



**Faculty of Agricultural and Environmental  
Sciences, including School of Dietetics and  
Human Nutrition**

**Programs, Courses and University Regulations**

**2011-2012**



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## 1 About the Faculty of Agricultural and Environmental Sciences, including School of Dietetics and Human Nutrition

**Mission Statement:** The Faculty of Agricultural and Environmental Sciences is committed to excellence in teaching, research, and service to ensure that humanity's present and future food, health, and natural resource needs are met while protecting the environment.

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## 2 History of the Faculty

Dedicated to improving the quality of life in Quebec's rural communities, Sir William Christopher Macdonald founded the School of Agriculture, the School for Teachers, and the School of Household Science at Macdonald College in Sainte-Anne-de-Bellevue in 1906. Macdonald College opened its doors to students in 1907 and its first degrees were awarded in 1911. The School for Teachers became the Faculty of Education in 1965 and moved to the downtown campus in 1970. Currently the Macdonald Campus is home to the Faculty of Agricultural and Environmental Sciences, the School of Dietetics and Human Nutrition, and the Institute of Parasitology. The Faculty is comprised of the Departments of Animal Science, Bioresource Engineering, Food Science and Agricultural Chemistry, Natural Resource Sciences, and Plant Science. The Faculty is one of the founding members of the McGill School of Environment and is also home to the Farm Management and Technology Program. The current enrolment is just short of 1800 undergraduate and graduate students.

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## 3 Macdonald Campus Facilities

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### 3.1 Morgan Arboretum

The Morgan Arboretum has 245 hectares of managed and natural woodlands, fields, and tree plantations used for environmental research and teaching in a wide range of courses. Eighteen formal tree collections contain groups of Canadian native trees and many useful and important exotics. In addition, over 170 species of birds, 30 species of mammals, and 20 species of reptiles and amphibians seasonally inhabit the property. Finally, the Arboretum features 25 kilometers of ski, snowshoe, and walking trails, a variety of forest ecosystems, conservation projects, and forest operations such as maple syrup production. A nature interpretation program is also offered. More information is available at [www.mcgill.ca/nrs/facilities/arboretum](http://www.mcgill.ca/nrs/facilities/arboretum).

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### 3.2 Macdonald Campus Library

Located in the Barton Building, the Macdonald Campus Library provides access to leading-edge print and electronic collections, facilities, and services to support a broad range of needs. The Library's collections encompass a wide variety of print and electronic resources in the areas of agriculture, nutrition, and environmental sciences.

The Library's catalogue, research databases, McGill theses, past exams, and other online resources are accessible to you via the Library website. The Library is also a depository for many print and electronic government publications. The Library's eZone computers provide access to specialized software such as ArcGIS, SAS and EndNote. Comfortable seating, study tables, group study rooms, and a 24-hour study area are also available to you. The area is equipped for direct or wireless laptop access to the McGill network and the Internet. Laptops and ebook readers can also be borrowed.

Librarians specializing in specific subject areas are available to help you find information for your course assignments or research topics, either in person or by phone, email, or chat. Tours and research workshops are provided throughout the year.

More information is available at [www.mcgill.ca/library/library-using/branches/macdonald-library](http://www.mcgill.ca/library/library-using/branches/macdonald-library) or feel free to drop by.

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### 3.3 Macdonald Campus Computing Centre

The Macdonald Campus Computing Centre is managed by McGill's IT Customer Services (ICS) unit. Undergraduate computing labs are open 24/7, year round. The labs offer computers running Microsoft Office software, scanners, and printers.

The IT walk-in support office, located in the Macdonald-Stewart Building, Room MS 2-025, is open from 9:00 a.m. to 5:00 p.m., Monday to Friday. For support on all central IT services, contact the ICS Service Desk by email at [support.ist@mcgill.ca](mailto:support.ist@mcgill.ca) or call 514-398-3398.

For more information and to search the IT Knowledge Base, visit the IT Services web page at [www.mcgill.ca/it](http://www.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 <http://lyman.mcgill.ca>.

### 3.5 Brace Centre for Water Resources Management

The Brace Centre for Water Resources Management is located on the Macdonald campus. It is a multidisciplinary and advanced research and training centre of McGill University, dedicated to solving problems of water management for all human and environmental uses. It brings together staff from several McGill faculties to undertake research, teaching, specialized training, and policy and strategic studies, both in Canada and internationally. The Centre draws on the wide range of facilities available within the University. More information is available at [www.mcgill.ca/brace](http://www.mcgill.ca/brace).

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## 4 Revisions – Faculty of Agricultural & Environmental Sciences

### Faculty Information and Regulations

*section 5.5.1: Minimum Credit Requirement*

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

*section 7.2.3.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Major Agro-Environmental Sciences (42 credits)*

*section 7.2.4.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Major Environmental Biology (42 credits)*

*section 7.2.5.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Major International Agriculture and Food Systems (42 credits)*

*section 7.2.6.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Major Life Sciences (Biological and Agricultural) (42 credits)*

### Specializations

*section 7.2.7.3: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Agriculture and Food Systems (Multidisciplinary) (24 credits)*

*section 7.2.7.4: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Biology (24 credits)*

*section 7.2.7.5: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Health and Disease (24 credits)*

*section 7.2.7.6: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Production (24 credits)*

*section 7.2.7.7: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Applied Ecosystem Sciences (24 credits)*

*section 7.2.7.8: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Ecological Agriculture (24 credits)*

*section 7.2.7.9: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Entomology (24 credits)*

*section 7.2.7.10: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Environmental Biology (Multidisciplinary) (24 credits)*

*section 7.2.7.12: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Health and Nutrition (24 credits)*

*section 7.2.7.13: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – International Agriculture (24 credits)*

*section 7.2.7.15: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Life Sciences (Multidisciplinary) (24 credits)*

*section 7.2.7.16: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Microbiology and Molecular Biotechnology (24 credits)*

*section 7.2.7.17: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Biology (24 credits)*

*section 7.2.7.18: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Production (24 credits)*

*section 7.2.7.19: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Professional Agrology (21 credits)*

*section 7.2.7.20: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Soil and Water Resources (24 credits)*

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

*section 7.2.7.21: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Wildlife Biology (24 credits)*

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

*section 7.3.3: Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) – Major Bioresource Engineering (113 credits)*

*section 7.3.4: Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) – Major Bioresource Engineering – Professional Agrology (113 credits)*

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

*section 7.5.6: Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Global Nutrition (90 credits)*

*section 7.5.7: Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Health and Disease (90 credits) **new***

*section 7.5.8: Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Nutritional Biochemistry (90 credits)*

*section 7.5.9: Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Sports Nutrition (90 credits)*

**Department of Food Science and Agricultural Chemistry**

*section 12.3: Department of Food Science and Agricultural Chemistry Faculty*

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## 5 About the Faculty of Agricultural and Environmental Sciences, including School of Dietetics and Human Nutrition (Undergraduate)

The Faculty of Agricultural and Environmental Sciences and the School of Dietetics and Human Nutrition are located on McGill University's Macdonald campus, which occupies 650 hectares in a beautiful waterfront setting on the western tip of the island of Montreal.

Students can earn internationally recognized degrees in the fields of agricultural sciences and applied biosciences, food and nutritional sciences, environmental sciences, and bioresource engineering. Students have the opportunity, in all programs, to study abroad in places such as Panama, Barbados, or Africa. Students may also have the opportunity to participate in internships.

Macdonald is a very diverse and international campus. Students are taught by outstanding professors who are among the top in their fields. The campus has excellent facilities for teaching and research, including well-equipped laboratories, experimental farm and field facilities, and the Morgan Arboretum. The campus is surrounded by the Ottawa and St. Lawrence rivers.

The Faculty is at the forefront of advances in the basic sciences and engineering associated with food supply, human health and nutrition, and the environment, and it is a world leader in plant and animal biotechnology, bioproducts and bioprocessing, bioinformatics, food safety and food quality, environmental engineering, water management, soils, parasitology, microbiology, and ecosystem science and management.

The Macdonald campus is an exciting place to live, work, study, learn, and discover. Its very intimate collegial and residential setting allows for strong interaction between staff and students, and for enriched student activity and participation in extracurricular activities. A hallmark of our undergraduate programs is the ability to provide hands-on learning experiences in the field and labs, and the smaller class sizes.

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### 5.1 Location

McGill University, Macdonald Campus  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue, Quebec H9X 3V9  
Canada

Telephone: 514-398-7925

Website: [www.mcgill.ca/macdonald](http://www.mcgill.ca/macdonald)

The Faculty of Agricultural and Environmental Sciences and the School of Dietetics and Human Nutrition are located on the Macdonald campus of McGill University in Sainte-Anne-de-Bellevue at the western end of the island of Montreal.

Served by public transport (STM [[www.stm.info](http://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.

## 5.2 Administrative Officers

Chandra Madramootoo; B.Sc.(Agr.Eng.), M.Sc., Ph.D.(McG.), P.Eng.( <i>James McGill Professor</i> )	<b>Dean, Faculty of Agricultural and Environmental Sciences, and Associate Vice-Principal (Macdonald Campus)</b>
William H. Hendershot; B.Sc.(Tor.), M.Sc.(McG.), Ph.D.(Br. Col.)	<b>Associate Dean (Academic)</b>
Suha Jabaji; B.Sc.(AUB), M.Sc.(Guelph), Ph.D.(Wat.)	<b>Associate Dean (Research and Graduate Education)</b>
David J. Lewis; B.Sc., M.Sc., Ph.D.(Mem.)	<b>Associate Dean (Student Affairs)</b>
Silvana Pellecchia	<b>Manager, Student Affairs</b>
Gary O'Connell; B.Comm.(C'dia)	<b>Director, Academic and Administrative Services</b>
William R. Ellyett; B.A.(Sir G. Wms.), B.Ed.(Phys.Ed.)(McG.)	<b>Director of Athletics</b>
Paul Meldrum; B.J.(Hons.)(Car.)	<b>General Manager, Macdonald Campus Farm</b>
Ginette Legault	<b>Manager, Campus Housing</b>
Peter D.L. Knox; B.Sc.(Agr.)(McG.)	<b>Supervisor, Property Maintenance</b>

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## 5.3 Faculty Admission Requirements

For information about the admission requirements for this Faculty, please refer to the *Undergraduate Admissions Guide* found at [www.mcgill.ca/applying](http://www.mcgill.ca/applying).

For information about interfaculty transfers, see *University Information and Regulations > Interfaculty Transfer*.

Applications are submitted directly online at [www.mcgill.ca/applying](http://www.mcgill.ca/applying). Please note that the same application is used for all undergraduate programs at McGill and two program choices can be entered. For further information, contact:

Student Affairs Office  
Macdonald Campus of McGill University  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue, Quebec H9X 3V9  
  
Telephone: 514-398-7928 or 7925  
Email: [studentinfo.macdonald@mcgill.ca](mailto:studentinfo.macdonald@mcgill.ca)  
Website: [www.mcgill.ca/macdonald/prospective](http://www.mcgill.ca/macdonald/prospective)

More specific information on application deadlines and admission requirements can be found at [www.mcgill.ca/applying](http://www.mcgill.ca/applying).

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## 5.4 Student Information

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

### 5.4.1 The Student Affairs Office

The Student Affairs Office, located in Laird Hall, Room 106, provides a wide variety of academic services. These include information about admission (prerequisites and program requirements), academic standing, examinations (deferrals, conflicts, rereads), exchange programs, inter-faculty transfers, program changes, registration (course change, withdrawals), scholarships (entrance and in-course), second degrees, second majors, minors, session away, and graduation (convocation).

