integral calculus
- two semesters of biology with labs (biology I and cell biology)
- one semester of general chemistry with lab
- one semester of organic chemistry with lab
- two semesters of physics (including mechanics, electricity, and magnetism, and waves and optics), with labs

Please note that math and science courses completed at other institutions that are not directly equivalent to the math and science courses in the B.Sc.(Nutr.Sc.) programs, can be used for admissions purposes, but cannot be used to grant exemptions. **If any of the math and science prerequisite courses completed are deemed not equivalent, they will have to be repeated at McGill.** Course equivalencies can be viewed on McGill's [course equivalency system](#).

More information can be found on the [Applying to Undergraduate Studies](#) website.

Dietetics:

Applicants to the Dietetics program are recommended to have all prerequisite math and science courses completed prior to entry. It may be possible to be admitted missing some of the prerequisites; however, this is a highly competitive program and students with all the prerequisites completed will be given priority. If students are admitted missing prerequisites, they will be required to complete them in addition to their B.Sc.(Nutr.Sc.) program requirements.

If prerequisites need to be added to a student's program, this will extend the length of the program by one year, as all prerequisites must be completed to be eligible to register for the first stage.

Nutrition:

Students may be accepted with a minimum of three prerequisite courses:

- one semester of calculus for science

and two of the following:

- one semester of biology with lab
- one semester of chemistry with lab
- one semester of physics with lab

If admitted, the remaining prerequisite courses will be added to their program at McGill.

7.5.6.3 Transfer Students – Interfaculty

Students wishing to transfer from one faculty to another must complete an interfaculty transfer form. The deadline for submitting a transfer form for admission to the School is **June 1** for admission in September and **December 1** for admission in January. The Dietetics program is not open for students wishing to transfer in January. The Nutrition program sometimes allows students to transfer in January.

The programs that are open in January can be found on the [January admission website](#).

For details on applying for a transfer please see the Faculty's [readmission and transfer](#) page.

For more information on Interfaculty transfers, please refer to [University Regulations and Resources](#) > Undergraduate > Registration > : [Interfaculty Transfer](#).

Dietetics applicants only: Please note that applicants must also prove [proficiency in French](#).

7.5.6.4 Mature Students

Residents of Canada who will be 23 years of age or older at the time of registration, and who have no college or university studies within the last five years that would constitute a basis for admission can apply as a Mature student.

Dietetics:

Mature applicants to this program must have **all** prerequisite courses to apply:

- one semester in each of differential and integral calculus
- two semesters of biology with labs (biology 1 and cell biology)
- one semester of general chemistry with lab
- one semester of organic chemistry with lab
- two semesters (three if done at CEGEP) of physics (mechanics, electricity and magnetism, and waves and optics) with labs

If they are missing any of the prerequisites, they must apply into the Nutrition Major, complete any remaining prerequisites and apply to transfer after their first year in Nutrition. Transfer into the Dietetics program depends on GPA and proof of [French Proficiency](#).

Nutrition:

Students may be accepted with a minimum of three prerequisites:

- one semester of calculus for science

and two of the following:

- one semester of biology with lab
- one semester of chemistry with lab
- one semester of physics with lab

If admitted, the remaining prerequisite courses will be added to their program at McGill.

More information and all of the specific conditions for eligibility as a Mature student can be found on the [Applying to Undergraduate Studies](#) website.

7.5.7 Academic Information and Regulations

7.5.7.1 Academic Standing

For general information, see [section 4.6.5: Academic Standing](#).

Dietetics students please note:

- Undergraduate registration for all Professional Practice (Stage) courses is restricted to students in the Dietetics Major with a CGPA greater than or equal to 3.00. The CGPA requirement is firmly applied.
- Students in the Dietetics Major who have a CGPA below 3.0 for two consecutive years will not be permitted to continue in the program.

7.6 Department of Natural Resource Sciences

7.6.1 Location

Macdonald-Stewart Building
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue QC H9X 3V9
Canada
Telephone: 514-398-7773
Fax: 514-398-7990
Email: info.macdonald@mcgill.ca
Website: mcgill.ca/nrs

7.6.2 About the Department of Natural Resource Sciences

As humans depend on a wide variety of ecosystem services, society is becoming increasingly aware of the need for sustainable management of natural resources. We require the natural world to provide us with necessities such as air, water, food, and energy; but we also depend on ecosystems for services such as nutrient cycling, biodiversity, recreation, and the splendour of nature. Sustainable management of natural resources via governance of human activities requires an understanding of all of these elements.