Website: [www.mcgill.ca/macdonald/studentinfo/sao](http://www.mcgill.ca/macdonald/studentinfo/sao)

### 5.4.2 Student Services

Students who study on the Macdonald campus can make full use of all McGill Student Services. In addition, Student Services at the Macdonald campus offers a range of non-academic services, including: Career Planning Service (CaPS), Counselling, Student Financial Aid, Student Health, Off-Campus Housing, Winter Coat Project and McGill Student Parents' Network, Blue Cross International Health Insurance cards, and the Coordination of midterm examinations for students registered with the Office for Students with Disabilities.



All Student Services, whether at the Macdonald or the Downtown campuses, fall under the direction of the Office of the Executive Director, Services for Students; see *University Regulations and Resources > Support for Students*. For detailed information on our services, see *University Regulations and Resources > Student Services – Macdonald Campus* or our website: [www.mcgill.ca/macdonald-studentservices](http://www.mcgill.ca/macdonald-studentservices).

#### 5.4.3 Macdonald Campus Residences

You can apply for residence in either of two distinctive facilities:

Laird Hall, with a capacity of 250 students, is arranged on a co-educational basis and provides single- and double-room accommodation for both undergraduate and graduate students.

The EcoResidence accommodates 100 students in apartment-style living. It offers fully furnished six-plex and two-plex apartments including individual bedrooms.

For further information, refer to *University Regulations and Resources > Residential Facilities > University Residences – Macdonald Campus*; [www.mcgill.ca/macdonald-residences](http://www.mcgill.ca/macdonald-residences) or email [residences.macdonald@mcgill.ca](mailto:residences.macdonald@mcgill.ca).

#### 5.4.4 Student Life

All undergraduate, postgraduate, and Farm Management and Technology students are members of the Macdonald Campus Students' Society. The MCSS, through the 18-member Students' Council, is involved in numerous campus activities such as social events, academic affairs, and the coordination of clubs and organizations. Student life is informal and friendly, and student groups range from the Outdoor Adventure Club to the Photography Society. Major social events include Frosh activities, Halloween Party, and Winter Carnival. The Ceilidh, a student-run bar located in the Centennial Centre, is open every Thursday night.

The Centennial Centre is the centre of student life, offering facilities for student activities, such as meeting rooms, club rooms, pool tables, and great places to relax, listen to music, and meet friends. Also located in the Centre are the Students' Council offices, an information desk, and the Robber's Roost Campus Bookstore.

#### 5.4.5 Student Rights and Responsibilities

The *Handbook on Student Rights and Responsibilities* is published jointly by the Office of the Dean of Students and the University Secretariat. A copy of the Handbook can be found at [www.mcgill.ca/secretariat/policies/students](http://www.mcgill.ca/secretariat/policies/students).

#### 5.4.6 Fees

The University reserves the right to make changes without notice in its published scale of tuition, residence, and other fees.

Payment of student fees can be made directly on Minerva through Internet banking or preauthorized debit charges. Electronic billing is the official means of delivering fee statements to all McGill students. The University generally produces e-bills at the beginning of the month and sends an email notification to your official McGill email address stating that your e-bill is available for viewing on Minerva.

**The University shall have no obligation to issue any transcript of record, award any diploma, or re-register a student in case of non-payment of tuition fees, library fines, residence fees, or loans on their due date.**

##### 5.4.6.1 Tuition Fees

General information on tuition and other fees is found under *University Regulations and Resources > Fees*.

##### 5.4.6.2 Other Expenses

In addition to tuition fees and the cost of accommodation and meals, you should be prepared to spend a minimum of \$1,000 (depending on your program) on prescribed textbooks and classroom supplies. These may be purchased at the Campus Bookstore in the Centennial Centre.

Uniforms are required for food laboratories. If you are in the B.Sc.(Nutr.Sc.) program, you will be advised of the uniform requirements on acceptance or promotion.

#### 5.4.7 Immunization for Dietetics Majors

As a student in the Dietetics Major, you are required to complete the Compulsory Immunization Program for Health Care Students prior to or at the commencement of the U1 Winter Professional Practice (Stage) course NUTR 208. Participation in Professional Practice (Stage) in Dietetics will only be permitted after you have completed all immunization requirements, and certain deadlines will apply. Updates to your immunizations may be required during your program. For full details, see [www.mcgill.ca/studenthealth/forms/healthsciences](http://www.mcgill.ca/studenthealth/forms/healthsciences).

#### 5.4.8 Language Requirement for Professions

Quebec law requires that candidates seeking admission to provincially recognized Quebec professional corporations or *Ordres* have a working knowledge of the French language, i.e., be able to communicate verbally and in writing in that language. Agrologists, chemists, dietitians, and engineers are among those within this group.

For additional information, see *University Regulations and Resources > Admission to Professional and Graduate Studies > Language Requirements for Professions*.

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## 5.5 Faculty Information and Regulations

**Each student in the Faculty of Agricultural and Environmental Sciences must be aware of the Faculty Regulations as stated in this publication.**

While departmental and faculty advisers and staff are always available to give advice and guidance, the ultimate responsibility for completeness and correctness of your course selection and registration, for compliance with, and completion of your program and degree requirements, and for the observance of regulations and deadlines, *rests with you*. It is your responsibility to seek guidance if in any doubt; misunderstanding or misapprehension will not be accepted as cause for dispensation from any regulation, deadline, program, or degree requirement.

### 5.5.1 Minimum Credit Requirement

You must complete the minimum credit requirement for your degree as specified in your letter of admission.

Students are normally admitted to a four-year program requiring the completion of 120 credits, but advanced standing of up to 30 credits may be granted if you obtain satisfactory results in the Diploma of Collegial Studies, International Baccalaureate, French Baccalaureate, Advanced Levels, and Advanced Placement tests.

Normally, Quebec students who have completed the *Diplôme d'études collégiales* (DEC) or equivalent diploma are admitted to the first year of a program requiring the completion of a minimum of 90 credits, 113 credits for Bioresource Engineering, 115 credits for Dietetics plus any missing basic science prerequisites, and 122 credits for the Concurrent Degrees in Food Science and Nutritional Sciences.

Students from outside Quebec who are admitted on the basis of a high school diploma enter the Freshman Major, which comprises 30 credits (see [section 7.1: Freshman Major](#) in this publication).

You will not receive credit toward your degree for any course that overlaps in content with a course successfully completed at McGill, at another university, at CEGEP, or Advanced Placement exams, Advanced Level results, International Baccalaureate Diploma, or French Baccalaureate.

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

If you are a student in the B.Sc.(Ag.Env.Sc.) and in the Diploma in Environment (AES), you must take a minimum of two-thirds of your course credits within the Faculty of Agricultural and Environmental Sciences.

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

### 5.5.2 Minimum Grade Requirement

You must obtain grades of C or better in any required, complementary, and Freshman courses used to fulfil 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.

### 5.5.3 Academic Advisers

Upon entering the Faculty and before registering, you must consult with the academic adviser of your program for selection and scheduling of required, complementary, and elective courses. The academic adviser will normally continue to act in this capacity for the duration of your studies in the Faculty.

A faculty adviser is also available in the Student Affairs Office to assist you with student record related matters.

### 5.5.4 Categories of Students

#### 5.5.4.1 Full-Time Students

Full-time students in Satisfactory Standing take a minimum of 12 credits per term. (A normal course load is considered to be 15 credits per term.)

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

#### 5.5.4.2 Part-time Students

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

### 5.5.5 Academic Standing

You must prove that you can master the material of lectures and laboratories. Examinations are normally held at the end of each course, but other methods of evaluation may also be used. The grade assigned for a course represents your Standing in all the coursework.

The following rules apply to your Academic Standing:

1. When your CGPA (or TGPA in the first term of the program) falls below 2.00, your Academic Standing becomes Probationary.
2. If you are in Probationary Standing, you may register for no more than 14 credits per term.
3. While in Probationary standing, you must achieve a TGPA of 2.50 to continue in Probationary Standing or a CGPA of 2.00 in order to return to Satisfactory Standing. Failure to meet at least one of these conditions will result in Unsatisfactory Standing. (In the case of Fall term, this will be Interim Unsatisfactory Standing and the rules for Probationary Standing will apply.)
4. When your CGPA (or TGPA in the first term of the program) falls below 1.50, your Academic Standing becomes Unsatisfactory and you must withdraw. (In the case of Fall term, the standing will be Interim Unsatisfactory standing and the rules for Probationary standing will apply.)
5. If you are in Unsatisfactory Standing, you may not continue in your program. You may apply for readmission only after your registration has been interrupted for at least one term (not including Summer term).
6. Readmission will be in the Standing Unsatisfactory/Readmit and a CGPA of 2.00 must be achieved to return to Satisfactory standing or a TGPA of 2.50 must be achieved for Probationary Standing. If you fail to meet at least one of these conditions, you will be required to withdraw permanently.
7. Students in the School of Dietetics and Human Nutrition have additional standards in place for the professional program (Dietetics). See [section 7.5.4: Bachelor of Science \(Nutritional Sciences\) \(B.Sc.\(Nutr.Sc.\)\) - Major Dietetics \(115 credits\)](#).

#### 5.5.5.1 Committee on Academic Standing

The Faculty's Committee on Academic Standing, consisting of academic staff, administrative staff, and a student representative, reviews special requests made by students regarding their academic life.

#### 5.5.6 Credit System

The credit assigned to a particular course reflects the amount of effort it demands of you. As a guideline, a one-credit course would represent approximately 45 hours total work per course. This is, in general, a combination of lecture hours and other contact hours such as laboratory periods, tutorials, and problem periods as well as personal study hours.

Please refer to *University Regulations and Resources > Credit System*.

#### 5.5.6.1 School of Continuing Studies Courses

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

#### 5.5.7 Academic Credit Transfer

Transfer credits based on courses taken at other institutions (completed with a grade of C or better) before entrance to this Faculty are calculated and assigned after you are accepted, and have accepted the offer of admission.

Transfer credits may also be granted for courses taken at other institutions (completed with a grade of C or better) while you are attending McGill University. You must secure permission to apply such credits to your program in this Faculty before you begin the work. Prior Approval Forms are available in the Student Affairs Office in the Faculty. Grades obtained in such courses do not enter into calculations of grade point averages (GPA).

Exemption from a required or complementary course on the basis of work completed at another institution must be approved by both the instructor of the appropriate McGill course and the Academic Adviser.

As a full-time degree student, you may register, with approval of the Student Affairs Office, for course(s) at any university in the province of Quebec through CREPUQ. Those courses successfully completed with a minimum grade of C (according to the standards of the university giving the course) will be recognized for the purpose of your degree, but the grades obtained will not enter into your GPA calculations.

For further details, see *University Regulations and Resources > Registration > Quebec Inter-University Transfer Agreement (IUT)*, or go to [www.crepuq.qc.ca](http://www.crepuq.qc.ca) to access the online application.

#### 5.5.8 Regulations Regarding Second Academic Majors

While registered in a major in the Faculty of Agricultural and Environmental Sciences, you may pursue a second set of courses of greater scope than a minor (e.g., Faculty program, Major, Honours program, Major concentration) in either this Faculty or another faculty. Application for a Second Academic Major must be made to the Associate Dean (Student Affairs) in the Student Affairs Office, Laird Hall, Room 106. Following are the regulations and procedures for Second Academic Majors:

1. You must be in Satisfactory Academic Standing with a minimum CGPA of 3.00 in order to apply for a Second Academic Major.
2. In consultation with the appropriate authority associated with each major (Academic Adviser, Associate Dean), you must construct a proposal showing all the courses that are to be taken to satisfy the entrance and program requirements of both the First and Second Academic Majors.
3. A minimum of 36 credits must be unique to the Second Major (i.e., not part of the required or complementary courses taken for the First Major).
4. You must obtain prior approval for all proposed Second Academic Majors from your Academic Adviser and the Student Affairs Office and from the Associate Dean, adviser, or appropriate committee of the other faculty concerned.
5. Normally, proposals for Second Academic Majors will be initiated before completion of U1 year of the First Academic Major.
6. The academic standards applicable to each major will be respected.

### 5.5.8.1 Procedures for Minor Programs

If you want to register for a Minor program, you must complete a Minor Approval form (usually at the beginning of your U2 year), and return it duly completed to the Student Affairs Office. The Minor program will then be added to your record and will automatically continue each year unless you officially cancel it in writing. If you want to cancel the Minor, you must notify both the Minor Adviser and the Student Affairs Office. The Minor Approval form is available on the Faculty website and in the Student Affairs Office, Laird Hall, Room 106.

### 5.5.9 Course Change Information

1. Courses: please refer to *University Regulations and Resources > Registration > Course Change Period*, and the Important Dates website [www.mcgill.ca/importantdates](http://www.mcgill.ca/importantdates).
2. Course withdrawal (Transcript notation of "W"): please refer to *University Regulations and Resources > Registration > Regulations Concerning Course Withdrawal*, and the Important Dates website [www.mcgill.ca/importantdates](http://www.mcgill.ca/importantdates).
3. Other changes: information about changes may be obtained from the Student Affairs Office of the Faculty.

### 5.5.10 Graduate Courses Available to Undergraduates

Undergraduates who want to take graduate courses must have a cumulative grade point average (CGPA) of at least 3.20. Final approval must be obtained from Graduate and Postdoctoral Studies. Be advised that graduate courses taken for credit toward an undergraduate degree will not be credited toward a graduate program.

### 5.5.11 Attendance and Conduct in Class

Matters of discipline connected with, or arising from, the general arrangement for teaching are under the jurisdiction of the Dean of the Faculty.

Students may be admonished by a professor or instructor for dishonest or improper conduct. If disciplinary action is required, it must be reported to the Associate Dean (Student Affairs).

Punctual attendance at all classes, laboratory periods, tests, etc., is expected of all students.

### 5.5.12 Incomplete Grades

An instructor who believes that there is justification for a student to delay submitting term work may extend the deadline until after the end of the course. In this case, the instructor will submit a grade of K (incomplete), indicating the date by which the work is to be completed. The maximum extensions for the submission of grades to the Student Affairs Office are as follows:

#### Students graduating in June

Fall courses	January 15
Winter courses, and courses spanning Fall/Winter	April 30

#### Non-graduating students

Fall courses	January 15
Winter courses, and courses spanning Fall/Winter	May 15

Students' deadlines for submitting their work must be sufficiently in advance of these dates to ensure that the work can be graded and the mark submitted on time. It is important to note that instructors may impose earlier deadlines than those listed above.

If instructors have not submitted marks to clear Ks to the Student Affairs Office by the above dates, the K is automatically changed to a KF and counts as an F in the GPA.

Students with a grade of K who have serious extenuating circumstances may request an extension of the K deadline (KE) from the Associate Dean (Student Affairs). Refer to *University Regulations and Resources > Student Records > Grading and Grade Point Averages (GPA)* for more information about grading and credit.

### 5.5.13 Examinations

You should refer to *University Regulations and Resources > Examinations* for information about final examinations and deferred examinations. Examination schedules are posted on the McGill website, [www.mcgill.ca](http://www.mcgill.ca), normally one month after the start of classes for the Tentative Exam Schedule, and two months after the start of classes for the Final Exam Schedule.

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

Oral presentations made as part of course requirements are in English.

#### 5.5.13.1 Reassessments and Rereads

In accordance with the *Charter of Student Rights*, and subject to its stated conditions, you have the right to consult any written submission for which you have received a mark. You also have the right to discuss this submission with the examiner.

If, after discussion with your instructor, you want to have a formal final examination reread, you must apply in writing to the Associate Dean (Student Affairs). The following conditions apply:

- grades may be either raised or lowered as the result of a reread;
- rereads in courses outside the Faculty of Agricultural and Environmental Sciences are subject to the deadlines, rules, and regulations of the relevant faculty.

Application for rereads must be made by March 31 for Fall term courses and by September 30 for Winter term and Summer term courses. You are assessed a fee for formal rereads. Any request to have term work re-evaluated must be made directly to the instructor concerned.

Any request to have in-course submissions reassessed must be made within 10 working days after the graded material has been made available to you.

#### 5.5.13.2 Deferred Examinations

The Faculty offers deferred exams for medical reasons and exceptional circumstances (to be approved by the Associate Dean (Student Affairs)) for the Fall and Winter periods. Verify dates on the Important Dates website at [www.mcgill.ca/importantdates](http://www.mcgill.ca/importantdates), apply on Minerva, and provide medical documentation to the Student Affairs Office.

#### 5.5.14 Degree Requirements

To be eligible for a B.Eng.(Bioresource), B.Sc.(Ag.Env.Sc.), B.Sc.(F.Sc.), or Concurrent B.Sc.(F.Sc.) and B.Sc.(Nutr.Sc.) degree, you must have passed, or achieved exemption, with a minimum grade of C in all required and complementary courses of the program. You must also have a CGPA of at least 2.00.

In addition, if you are a student in the Dietetics program, you must have completed the Stages of professional formation requiring a CGPA of 3.00.

You must have completed all Faculty and program requirements; see [section 5.5.1: Minimum Credit Requirement](#) in this publication.

In order to qualify for a McGill degree, you must complete a minimum residency requirement of 60 credits at McGill. If you are in the B.Sc.(Ag.Env.Sc.), you must take a minimum of two-thirds of your course credits within the Faculty of Agricultural and Environmental Sciences.

#### 5.5.15 Dean's Honour List

For information on the designation of Dean's Honour List awarded at graduation, see *University Regulations and Resources > Dean's Honour List* in this publication.

#### 5.5.16 Distinction

For information on the designation of Distinction awarded at graduation, see *University Regulations and Resources > Distinction* in this publication.

#### 5.5.17 Honours and First Class Honours

Departments may recommend to the Faculty that graduating students registered in an honours program be awarded Honours or First-Class Honours under the following conditions:

- you must complete all honours program requirements; for Honours, the CGPA at graduation must be at least 3.00;
- for First-Class Honours, the CGPA at graduation must be at least 3.50;
- some programs may impose additional requirements, which must be met before you are recommended for Honours or First-Class Honours.

Students in an honours program whose CGPA is below 3.00, or who did not satisfy certain program requirements, must consult their academic adviser to determine their eligibility to graduate in a program other than Honours.

#### 5.5.18 Scholarships, Bursaries, Prizes, and Medals

Various scholarships, bursaries, prizes, and medals are open to entering, in-course, and graduating students. No application is required. Full details of these are set out in the *Undergraduate Scholarships and Awards Calendar*, available at [www.mcgill.ca/students/courses/calendars](http://www.mcgill.ca/students/courses/calendars).

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## 6 Overview of Programs Offered by the Faculty of Agricultural and Environmental Sciences

The Faculty of Agricultural and Environmental Sciences and the School of Dietetics and Human Nutrition offer degrees in Bachelor of Science (Agricultural and Environmental Sciences), Bachelor of Engineering (Bioresource Engineering), Bachelor of Science (Food Science), Bachelor of Science (Nutritional Sciences), Concurrent degree program in Food Science and Nutritional Sciences, Certificate in Food Science, Certificate in Ecological Agriculture, Diploma in Environment, and Diploma of Collegial Studies in Farm Management and Technology.

The Faculty of Agricultural and Environmental Sciences is one of the four faculties in partnership with the McGill School of Environment.

Several programs offered by the Faculty and School lead toward professional accreditation. These include the Dietetics Major (membership in the Dietitians of Canada and the *Ordre professionnel des diététistes du Québec*); the Agricultural Economics Major and the Agro-Environmental Sciences Major (membership in the *Ordre des agronomes du Québec* and other provincial Institutes of Agriculture); Bioresource Engineering (membership as a professional engineer in any province of Canada plus the *Ordre des agronomes du Québec*); and Food Science (accreditation by the Institute of Food Technologists and professional accreditation by the *Ordre des chimistes du Québec*). Professional Practice experiences to complete the Dietetics practicum are provided in the McGill teaching hospitals and in a wide variety of health, education, business, government, and community agencies.

The Faculty also offers M.Sc. and Ph.D. programs in the areas of Agricultural Sciences, Biological Sciences, Bioresource Engineering, Biotechnology, Environmental Sciences, Food Science, and Nutritional Sciences. M.Sc.(Applied) programs are offered in some disciplines. In addition, a Graduate Certificate in Biotechnology, a Graduate Diploma in Dietitian Credentialing, a Graduate Certificate in Bioinformatics, and a Graduate Option in Environment are offered.

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*section 7.2: Bachelor of Science (Agricultural and Environmental Sciences) – B.Sc.(Ag.Env.Sc.)*

*section 7.3: Bachelor of Engineering (Bioresource) – B.Eng.(Bioresource)*

*section 7.4: Bachelor of Science (Food Science) - B.Sc.(F.Sc.)*

*section 7.5: Bachelor of Science (Nutritional Sciences) – B.Sc.(Nutr.Sc.)*

*section 6.7: Concurrent Bachelor of Science in Food Science – B.Sc.(F.Sc.) and Bachelor of Science in Nutritional Sciences – B.Sc.(Nutr.Sc.)*

*section 6.8: Honours Program*

*section 6.9: Minor Programs*

*section 6.10: Post-Baccalaureate Certificate Programs*

*section 6.11: Diploma Program (Undergraduate)*

*section 6.12: Diploma in Collegial Studies*

*section 6.13: Environmental Sciences Programs*

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### 6.1 Internship Opportunities and Co-op Experience

#### 6.1.1 FAES 200/300 Internship Program

As a full-time undergraduate student (with a CGPA of 2.9 or higher) in one of the following programs: B.Sc.(Ag.Env.Sc.), B.Sc.(F.Sc.), and B.Eng.(Bioresource), you have the opportunity to participate in the Internship program. It's a non-credit (Pass/Fail only) course, where you can intern in a place related to your field of study.

The internship should be a minimum length of 14 weeks, working 35 hours a week or more. Internships are a great way to get your foot in the door and experience practical work firsthand and see how it compliments your studies.

#### 6.1.2 AGRI 310 Internship in Agriculture/Environment

The objective of AGRI 310 is to give you experience working in an enterprise that is related to your field of study, and to find out how your studies can contribute to your understanding and performance in the workplace environment. Through observations of the enterprise function, the decision-making process and the economic constraints, you should obtain a better understanding of the technical, economic, and social challenges faced by enterprises working in your chosen field of study.

#### 6.1.3 AGRI 410 D1 and D2 Internship and Co-op Experience

As a qualified student in the B.Sc.(Ag.Env.Sc.), you have the opportunity to participate in a summer-long internship related to your field of study. If you aspire to become a professional agrologist, you will be required to complete an internship under the supervision of a professional agrologist.

AGRI 410 is part of the professional agrology specialization and is obligatory for students wanting to become professional agrologists (*agronomes*) in Quebec as part of the 6 credits of practical training required by the *Ordre des agronomes du Québec*.

Most undergraduate programs offered in the Faculty include the opportunity for a co-op work experience. Internships and co-op experience both involve a work placement of 12 to 16 weeks' duration where you are exposed to the main areas of operation of your employer. Each work placement is unique, and you benefit from a program developed exclusively for you by both your employer and your instructor.