The Department of Natural Resource Sciences is a multidisciplinary group with a wide range of interests, including wildlife and fish biology, entomology, agriculture, soil science, microbiology, genomics, meteorology, forest science, landscape ecology, agricultural and resource economics, and environmental policy. We are concerned with the populations and diversity of organisms within ecosystems, the flow of energy and nutrients through ecosystems, and processes that influence human behaviour toward ecosystem services and the environment. Our graduate programs in agricultural economics, entomology, microbiology, and renewable resources allow students to gain disciplinary depth and interdisciplinary breadth.

Natural Resource Sciences plays a strong role in several undergraduate programs, from the inter-departmental **majors** in:

- Environmental Biology;
- Life Sciences (Biological and Agricultural);
- Environment (Bieler School of Environment);
- Agro-Environmental Sciences; and
- Agricultural Economics;

to the **specializations** such as:

- Applied Ecology;
- Wildlife Biology;
- Microbiology and Molecular Biotechnology;
- Agribusiness;
- Environmental Economics; and
- Life Sciences (Multidisciplinary).

7.6.3 Natural Resource Sciences Faculty

Chair

Brian Driscoll

Graduate Program Director

Sébastien Faucher

Program Director - Agricultural Economics

Paul J. Thomassin

Emeritus Professors

David M. Bird; James W. Fyles; Edmund S. Idziak; Peter H. Schuepp; Robin K. Stewart

Professors

Niladri Basu; Elena Bennett; Peter Brown; Christopher Buddle; Gordon Hickey; Murray Humphries; Paul J. Thomassin; Joann Whalen; Lyle G. Whyte

Associate Professors

Jeffrey Cardille; Benoît Côté; Brian T. Driscoll; Kyle Elliott; Sebastien Faucher; Jessica Head; Nicolas Kosoy; Melissa McKinney; Kakali Mukhopadhyay

Assistant Professors

Mary Doidge; Aurélie Harou; Jessica Gillung; Cynthia Kallenbach; Denis Roy

Associate Members

David M. Green; Jacqueline Bede

Adjunct Professors

Kimberly Fernie; Barbara Frei; Magali Houde; Ian Strachan

Affiliate Members

Adrian Unc; Geoffrey Sunahara

7.7 Institute of Parasitology

7.7.1 Location

Institute of Parasitology
 Parasitology Building
 McGill University, Macdonald Campus
 21,111 Lakeshore Road
 Sainte-Anne-de-Bellevue QC H9X 3V9
 Canada
 Website: mcgill.ca/parasitology

7.7.2 About the Institute of Parasitology

The Institute of Parasitology is one of the oldest recognized centres of interdisciplinary research in Canada. We focus on parasitic organisms, the relationship with their host, and the means to limit the impact of parasitic disease on health and well-being.

For more information, please visit the Institute of Parasitology [website](#).

7.7.3 Parasitology Faculty

Director

Reza Salavati

Emeritus Professor

Timothy G. Geary

Professors

Roger Prichard; Reza Salavati

Associate Professors

Robin N. Beech; Elias Georges; Petra Rohrbach; Jianguo (Jeff) Xia

Assistant Professors

Igor Cestari; Qian (Vivian) Liu; Thavy Long

Associate Members

Gregory J. Matlashewski; Momar Ndao; Martin Olivier; Mary Stevenson

Adjunct Professors

Traian Sulea; Karine Thivierge; Fernando Lopes

7.8 Department of Plant Science

7.8.1 Location

Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue QC H9X 3V9
Canada
Telephone: 514-398-7773
Fax: 514-398-8732
Email: plant.science@mcgill.ca
Website: mcgill.ca/plant

7.8.2 About the Department of Plant Science

Our understanding of biological systems has advanced exponentially since the beginning of the twenty-first century, and technological developments now allow us to pose questions that simply could not be asked a few decades ago. We also live in a time of great challenges: the human population is now over eight billion and continues to rise at an alarming rate; the climate is changing dramatically; worldwide energy availability is decreasing; quality freshwater is becoming scarce; biodiversity is disappearing; and a number of wild habitats are threatened by human activities.