When you register for an internship or co-op experience, you benefit from the practical learning that you undergo during your work term in a meaningful job situation. As well, you benefit from the non-tangible learning experience that comes from the increased responsibilities needed to acquire and successfully complete your work term.

You also have the opportunity to pursue a 6-credit internship within the Barbados and Panama Field Studies semesters. For details, see *Field Studies and Study Abroad > Field Study Semesters and Off-campus Courses*.

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## 6.2 Exchange Programs

The Faculty of Agricultural and Environmental Sciences participates in all University-wide student exchange programs available at McGill and also has Faculty-specific exchange programs. For more information, see *Field Studies and Study Abroad > Exchange Programs*.

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

See [section 7.2: Bachelor of Science \(Agricultural and Environmental Sciences\) – B.Sc.\(Ag.Env.Sc.\)](#) for details.

### 6.3.1 Major Programs

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

Agricultural Economics\*

Agro-Environmental Sciences\*

Environmental Biology

Environment, under McGill School of Environment:

- Biodiversity and Conservation Domain
- Ecological Determinants of Health Domain
- Environmetrics Domain
- Food Production and Environment Domain
- Land Surface Processes and Environmental Change Domain
- Renewable Resource Management Domain
- Water Environments and Ecosystems Domain

International Agriculture and Food Systems

Life Sciences (Biological and Agricultural)

### 6.3.2 Specializations for Major Programs in the B.Sc.(Ag.Env.Sc.)

Agribusiness

Agriculture and Food Systems (Multidisciplinary)

Animal Biology

Animal Health and Disease

Animal Production

Applied Ecosystem Sciences

Ecological Agriculture

Entomology

Environmental Biology (Multidisciplinary)  
Environmental Economics  
Health and Nutrition  
International Agriculture  
International Development (*closed to further admissions*)  
Life Sciences (Multidisciplinary)  
Microbiology and Molecular Biotechnology  
Plant Biology  
Plant Production  
Professional Agrology  
Soil and Water Resources  
Wildlife Biology

#### 6.3.2.1 Pre 2011-2012

The programs listed below were in effect until the 2011-2012 academic year. Consult the *2010-2011 Undergraduate Programs, Courses and University Regulations* publication at [www.mcgill.ca/study/2010-2011](http://www.mcgill.ca/study/2010-2011) or previous Calendars at [www.mcgill.ca/students/courses/calendars](http://www.mcgill.ca/students/courses/calendars) for program requirements, or consult your academic adviser.

Agribusiness Option  
Environmental Economics Option  
Agricultural Economics Specialization  
International Development Specialization  
Microbiology Specialization  
Molecular Biotechnology Specialization  
Plant Protection Specialization

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## 6.4 Bachelor of Engineering in Bioresource Engineering – B.Eng.(Bioresource)

See [section 7.3: Bachelor of Engineering \(Bioresource\) – B.Eng.\(Bioresource\)](#) for details.

The program leads to eligibility in any provincial professional engineering order. The Professional Agrology Option leads to eligibility in the *Ordre des agronomes du Québec*.

### Bioresource Engineering:

Agricultural Engineering Stream  
Bio-Environmental Engineering Stream  
Ecological Engineering Stream  
Food and Bioprocess Engineering Stream  
Soil and Water Engineering Stream  
Professional Agrology Option

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## 6.5 Bachelor of Science in Food Science – B.Sc.(F.Sc.)

See [section 7.4: Bachelor of Science \(Food Science\) - B.Sc.\(F.Sc.\)](#) for details.



**Food Science:**

Food Chemistry Option  
 Food Science Option

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

Two majors are offered by the School of Dietetics and Human Nutrition. See [section 7.5: Bachelor of Science \(Nutritional Sciences\) – B.Sc.\(Nutr.Sc.\)](#) for details.

Dietetics (professional program leading to professional licensing as Dietitian/Nutritionist)

Nutrition:

Food Function and Safety  
 Global Nutrition  
 Nutritional Biochemistry  
 Sports Nutrition

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

See [section 7.4.3: Concurrent Bachelor of Science in Food Science \(B.Sc.\(F.Sc.\)\) and Bachelor of Science Nutritional Sciences \(B.Sc.\(Nutr.Sc.\)\) - Food Science/Nutritional Science Major \(122 credits\)](#) for details.

Food Science / Nutritional Science

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**6.8 Honours Program**

Environment, under *McGill School of Environment*

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**6.9 Minor Programs**

Agricultural Economics  
 Agricultural Production  
 Animal Biology  
 Animal Health and Disease  
 Ecological Agriculture  
 Environmental Engineering  
 Human Nutrition  
 International Agriculture  
 Minor in Environment, under *McGill School of Environment*

## 6.10 Post-Baccalaureate Certificate Programs

The Faculty offers the following post-baccalaureate certificate programs.

Bioinformatics  
Ecological Agriculture  
Food Science

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## 6.11 Diploma Program (Undergraduate)

Diploma in Environment, under *McGill School of Environment*

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## 6.12 Diploma in Collegial Studies

Farm Management and Technology

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## 6.13 Environmental Sciences Programs

### 6.13.1 McGill School of Environment (MSE)

The MSE is a joint initiative of the Faculty of Agricultural and Environmental Sciences, the Faculty of Arts, the Faculty of Science, and the Faculty of Law. It offers a B.Sc.(Ag.Env.Sc.) Major in Environment, a B.Sc. Major in Environment, a B.A. & Sc. Interfaculty Program in Environment, a B.A. in Environment, a Minor in Environment and a Diploma in Environment. The MSE programs allow you to choose to study on both the Macdonald and Downtown campuses.

A list of the B.Sc.(Ag.Env.Sc.) domains is given under [section 7.2: Bachelor of Science \(Agricultural and Environmental Sciences\) – B.Sc.\(Ag.Env.Sc.\)](#). Further information on all programs is given under *McGill School of Environment* and on the MSE website: [www.mcgill.ca/mse](http://www.mcgill.ca/mse).

### 6.13.2 Environmental Programs on the Macdonald Campus

A number of integrated environmental science programs are also offered on the Macdonald campus, particularly within the B.Sc.(Ag.Env.Sc.) and B.Eng.(Bioresource) degrees. The objective of these interdepartmental programs is to provide you with a well-rounded training in a specific interdisciplinary subject as well as the basis for managing natural resources. For a complete list of the programs, see [section 6: Overview of Programs Offered by the Faculty of Agricultural and Environmental Sciences](#).

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## 7 Academic Programs

Degree programs at the undergraduate level in the Faculty may lead to a B.Sc. degree in Agricultural and Environmental Sciences (Ag.Env.Sc.), Food Science (F.Sc.), Nutritional Sciences (Nutr.Sc.), or a B.Eng. degree in Bioresource Engineering. The Faculty also offers students the possibility of doing concurrent B.Sc. degrees in both Food Science and Nutritional Sciences.

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## 7.1 Freshman Major

### Program Director

Dr. Marcia Knutt  
Macdonald-Stewart Building, Room 1-022  
Telephone: 514-398-7976

The Freshman Program is designed to provide a basic science foundation to students entering university for the first time from a high school system (outside of the Quebec CEGEP system). The Freshman year consists of at least 30 credits in Fundamental Math and Science courses as preparation for one of the following degree programs:

- B.Sc. (Agricultural & Environmental Sciences)
- B.Eng. (Bioresource)
- B.Sc. (Nutritional Sciences)
- B.Sc. (Food Science)
- Concurrent B.Sc. (Food Science) and B.Sc. (Nutritional Sciences)

Students who have completed the Diploma of Collegial Studies, Advanced Placement Exams, Advanced Levels, the International Baccalaureate, the French Baccalaureate, or McGill Placement examinations may receive exemption and/or credit for all or part of the Basic Science courses in biology, chemistry, physics and mathematics. Similarly, students who have completed courses at other universities or colleges may receive exemptions and/or credits. Students should consult with the Faculty's Student Affairs Office.

### 7.1.1 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.

Freshman Adviser: Dr. Alice Cherestes

Macdonald-Stewart Building, Room 1-023

Telephone: 514-398-7980

#### 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.

Freshman Adviser: Dr. Alice Cherestes

Macdonald-Stewart Building, Room 1-023

Telephone: 514-398-7980

**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 AGECE 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 AGECE 200 and AGECE 201/AGECE 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.

**7.1.2 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.

Freshman Adviser: Dr. Marcia Knutt

Macdonald-Stewart Building, Room 1-022

Telephone: 514-398-7976

**Required Courses - Fall (14.5 credits)**

AEBI 120	(3)	General Biology
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

**7.1.3 Bachelor of Science (Food Science) (B.Sc.(F.Sc.)) - Freshman Program (30 credits)**

If you are entering university for the first time from a high school system (outside of the Quebec CEGEP system), you will be required to complete a freshman year of at least 30 credits as listed below.

Normally, students registered in the Faculty of Agricultural and Environmental Sciences Freshman program may take a maximum of 8 credits outside the Faculty offerings to meet the requirements of the program. Permission to exceed this limit must be received from the Associate Dean (Student Affairs) prior to registration.

Note: If you are not certain that you have adequate math and/or physics skills to commence the Freshman year, you may wish to take preparatory courses prior to the normal Fall semester. You are encouraged to discuss your potential need with your academic adviser. Mathematical skill level will be determined during the first week of classes. Your Freshman adviser may recommend that you register for an additional weekly Pre-calculus Lab, of one credit, which may be applied towards the required credits of the degree program.

Freshman Adviser: Dr. Alice Cherestes

Macdonald-Stewart Building, Room 1-023

Telephone: 514-398-7980

**Required Courses - Fall (14.5 credits)**

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)****7.1.4 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Freshman Program (30 credits)**

If you are entering university for the first time from a high school system (outside of the Quebec CEGEP system) you will be required to complete a Freshman year of at least 30 credits as listed below.

Normally, students registered in the Faculty of Agricultural and Environmental Sciences Freshman program may take a maximum of 8 credits outside the Faculty offerings to meet the requirements of the program. Permission to exceed this limit must be received from the Associate Dean (Student Affairs) prior to registration.

Students require a minimum 2.50 CGPA in order to progress into Year 1 of the Dietetics program.

Note: If you are not certain that you have adequate math and/or physics skills to commence the Freshman year, you may wish to take preparatory courses prior to the normal Fall semester. You are encouraged to discuss your potential need with your academic adviser. Mathematical skill level will be determined during the first week of classes. Your freshman adviser may recommend that you register for an additional weekly Pre-calculus Lab, of one credit, which may be applied towards the required credits of the degree program.

Freshman Adviser: Dr. Alice Cherestes

Macdonald-Stewart Building, Room 1-023

Telephone: 514-398-7980

#### **Required Courses - Fall (14.5 credits)**

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

### **7.1.5 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.

Freshman Adviser: Dr. Alice Cherestes

Macdonald-Stewart Building, Room 1-023

Telephone: 514-398-7980

#### **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

**7.2 Bachelor of Science (Agricultural and Environmental Sciences) – B.Sc.(Ag.Env.Sc.)****7.2.1 General rules for the following B.Sc.(Ag.Env.Sc.) programs**

Students register in one *major* and at least one *specialization*. They may design their own program by choosing one of the four majors and at least one of the 20 specializations. By choosing two different specializations, students have the option of developing their own interdisciplinary interests. The multidisciplinary specializations are designed for those interested in broad training.

All the required and complementary courses for the major must be completed in full. Within each specialization, at least 18 credits must be unique; that is, they only count for that specialization and do not overlap with either the major or a second specialization. At least 54 credits of the 90 credits required for the degree (120 for students admitted to the Freshman year) must be from 300-level courses or higher; of this at least 12 credits must be from 400-level courses or higher.



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

**Majors:**

- Agricultural Economics
- Agro-environmental Sciences
- Environmental Biology
- International Agriculture and Food Systems
- Life Sciences (Biological and Agricultural)
- Major in Environment (see *McGill School of Environment > Major in Environment – B.Sc.(Ag.Env.Sc.) and B.Sc.*)

**Specializations:**

- Agribusiness, [section 7.2.7.2: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Agribusiness \(24 credits\)](#)
- Agriculture and Food Systems (Multidisciplinary), [section 7.2.7.3: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) – Agriculture and Food Systems \(Multidisciplinary\) \(24 credits\)](#)
- Animal Biology, [section 7.2.7.4: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) – Animal Biology \(24 credits\)](#)
- Animal Health and Disease, [section 7.2.7.5: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) – Animal Health and Disease \(24 credits\)](#)
- Animal Production, [section 7.2.7.6: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) – Animal Production \(24 credits\)](#)
- Applied Ecosystem Sciences, [section 7.2.7.7: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) – Applied Ecosystem Sciences \(24 credits\)](#)
- Ecological Agriculture, [section 7.2.7.8: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) – Ecological Agriculture \(24 credits\)](#)
- Entomology, [section 7.2.7.9: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) – Entomology \(24 credits\)](#)
- Environmental Biology (Multidisciplinary), [section 7.2.7.10: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Environmental Biology \(Multidisciplinary\) \(24 credits\)](#)
- Environmental Economics, [section 7.2.7.11: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Environmental Economics \(24 credits\)](#)
- Health and Nutrition, [section 7.2.7.12: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) – Health and Nutrition \(24 credits\)](#)
- International Agriculture, [section 7.2.7.13: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) – International Agriculture \(24 credits\)](#)
- International Development, [section 7.2.7.14: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - International Development \(IAFS\) \(24 credits\)](#) *This specialization is closed to newly admitted students.*

- Life Sciences (Multidisciplinary), *section 7.2.7.15: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Life Sciences (Multidisciplinary) (24 credits)*
- Microbiology and Molecular Biotechnology, *section 7.2.7.16: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Microbiology and Molecular Biotechnology (24 credits)*
- Plant Biology, *section 7.2.7.17: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Biology (24 credits)*
- Plant Production, *section 7.2.7.18: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Production (24 credits)*
- Professional Agrology, *section 7.2.7.19: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Professional Agrology (21 credits)*
- Soil and Water Resources, *section 7.2.7.20: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Soil and Water Resources (24 credits)*
- Wildlife Biology, *section 7.2.7.21: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Wildlife Biology (24 credits)*

## 7.2.2 B.Sc.(Ag.Env.Sc.) – Agricultural Economics Major

### Program Director

Professor John Henning

Macdonald-Stewart Building, Room 3-038

Telephone: 514-398-7826

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

#### Program Prerequisites

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

#### Required Courses (33 credits)

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 & Methodology
ENVB 210	(3)	The Biophysical Environment

#### Complementary Courses (9 credits)

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

Accounting

Statistics

Written/Oral Communication

#### Specialization (21 - 24 credits)

Specializations designed to be taken with the Agricultural Economics Major:

- Agribusiness (24 credits)

- Environmental Economics (24 credits)

- Professional Agrology (21 credits)



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

### Electives

To meet the minimum credit requirement for the degree.

## 7.2.3 B.Sc.(Ag.Env.Sc.) – Agro-Environmental Sciences Major

**Program Director:** Professor Roger I. Cue

**Academic Adviser:** Dr. Julie Major

Raymond Building, Room 2-021c

Telephone: 514-398-8380

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

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

This Major is focused on the idea that agricultural landscapes are managed ecosystems, and that humans engaged in agriculture must maintain the highest possible environmental standards while providing food and other bioproducts to the marketplace. The Major core focuses on the basic and applied biology of cultivated plants, domestic animals, arable soils, and the economics of agriculture. Students then choose one or two specializations in these or connected disciplines that reflect their interests and career goals.

The program has a strong field component that includes hands-on laboratories, visits to agricultural enterprises, and opportunities for internships. Classes and laboratories exploit the unique setting and facilities of the Macdonald Campus and Farm, which is a fully functioning farm in an urban setting that exemplifies many of the issues at the forefront of modern agricultural production. Graduates of this program are eligible to become members of the Ordre des agronomes du Québec.

Program Director: Professor Roger Cue

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

#### Program Prerequisites

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

#### Required Courses (36 credits)

AEBI 210	(3)	Organisms 1
AEHM 205	(3)	Science Literacy
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
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
SOIL 315	(3)	Soil Fertility and Fertilizer Use

#### 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.

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

## 7.2.4 B.Sc.(Ag.Env.Sc.) – Environmental Biology Major

**Program Director:** Professor Chris Buddle  
**Academic Adviser:** Dr. Julie Major  
Raymond Building, Room 2-021c  
Telephone: 514-398-8380

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

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

The Environmental Biology Major is about the biology, diversity, and ecology of a broad range of organisms, from plant and vertebrate animals to insects, fungi, and microbes. This Major places a strong emphasis on the ecosystems that species inhabit and the constraints imposed by the physical environment and by environmental change. Environmental Biology has significant field components worked into the course sets, and through this experiential learning, biological diversity, and the ways that species interact with their physical environment in a variety of ecosystems will be studied. The Major makes full use of the unique physical setting and faculty expertise of McGill's Macdonald campus to train students to become ecologists, taxonomists, field biologists, and ecosystem scientists.

Program Director: Professor Christopher Buddle  
Academic Adviser: Dr. Julie Major  
Macdonald-Stewart Building, Room 2-082  
Telephone: 514-398-8380

### Program Prerequisites

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

### Required Courses (30 credits)

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 410	(3)	Ecosystem Ecology
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1

### Complementary Courses (12 credits)

12 credits of complementary courses selected from:

ENTO 340	(3)	Field Entomology
ENVB 301	(3)	Meteorology
ENVB 305	(3)	Population & Community Ecology
ENVB 313	(3)	Phylogeny and Biogeography
ENVB 315	(3)	Science of Inland Waters
ENVB 430	(3)	GIS for Natural Resource Management
ENVB 437	(3)	Assessing Environmental Impact
ENVB 497	(3)	Research Project 1
ENVB 498	(3)	Research Project 2
ENVB 506	(3)	Quantitative Methods in Ecology
ENVR 203	(3)	Knowledge, Ethics and Environment
LSCI 230	(3)	Introductory Microbiology
LSCI 451	(3)	Research Project 1
MICR 331	(3)	Microbial Ecology
PLNT 304	(3)	Biology of Fungi
PLNT 358	(3)	Flowering Plant Diversity
SOIL 300	(3)	Geosystems
SOIL 326	(3)	Soils in a Changing Environment
WILD 307	(3)	Natural History of Vertebrates

### Specialization

At least one specialization of 18-24 credits

Specializations designed to be taken with the Environmental Biology Major:

- Applied Ecosystem Sciences
- Environmental Biology (Multidisciplinary)
- Plant Biology
- Wildlife Biology

Note: For a complete list of specializations offered for students in the Bachelor of Science in Agricultural and Environmental Sciences, refer to "Academic Programs" > "Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.)" > "Specializations", in this publication. Consult the Academic Adviser for approval of specializations other than those listed above.

### Electives

To meet the minimum credit requirement for the degree.

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

## 7.2.5 B.Sc.(Ag.Env.Sc.) – International Agriculture and Food Systems Major

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

**Program Director:** Professor Humberto Monardes

**Academic Adviser:** Dr. Julie Major

Raymond Building, Room 2-021c

Telephone: 514-398-8380

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

#### 7.2.5.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Major International Agriculture and Food Systems (42 credits)

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

This program is directed at students who seek conceptual understanding of the scope of and inter-relationships among the environmental, economic, and socio-cultural factors that shape the nature of developing country food systems as well as scientific competence in the ways in which agriculture can help define sustainable solutions to critical problems defined by food insecurity, malnutrition, poverty, and ecological health. Students will be given general preparation sufficient for participation in project management and policy development together with a foundation adequate both for working alongside a range of development specialists and for subsequent acquisition of specific expertise in components of agricultural and food science. The program couples a common core of scientific and development-related courses and allows students to seek further depth in development-related courses in either the social sciences or natural sciences.

Program Director: Professor Humberto Monardes

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

### Program Prerequisites

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

### Required Courses (15 credits)

AEMA 310	(3)	Statistical Methods 1
AGEC 200	(3)	Principles of Microeconomics
AGRI 411	(3)	Global Issues on Development, Food and Agriculture
AGRI 493	(3)	International Project Management
INTD 200	(3)	Introduction to International Development

### Complementary Courses (27 credits)

Complementary Course A (3 credits)

One of:

AGRI 490	(3)	Agri-Food Industry Project
AGRI 499	(3)	Agricultural Development Internship

Complementary Courses B (9 credits)

AEBI 210	(3)	Organisms 1
ANSC 250	(3)	Principles of Animal Science
ENVB 210	(3)	The Biophysical Environment
FDSC 200	(3)	Introduction to Food Science

### Streams

Choose either the Natural Science or Social Science stream (9 credits).

Natural Science Stream

Complementary Course C1.1 (3 credits)

LSCI 211 (3) Biochemistry 1

Complementary Course C1.2 (3 credits)

Choose one of:

LSCI 202 (3) Molecular Cell Biology

LSCI 204 (3) Genetics

Complementary Course C1.3 (3 credits)

Choose one of:

ANSC 234 (3) Biochemistry 2

LSCI 230 (3) Introductory Microbiology

Social Science Stream

Complementary Course C2.1 (3 credits)

Choose one of:

AGEC 430 (3) Agriculture, Food and Resource Policy

AGEC 442 (3) Economics of International Agricultural Development

Choose two of the following three complementary course sets (6 credits):

Complementary Courses C2.2 (3 credits)

Choose one of:

GEOG 205 (3) Global Change: Past, Present and Future

GEOG 210 (3) Global Places and Peoples

GEOG 216 (3) Geography of the World Economy

NRSC 221 (3) Environment and Health

Complementary Course C2.3 (3 credits)

Choose one of:

ANTH 202 (3) Socio-Cultural Anthropology

ANTH 204 (3) Anthropology of Meaning

ANTH 206 (3) Environment and Culture

Complementary Course C2.4 (3 credits)

Choose one of:

POLI 243 (3) International Politics of Economic Relations

SOCI 210 (3) Sociological Perspectives

SOCI 225 (3) Medicine and Health in Modern Society

SOCI 234	(3)	Population and Society
SOCI 254	(3)	Development and Underdevelopment

Choose 6 credits from one of the following International Development Studies domains:

Economic Development and Living Standards

Environment Agricultural Resources

### Specialization (18-24 credits)

Students must also complete at least one specialization of 18-24 credits. Specializations suggested to be taken with the International Agriculture and Food Systems Major:

- Agriculture and Food Systems (Multidisciplinary)

- Ecological Agriculture

- Health and Nutrition

- International Agriculture

Note: For a complete list of specializations offered for students in the Bachelor of Science in Agricultural and Environmental Sciences, refer to "Academic Programs" > "Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.)" > "Specializations", in this publication. Consult the Academic Adviser for approval of specializations other than those listed above.

### Electives

To meet the minimum credit requirement for the degree.