How can we keep feeding the growing population with quality food while resources are scarcer than ever? How will plants react to a changing climate? How can we design effective conservation strategies to preserve biodiversity? Plant scientists have a crucial role to play in solving these problems, and using the knowledge accumulated in the field of biology to answer these questions.

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, as well as both the Environmetrics and the Food Production and Environment domains of the Bieler School of Environment. For related program information, see [section 6.2: Bachelor of Science \(Agricultural and Environmental Sciences\) – B.Sc.\(Ag.Env.Sc.\)](#).

7.8.3 Plant Science Faculty

Chair

Martina V. Strömvik

Associate Chair and Graduate Program Director

Valérie Gravel

Associate Graduate Program Director

Mehran Dastmalchi

Emeriti Professors

Deborah J. Buszard; Ajjamada C. Kushalappa; Alan K. Watson

Professors

Pierre Dutilleul; Anja Geitmann; Deep Saini; Philippe Seguin; Donald L. Smith

Associate Professors

Jacqueline C. Bede; Jean-Benoit Charron; Valérie Gravel; Jaswinder Singh; Martina V. Strömvik

Assistant Professors

Mehran Dastmalchi; Valerio Hoyos-Villegas

Faculty Lecturers

Caroline Begg; David Wees

Academic Associate

Frieda Beauregard

Adjunct Professors

Konstantinos Aliferis; Annick Bertrand

8 Instructional Staff**Instructional Staff**

Adamchuk, Viacheslav I.; Adamowski, Jan; Agellon, Luis B.; Akbarzadeh Shafaroudi, Abdolhamid; Altamura, Fernando; Basu, Niladri; Bayen, Stephane; Bede, Jacqueline; Beech, Robin N.; Begg, Caroline; Bekele-Yitbarek, Alexander; Bennett, Elena; Bordignon, Vilceu; Brault, Simon; Brazeau, Anne-Sophie; Buddle, Christopher; Burgos, Sergio; Cardille, Jeffrey A.; Cestari, Igor; Charron, Jean-Benoit; Cherestes, Alice; Chevalier, Stephanie; Clark, Grant; Côté, Benoît; Cue, Roger I.; Dastmalchi, Mehran; Delormier, Treena; Doidge, Mary; Driscoll, Brian T.; Duggavathi, Raj; Duhamel, Paul-Guy; Dutilleul, Pierre R.; Ekaette, Idaresit; Elliott, Kyle H.; Enright, Peter; Fabry, Frederic; Faucher, Sébastien P.; Freeman, Julia; Geitmann, Anja; George, Saji; Georges, Elias; Gillis, Chelsia; Gillung, Jessica; Goldstein, Benjamin; Gravel, Valérie; Harou, Aurélie; Head, Jessica; Hendrickson-Nelson, Mary; Hickey, Gordon M.; Hoyos-Villegas, Valerio; Humphries, Murray; Ismail, Ashraf A.; Jock, Brittany; Kallenbach, Cynthia; Karboune, Salwa; Koski, Kristine G.; Kosoy, Nicolas; Kubow, Stan; Kwofie, Ebenezer; Leduc, Mathieu; Lefsrud, Mark G.; Liu, Qian (Vivian); Long, Thavy; Lovat, Christie; Lu, Xianoan; Madramootoo, Chandra; Mailloux, Ryan; Major, Julie; Marquis, Grace S.; McKinney, Melissa; Melgar-Quiñonez, Hugo Ramiro; Ngadi, Michael O.; Nielsen, Daiva; Orsat, Valérie; Phillips, Sandy; Plourde, Hugues; Prasher, Shiv O.; Prichard, Roger K.; Qi, Zhiming; Raghavan, G.S. Vijaya; Ramaswamy, Hosahalli; Rohrbach, Petra; Ronholm, Jennifer; Rose, Maureen; Routhier, Joane; Roy, Denis; Salavati, Reza; Scott, Marilyn E.; Seguin, Philippe; Simpson, Benjamin K.; Singh, Jaswinder; Smith, Donald L.; Strachan, Ian; Strömvik, Martina V.; Sun, Shangpeng; Thériault, Pascal; Thomassin, Paul; Titley-Péloquin, David; Vasseur, Elsa; Wade, Kevin; Wang, Yixiang; Wees, David D.; Whalen, Joann; Whyte, Lyle G.; Wykes, Linda; Xia, Jeff; Yaylayan, Varoujan A.; Zhao, Xin