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

## 7.2.6 B.Sc.(Ag.Env.Sc.) – Life Sciences (Biological and Agricultural) Major

**Program Director:** Professor Brian Driscoll  
Macdonald-Stewart Building, Room 3-035  
Telephone: 514-398-7887

**Academic Adviser:** Dr. Julie Major  
Raymond Building, Room 2-021c  
Telephone: 514-398-8380

### 7.2.6.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Major Life Sciences (Biological and Agricultural) (42 credits)

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

The Life Sciences (Biological and Agricultural) Major provides a strong foundation in the basic biological sciences. It will prepare graduates for careers in the agricultural, environmental, health, and biotechnological fields. Graduates with high academic achievement may go on to postgraduate studies in research, or professional programs in the biological, veterinary, medical, and health sciences fields.

Program Director: Professor Brian Driscoll

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

### Program Prerequisites

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

### Required Courses (27 credits)

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

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
LSCI 202	(3)	Molecular Cell Biology
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology

### Complementary Courses (15 credits)

15 credits of the complementary courses selected from:

AEHM 330	(3)	Academic and Scientific Writing
ANSC 234	(3)	Biochemistry 2
ANSC 250	(3)	Principles of Animal Science
ANSC 312	(3)	Animal Health and Disease
ANSC 323	(3)	Mammalian Physiology
ANSC 324	(3)	Developmental Biology and Reproduction
ANSC 326	(3)	Fundamentals of Population Genetics
ANSC 330	(3)	Fundamentals of Nutrition
ANSC 400	(3)	Eukaryotic Cells and Viruses
ANSC 420	(3)	Animal Biotechnology
BINF 301	(3)	Introduction to Bioinformatics
BINF 511	(3)	Bioinformatics for Genomics
BTEC 306	(3)	Experiments in Biotechnology
ENVB 210	(3)	The Biophysical Environment
ENVB 222	(3)	St. Lawrence Ecosystems
LSCI 451	(3)	Research Project 1
LSCI 452	(3)	Research Project 2
MICR 331	(3)	Microbial Ecology
MICR 338	(3)	Bacterial Molecular Genetics
MICR 341	(3)	Mechanisms of Pathogenicity
MICR 450	(3)	Environmental Microbiology
NRSC 333	(3)	Pollution and Bioremediation
PARA 410	(3)	Environment and Infection
PLNT 304	(3)	Biology of Fungi
PLNT 353	(3)	Plant Structure and Function
PLNT 424	(3)	Cellular Regulation
PLNT 426	(3)	Plant Ecophysiology
PLNT 435	(3)	Plant Breeding
WILD 375	(3)	Issues: Environmental Sciences
WILD 424	(3)	Parasitology

### Specialization

At least one specialization of 18-24 credits from:

Specializations designed to be taken with the Life Sciences (Biological and Agricultural) Major:

- Animal Biology
- Animal Health and Disease
- Life Sciences (Multidisciplinary)
- Microbiology and Molecular Biotechnology

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

### Electives

To meet the minimum credit requirement for the degree.

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

## 7.2.7 Specializations

### 7.2.7.1 B.Sc.(Ag.Env.Sc.) – Specializations to be taken with one of the B.Sc.(Ag.Env.Sc.) majors

Each specialization consists of 24 credits of courses (required and complementary) that provide a coherent package designed to prepare students for a future in a given discipline. Students will select at least one specialization. However, students wishing to broaden their training have the option of choosing to do two. Although the list of suggested specializations appears under each major in the programs section, students interested in other specializations should consult with their academic adviser/specialization coordinator.

### 7.2.7.2 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Agribusiness (24 credits)

The development of commercial agriculture relies on a large supporting sector of manufacturing and service companies involved in the supply of inputs to farming and the transportation, processing, and marketing of agricultural and food products.

This 24-credit specialization includes courses in agricultural sciences, agribusiness, and courses at the Desautels Faculty of Management.

This specialization is limited to students in the Major in Agricultural Economics.

Specialization Adviser: Professor John Henning

Macdonald-Stewart Building, Room 3-038

Telephone: 514-398-7826

### Required Courses (15 credits)

AEBI 210	(3)	Organisms 1
AGEC 242	(3)	Management Theories and Practices
AGEC 332	(3)	Farm Management and Finance
AGEC 450	(3)	Agriculture Business Management
ANSC 250	(3)	Principles of Animal Science

### Complementary Courses (9 credits)

9 credits chosen from the following list:

ACCT 361	(3)	Intermediate Management Accounting 1
AGRI 310	(3)	Internship in Agriculture/Environment
BUSA 364	(3)	Business Law 1
MGCR 341	(3)	Finance 1
MGCR 352	(3)	Marketing Management 1
MGCR 382	(3)	International Business
MGSC 373	(3)	Operations Research 1
ORGB 321	(3)	Leadership



### 7.2.7.3 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Agriculture and Food Systems (Multidisciplinary) (24 credits)

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

This flexible specialization offers a balance between food systems and consumption and agricultural production. It provides students with an opportunity to select courses in the economics, nutrition, and ethical and environmental implications of food systems and in the fundamentals of animal and plant production. The specialization is designed for students in the International Agriculture and Food Systems Major who have broad interests in international agriculture and development.

To complete the specialization, students select 12 credits from the block of complementary courses related to Food Systems and Consumption and 12 credits from the block of complementary courses related to Agriculture Production from the lists in the table below.

Specialization Coordinator: Professor Vijaya Raghavan

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

#### Complementary Courses (24 credits)

24 credits of complementary courses are selected as follows:

12 credits - Food Systems and Consumption

12 credits - Agricultural Production

#### Food Systems and Consumption

12 credits from:

AGEC 201	(3)	Principles of Macroeconomics
AGEC 231	(3)	Economic Systems of Agriculture
AGEC 242	(3)	Management Theories and Practices
AGEC 320	(3)	Intermediate Microeconomic Theory
AGEC 330	(3)	Agriculture and Food Markets
AGEC 333	(3)	Resource Economics
AGEC 343	(3)	Accounting and Cost Control
AGEC 430	(3)	Agriculture, Food and Resource Policy
AGEC 442	(3)	Economics of International Agricultural Development
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
ANSC 551	(3)	Carbohydrate and Lipid Metabolism
ANSC 552	(3)	Protein Metabolism and Nutrition
ECON 225	(3)	Economics of the Environment
ECON 326	(3)	Ecological Economics
FDSC 251	(3)	Food Chemistry I
FDSC 319	(3)	Food Commodities
FDSC 330	(3)	Food Processing
LSCI 202	(3)	Molecular Cell Biology
LSCI 230	(3)	Introductory Microbiology
MICR 331	(3)	Microbial Ecology
MICR 341	(3)	Mechanisms of Pathogenicity
MICR 450	(3)	Environmental Microbiology
NRSC 221	(3)	Environment and Health
NRSC 512	(3)	Water: Ethics, Law and Policy

NUTR 337	(3)	Nutrition Through Life
NUTR 403	(3)	Nutrition in Society
NUTR 420	(3)	Toxicology and Health Risks
NUTR 501	(3)	Nutrition in Developing Countries
NUTR 512	(3)	Herbs, Foods and Phytochemicals
PARA 410	(3)	Environment and Infection
PARA 438	(3)	Immunology
PARA 515	(3)	Water, Health and Sanitation
WILD 424	(3)	Parasitology

### **Agricultural Production**

12 credits from:

AGRI 215	(3)	Agro-Ecosystems Field Course
AGRI 340	(3)	Principles of Ecological Agriculture
AGRI 435	(3)	Soil and Water Quality Management
ANSC 250	(3)	Principles of Animal Science
ANSC 312	(3)	Animal Health and Disease
ANSC 451	(3)	Dairy and Beef Production Management
ANSC 458	(3)	Swine and Poultry Production
BREE 217	(3)	Hydrology and Water Resources
ENTO 340	(3)	Field Entomology
ENTO 352	(3)	Biocontrol of Pest Insects
FDSC 310	(3)	Post Harvest Fruit and Vegetable Technology
PLNT 300	(3)	Cropping Systems
PLNT 302	(3)	Forage Crops and Pastures
PLNT 307	(3)	Agroecology of Vegetables and Fruits
PLNT 310	(3)	Plant Propagation
PLNT 312	(3)	Urban Horticulture
PLNT 322	(3)	Greenhouse Management
PLNT 434	(3)	Weed Biology and Control
SOIL 315	(3)	Soil Fertility and Fertilizer Use

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

#### **7.2.7.4 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Biology (24 credits)**

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

The specialization in Animal Biology is intended for students who wish to further their studies in the basic biology of large mammals and birds. Successful completion of the program should enable students to qualify for application to most veterinary colleges in North America, to study in a variety of postgraduate biology programs, and to work in many laboratory settings.

Specialization Coordinator: Professor Roger Cue

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

#### **Required Courses (15 credits)**

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 251	(3)	Comparative Anatomy
ANSC 326	(3)	Fundamentals of Population Genetics
ANSC 330	(3)	Fundamentals of Nutrition
ANSC 400	(3)	Eukaryotic Cells and Viruses
ANSC 424	(3)	Metabolic Endocrinology
ANSC 433	(3)	Animal Nutrition
ANSC 560	(3)	Biology of Lactation
ANSC 565	(3)	Applied Information Systems
LSCI 451	(3)	Research Project 1

**Revision, August 2011. End of revision.****7.2.7.5 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Health and Disease (24 credits)****Revision, August 2011. Start of revision.**

This specialization is offered for students wishing to understand general animal physiology and function, the susceptibility of animals to various diseases, methods for limiting and controlling potential outbreaks, and the resulting implications for the animal, the consumer and the environment. It is an ideal choice for students interested in the care of animals, or in working in laboratories where diseases are being researched.

Specialization Coordinator: Professor Sarah Kimmins

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Required Courses (15 credits)**

ANSC 312	(3)	Animal Health and Disease
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
MICR 341	(3)	Mechanisms of Pathogenicity
PARA 438	(3)	Immunology

**Complementary Courses (9 credits)**

9 credits of complementary courses selected from:

ANSC 251	(3)	Comparative Anatomy
ANSC 330	(3)	Fundamentals of Nutrition
ANSC 350	(3)	Food-Borne Pathogens
LSCI 451	(3)	Research Project 1
PARA 410	(3)	Environment and Infection
WILD 311	(3)	Ethology

WILD 424 (3) Parasitology

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

**7.2.7.6 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Production (24 credits)**

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

This specialization will be of interest to students who wish to study the improved efficiency of livestock production at the national and international levels. Students are exposed to animal nutrition, physiology, and breeding in a context that respects environmental concerns and animal-welfare issues. When taken in conjunction with the Major Agro-Environmental Sciences and the specialization in Professional Agriculture, it conforms with the eligibility requirements of the Ordre des agronomes du Québec.

Specialization Coordinator: Professor Arif Mustafa

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Required Courses (21 credits)**

ANSC 301	(3)	Principles of Animal Breeding
ANSC 312	(3)	Animal Health and Disease
ANSC 323	(3)	Mammalian Physiology
ANSC 324	(3)	Developmental Biology and Reproduction
ANSC 433	(3)	Animal Nutrition
ANSC 451	(3)	Dairy and Beef Production Management
ANSC 458	(3)	Swine and Poultry Production

**Complementary Course (3 credits)**

One of:

ANSC 234	(3)	Biochemistry 2
ANSC 330	(3)	Fundamentals of Nutrition

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

**7.2.7.7 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Applied Ecosystem Sciences (24 credits)**

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

The goal of this specialization is to provide students with an opportunity to further develop their understanding of the ecosystem processes, ecology, and systems thinking necessary to understand, design, and manage our interaction with the environment.

Specialization Coordinator: Professor Elena Bennett

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Required Courses (12 credits)**

BREE 327	(3)	Bio-Environmental Engineering
ENVB 305	(3)	Population & Community Ecology
ENVB 415	(3)	Ecosystem Management
ENVB 506	(3)	Quantitative Methods in Ecology

**Complementary Courses (12 credits)**

12 credits of complementary courses selected as follows:

6 credits - Abiotic

6 credits - Biotic

6 credits are selected from the Abiotic list below:

AGRI 435	(3)	Soil and Water Quality Management
BREE 217	(3)	Hydrology and Water Resources
BREE 322	(3)	Organic Waste Management
ENVB 301	(3)	Meteorology
ENVB 430	(3)	GIS for Natural Resource Management
MICR 450	(3)	Environmental Microbiology
SOIL 300	(3)	Geosystems
SOIL 326	(3)	Soils in a Changing Environment
SOIL 510	(3)	Environmental Soil Chemistry

6 credits are selected from the Biotic list below:

AGRI 340	(3)	Principles of Ecological Agriculture
ENTO 440	(3)	Insect Diversity
ENVB 315	(3)	Science of Inland Waters
MICR 331	(3)	Microbial Ecology
PLNT 358	(3)	Flowering Plant Diversity
PLNT 426	(3)	Plant Ecophysiology
PLNT 460	(3)	Plant Ecology
WILD 307	(3)	Natural History of Vertebrates

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

#### **7.2.7.8 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Ecological Agriculture (24 credits)**

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

This specialization focuses on the principles underlying the practice of ecological agriculture. When coupled with the Major in Environmental Biology, agriculture as a managed ecosystem that responds to the laws of community ecology is examined; when combined with the Major Agro-Environmental Sciences and the specialization in Professional Agrology, this specialization focuses more directly on the practice of ecological agriculture and conforms with the eligibility requirements of the Ordre des agronomes du Québec. It is suitable for students wishing to farm and do extension and government work, and those intending to pursue postgraduate work in this field.

Specialization Coordinator: Dr. Caroline Begg

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

#### **Required Courses (9 credits)**

AGRI 215	(3)	Agro-Ecosystems Field Course
AGRI 340	(3)	Principles of Ecological Agriculture
RELG 270	(3)	Religious Ethics and the Environment

#### **Complementary Courses (15 credits)**

15 credits of complementary courses selected from:

\*Note: Offered in alternate years.

AGEC 430	(3)	Agriculture, Food and Resource Policy
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
ENTO 352	(3)	Biocontrol of Pest Insects
MICR 331	(3)	Microbial Ecology
NUTR 512	(3)	Herbs, Foods and Phytochemicals
PLNT 302	(3)	Forage Crops and Pastures
PLNT 312*	(3)	Urban Horticulture
PLNT 426*	(3)	Plant Ecophysiology
PLNT 434	(3)	Weed Biology and Control
PLNT 460	(3)	Plant Ecology
SOIL 326	(3)	Soils in a Changing Environment
SOIL 335*	(3)	Soil Ecology and Management
SOIL 342	(3)	Organic Soil Fertilization
SOIL 445*	(3)	Agroenvironmental Fertilizer Use

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

#### **7.2.7.9 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Entomology (24 credits)**

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

This specialization offers students expertise in insect biology, ecology, evolution, and behaviour. Applied entomology is included, as insects are key pests in various ecosystems, and insect pest management is and will continue to be a global priority. Insect taxonomy and systematics will be studied both in the field and in the classroom. Through careful selection of complementary courses, students can learn about the role of insects in various ecosystems, their functional importance, and their role in vectoring human disease.

Specialization Coordinator: Professor Terry Wheeler

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

#### **Required Courses (9 credits)**

ENTO 330	(3)	Insect Biology
ENTO 352	(3)	Biocontrol of Pest Insects
ENTO 440	(3)	Insect Diversity

#### **Complementary Courses (15 credits)**

15 credits of complementary courses selected from:

ENTO 340	(3)	Field Entomology
ENTO 515	(3)	Parasitoid Behavioural Ecology
ENTO 520	(3)	Insect Physiology
ENTO 535	(3)	Aquatic Entomology
ENTO 550	(3)	Veterinary and Medical Entomology
PLNT 434	(3)	Weed Biology and Control
SOIL 335	(3)	Soil Ecology and Management
WILD 424	(3)	Parasitology

**Revision, August 2011. End of revision.****7.2.7.10 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Environmental Biology (Multidisciplinary) (24 credits)****Revision, August 2011. Start of revision.**

This is a flexible specialization offering a balance between organisms, their ecology, and ecosystem processes and applications. Biology and ecology of a variety of taxonomic groups and the ways the organisms interact with and affect ecosystem processes will be examined. Students are exposed to ecosystem management and issues related to environmental change. The proposed specialization is designed for students with broad and general interests in environmental biology, but who wish for a strong grounding in organismal biology and ecology and environmental sciences.

Specialization Coordinator: Professor Christopher Buddle

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Complementary Courses (24 credits)**

24 credits (total) are selected from various categories as follows:

Minimum of 6 credits - Organisms

Minimum of 3 credits - Ecology

Minimum of 6 credits - Ecosystem Processes and Applications

**Organisms**

Minimum of 6 credits from the following:

BIOL 427	(3)	Herpetology
ENTO 340	(3)	Field Entomology
PLNT 304	(3)	Biology of Fungi
PLNT 358	(3)	Flowering Plant Diversity
WILD 307	(3)	Natural History of Vertebrates
WILD 350	(3)	Mammalogy
WILD 420	(3)	Ornithology

**Ecology**

Minimum of 3 credits from the following:

ENTO 440	(3)	Insect Diversity
ENVB 305	(3)	Population & Community Ecology
ENVB 315	(3)	Science of Inland Waters
ENVB 506	(3)	Quantitative Methods in Ecology
MICR 331	(3)	Microbial Ecology
PLNT 460	(3)	Plant Ecology
SOIL 335	(3)	Soil Ecology and Management

**Ecosystem Processes and Applications**

Minimum of 6 credits from the following:

AGRI 435	(3)	Soil and Water Quality Management
ENVB 301	(3)	Meteorology
ENVB 430	(3)	GIS for Natural Resource Management
ENVB 437	(3)	Assessing Environmental Impact

MICR 450	(3)	Environmental Microbiology
SOIL 300	(3)	Geosystems
SOIL 326	(3)	Soils in a Changing Environment
WILD 375	(3)	Issues: Environmental Sciences
WILD 421	(3)	Wildlife Conservation

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

**7.2.7.11 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Environmental Economics (24 credits)**

This specialization integrates environmental sciences and decision making with the economics of environment and sustainable development. It is designed to prepare students for careers in natural resource management and the analysis of environmental problems and policies.

This specialization is limited to students in the Major Agricultural Economics.

Specialization Adviser: Professor John Henning

Macdonald-Stewart Building, Room 3-038

Telephone: 514-398-7826

**Required Courses (9 credits)**

ENVB 305	(3)	Population & Community Ecology
ENVB 437	(3)	Assessing Environmental Impact
ENVB 506	(3)	Quantitative Methods in Ecology

**Complementary Courses (15 credits)**

At least 15 credits chosen from the following list:

AGRI 310	(3)	Internship in Agriculture/Environment
BREE 217	(3)	Hydrology and Water Resources
ECON 225	(3)	Economics of the Environment
ECON 326	(3)	Ecological Economics
ECON 405	(3)	Natural Resource Economics
ENVB 301	(3)	Meteorology
ENVR 203	(3)	Knowledge, Ethics and Environment
MICR 331	(3)	Microbial Ecology
NRSC 333	(3)	Pollution and Bioremediation
WILD 415	(2)	Conservation Law
WILD 421	(3)	Wildlife Conservation

**7.2.7.12 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Health and Nutrition (24 credits)**

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

This specialization offers students a foundation in nutrition with respect to health and disease. A focus on nutrition and health through the lifespan examines nutrient requirements and their relationship with health and disease prevention. Through careful selection of complementary courses, students can study about health and disease in various contexts ranging from human to animal health.

Specialization Adviser: Professor Linda Wykes

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Required Courses (12 credits)**



ANSC 323	(3)	Mammalian Physiology
ANSC 330	(3)	Fundamentals of Nutrition
NUTR 337	(3)	Nutrition Through Life
PARA 438	(3)	Immunology

**Complementary Courses (12 credits)**

12 credits from:

ANSC 312	(3)	Animal Health and Disease
ANSC 350	(3)	Food-Borne Pathogens
ANSC 424	(3)	Metabolic Endocrinology
ANSC 551	(3)	Carbohydrate and Lipid Metabolism
ANSC 552	(3)	Protein Metabolism and Nutrition
FDSC 213	(3)	Analytical Chemistry 1
FDSC 334	(3)	Analysis of Food Toxins and Toxicants
FDSC 442	(3)	Food Microbiology
NUTR 344	(4)	Clinical Nutrition 1
NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 503	(3)	Bioenergetics and the Lifespan
NUTR 512	(3)	Herbs, Foods and Phytochemicals
NUTR 551	(3)	Analysis of Nutrition Data
PARA 410	(3)	Environment and Infection
PARA 515	(3)	Water, Health and Sanitation
WILD 424	(3)	Parasitology

**Revision, August 2011. End of revision.****7.2.7.13 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – International Agriculture (24 credits)****Revision, August 2011. Start of revision.**

This specialization will provide the student with coursework and hands-on experience of techniques and issues related to agriculture in a tropical setting. Theoretical courses on the policies and practice of agriculture in an international context are complemented by participation in one of the international field semesters. Note that there is a selection process for participation in a field semester and that participation entails extra cost. In addition, students should consult the academic adviser for the specialization and carefully review the prerequisites for courses in the field semester and the general requirements for participation, which may be over and above what is required by the student's major.

Specialization Adviser: Professor Humberto Monardes

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Required Courses (6 credits)**

AGEC 442	(3)	Economics of International Agricultural Development
AGRI 411	(3)	Global Issues on Development, Food and Agriculture

**Complementary Courses (18 credits)**

18 credits of complementary courses selected as follows:

3 credits, one of the following:

NRSC 340	(3)	Global Perspectives on Food
NUTR 501	(3)	Nutrition in Developing Countries
PARA 515	(3)	Water, Health and Sanitation

15 credits, select one of the McGill Field Study Semesters listed below:

**African Field Study Semester (Winter)**

15 credits selected as follows:

9 credits of courses chosen from the complementary course set offered in the year of participation in the Field Study Semester.

6 credits of required courses as listed below:

GEOG 416	(3)	Africa South of the Sahara
NRSC 405	(3)	Natural History of East Africa

**Barbados Field Study Semester (Fall)**

15 credits selected as follows:

AGRI 452	(3)	Water Resources in Barbados
AGRI 519	(6)	Sustainable Development Plans
URBP 507	(3)	Planning and Infrastructure
URBP 520	(3)	Globalization: Planning and Change

**Barbados Interdisciplinary Tropical Studies Field Semester (Summer)**

15 credits selected as follows:

AEBI 421	(3)	Tropical Horticultural Ecology
AEBI 423	(3)	Sustainable Land Use
AEBI 425	(3)	Tropical Energy and Food
AEBI 427	(6)	Barbados Interdisciplinary Project

**Panama Field Study Semester (Winter)**

15 credits selected as follows:

9 credits of required courses

BIOL 553	(3)	Neotropical Environments
ENVR 451	(6)	Research in Panama

6 credits of complementary courses

Choose one of the following sets:

AGRI 550	(3)	Sustained Tropical Agriculture
HIST 510	(3)	Environmental History of Latin America (Field)

OR

GEOG 404	(3)	Environmental Management 2
GEOG 498	(3)	Humans in Tropical Environments

**Revision, August 2011. End of revision.****7.2.7.14 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - International Development (IAFS) (24 credits)**

The program is closed for further admissions. For students currently enrolled in this program, please refer to the 2010-2011 Programs, Courses and University Regulations publication available at: <http://www.mcgill.ca/study/2010-2011>.

**7.2.7.15 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Life Sciences (Multidisciplinary) (24 credits)****Revision, August 2011. Start of revision.**

Students taking this specialization have a wide variety of Life Sciences course offerings to choose from to allow them to target their program to their own interests in the field. Course choices are balanced between "fundamentals" and "applications". Depending upon the courses chosen, the resulting program may be relatively specialized or very broad, spanning several disciplines. Such a broad background in Life Sciences will open up employment opportunities in a variety of diverse bioscience industries; students with an appropriate CGPA may proceed to a wide variety of postgraduate programs or professional schools.

Academic Adviser: Professor Brian Driscoll

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Complementary Courses (24 credits)**

24 credits selected from the following list:

ANSC 312	(3)	Animal Health and Disease
ANSC 323	(3)	Mammalian Physiology
ANSC 324	(3)	Developmental Biology and Reproduction
ANSC 326	(3)	Fundamentals of Population Genetics
ANSC 330	(3)	Fundamentals of Nutrition
ANSC 350	(3)	Food-Borne Pathogens
ANSC 400	(3)	Eukaryotic Cells and Viruses
ANSC 420	(3)	Animal Biotechnology
ANSC 424	(3)	Metabolic Endocrinology
ANSC 433	(3)	Animal Nutrition
ANSC 506	(3)	Advanced Animal Biotechnology
ANSC 560	(3)	Biology of Lactation
ANSC 565	(3)	Applied Information Systems
BINF 301	(3)	Introduction to Bioinformatics
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
ENTO 440	(3)	Insect Diversity
ENTO 535	(3)	Aquatic Entomology
ENVB 301	(3)	Meteorology
ENVB 305	(3)	Population & Community Ecology
ENVB 313	(3)	Phylogeny and Biogeography

ENVB 315	(3)	Science of Inland Waters
ENVB 430	(3)	GIS for Natural Resource Management
ENVB 506	(3)	Quantitative Methods in Ecology
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 438	(3)	Immunology
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 424	(3)	Cellular Regulation
PLNT 426	(3)	Plant Ecophysiology
PLNT 434	(3)	Weed Biology and Control
PLNT 435	(3)	Plant Breeding
PLNT 460	(3)	Plant Ecology
SOIL 335	(3)	Soil Ecology and Management
WILD 424	(3)	Parasitology

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

**7.2.7.16 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Microbiology and Molecular Biotechnology (24 credits)**

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

Students following this specialization receive education and training in fundamental principles and applied aspects of microbiology. Complementary courses allow students to focus on basic microbial sciences or applied areas such as biotechnology. Successful graduates may work in university, government and industrial research laboratories, in the pharmaceutical, fermentation and food industries, and with an appropriate CGPA proceed to post-graduate studies or professional biomedical schools.

Specialization Coordinator: Professor Brian Driscoll

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Required Courses (18 credits)**

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 438 (3) Immunology

#### Complementary Courses and Suggested Electives (6 credits)

ANSC 350	(3)	Food-Borne Pathogens
ANSC 400	(3)	Eukaryotic Cells and Viruses
ANSC 420	(3)	Animal Biotechnology
BINF 301	(3)	Introduction to Bioinformatics
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
NRSC 333	(3)	Pollution and Bioremediation
PLNT 304	(3)	Biology of Fungi
PLNT 424	(3)	Cellular Regulation
WILD 424	(3)	Parasitology

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

#### 7.2.7.17 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Biology (24 credits)

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

This specialization emphasizes the study of plants from the cellular to the organismal level. The structure, physiology, development, evolution, and ecology of plants will be studied. Most courses offer laboratory classes that expand on the lecture material and introduce students to the latest techniques in plant biology. Many laboratory exercises use the excellent research and field facilities at the Morgan Arboretum, McGill Herbarium, Emile A. Lods Agronomy Research Centre, the Horticultural Centre and the Plant Science greenhouses as well as McGill field stations. Students may undertake a research project under the guidance of a member of the Plant Science Department as part of their studies. Graduates with the specialization may continue in post-graduate study or work in the fields of botany, mycology, molecular biology, ecology, conservation, or environmental science.

Specialization Coordinator: Professor Marcia Waterway

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

#### Required Courses (12 credits)

PLNT 353	(3)	Plant Structure and Function
PLNT 358	(3)	Flowering Plant Diversity
PLNT 426	(3)	Plant Ecophysiology
PLNT 460	(3)	Plant Ecology

#### Complementary Courses (12 credits)

12 credits of complementary courses selected from:

BINF 511	(3)	Bioinformatics for Genomics
ENVB 313	(3)	Phylogeny and Biogeography
NUTR 512	(3)	Herbs, Foods and Phytochemicals
PLNT 203	(3)	Economic Botany
PLNT 304	(3)	Biology of Fungi
PLNT 305	(3)	Plant Pathology

PLNT 310	(3)	Plant Propagation
PLNT 424	(3)	Cellular Regulation
PLNT 435	(3)	Plant Breeding
PLNT 451	(3)	Special Topics: Plant Science 2
PLNT 489	(1)	Project Planning and Proposal
PLNT 490	(2)	Research Project

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

**7.2.7.18 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Production (24 credits)**

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

The goal of this specialization is to give students an excellent background in the knowledge and skills relating to the biology and physiology, breeding, propagation, and management of domesticated plants. The plant industry, in both rural and urban settings, is a sector of growing importance to Canadian and global economies. Graduates may find employment directly with plants in horticulture or in field crop development, production, and management; or in government services, extension, teaching, consulting, or postgraduate studies. When taken in conjunction with the Major Agro-Environmental Sciences and the specialization in Professional Agrology, this specialization conforms with the eligibility requirements for the Ordre des agronomes du Québec.

Specialization Coordinator: Professor Jaswinder Singh

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Required Courses (18 credits)**

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
PLNT 203	(3)	Economic Botany
PLNT 302	(3)	Forage Crops and Pastures
PLNT 307	(3)	Agroecology of Vegetables and Fruits
PLNT 312	(3)	Urban Horticulture
PLNT 322	(3)	Greenhouse Management
PLNT 331	(3)	Grains and Biofuel Crops
PLNT 489	(1)	Project Planning and Proposal
PLNT 490	(2)	Research Project
SOIL 445	(3)	Agroenvironmental Fertilizer Use

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

**7.2.7.19 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Professional Agrology (21 credits)**

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

This specialization is required for students who wish to qualify for membership in the Ordre des agronomes du Québec (OAQ). It cannot be taken alone; it must be taken with the Major Agro-Environmental Sciences and a second specialization in Animal Production, Ecological Agriculture, Plant Production, or Soil and Water, or with the Major Agricultural Economics and the Agri-business specialization.

Note: Most students will require 21 credits to complete this specialization. In consultation with the Academic Adviser, students taking the Agri-business Specialization will need to take an additional 3 credits, chosen in consultation with the Academic Adviser, such that they meet the minimum requirements of the OAQ. The credits within this specialization may not count towards the student's major or other specialization. All of the 21 or 24 credits count only for this specialization.

Specialization Coordinator: Professor Joann Whalen

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

### Required Courses (12 credits)

AGRI 330	(1)	Agricultural Legislation
AGRI 410D1	(3)	Agrology Internship
AGRI 410D2	(3)	Agrology Internship
AGRI 430	(2)	Professional Practice in Agrology
AGRI 490	(3)	Agri-Food Industry Project

### Complementary Courses

9-12 credits

Note: students in Animal Production, Ecological Agriculture, Plant Production, or Soil and Water Resources specializations must take 9 complementary credits, while students in the Agri-business specialization must take 12 complementary credits.

For students in the Agro-Environmental Sciences major with a specialization in Animal Production, Ecological Agriculture, Plant Production, or Soil and Water Resources:

3 credits from:

AGEC 332	(3)	Farm Management and Finance
ANSC 433	(3)	Animal Nutrition
SOIL 445	(3)	Agroenvironmental Fertilizer Use

Plus 6-9 additional credits, approved by the Academic Adviser, in agricultural sciences or applied agriculture to meet the requirements of the OAQ.

For students in the Agri-business Specialization:

6 credits from:

AEBI 212	(3)	Evolution and Phylogeny
LSCI 202	(3)	Molecular Cell Biology
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology

3 credits from:

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

3 credits from:

PLNT 300	(3)	Cropping Systems
PLNT 302	(3)	Forage Crops and Pastures
PLNT 434	(3)	Weed Biology and Control

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

**7.2.7.20 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Soil and Water Resources (24 credits)**

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

This specialization will interest students who want to understand how soils and water interact within managed ecosystems such as urban or agricultural landscapes. The conservation and management of agricultural soils, issues affecting watershed management and decision making, and the remediation of contaminated soils will be examined. When taken with the Agro-Environmental Sciences Major and the specialization in Professional Agrology, this specialization conforms with the eligibility requirements for the Ordre des agronomes du Québec.

Specialization Coordinator: Professor Joann Whalen

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Required Courses (15 credits)**

\* Note: SOIL 335 and SOIL 445 are offered in alternate years.

BREE 217	(3)	Hydrology and Water Resources
SOIL 315	(3)	Soil Fertility and Fertilizer Use
SOIL 326	(3)	Soils in a Changing Environment
SOIL 335*	(3)	Soil Ecology and Management
SOIL 445*	(3)	Agroenvironmental Fertilizer Use

**Complementary Courses (9 credits)**

9 credits of complementary courses selected as follows:

3 credits from:

AGRI 435	(3)	Soil and Water Quality Management
BREE 416	(3)	Engineering for Land Development

6 credits from:

BREE 322	(3)	Organic Waste Management
BREE 327	(3)	Bio-Environmental Engineering
ENVB 301	(3)	Meteorology
ENVB 430	(3)	GIS for Natural Resource Management
NRSC 333	(3)	Pollution and Bioremediation
SOIL 510	(3)	Environmental Soil Chemistry

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

**7.2.7.21 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Wildlife Biology (24 credits)**

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

This specialization focuses on the ecology of vertebrate animals, their biological and physical environment, and the interactions that are important in the management of ecological communities and wildlife species. Students have access to local wildlife resources including the Avian Science and Conservation Centre, the McGill Arboretum, the Stonycroft Wildlife Area, the Molson Reserve, and the Ecomuseum.



Specialization Coordinator: Professor Murray Humphries

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

### Required Courses (13 credits)

PLNT 358	(3)	Flowering Plant Diversity
WILD 307	(3)	Natural History of Vertebrates
WILD 401	(4)	Fisheries and Wildlife Management
WILD 421	(3)	Wildlife Conservation

### Complementary Courses (11 credits)

11 credits of complementary courses selected as follows:

At least 6 credits from the following:

BIOL 427	(3)	Herpetology
WILD 350	(3)	Mammalogy
WILD 420	(3)	Ornithology

At least 5 credits from the following:

ENVB 315	(3)	Science of Inland Waters
NRSC 514	(3)	Freshwater Ecosystems
WILD 311	(3)	Ethology
WILD 415	(2)	Conservation Law
WILD 424	(3)	Parasitology
WILD 475	(3)	Desert Ecology

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

## 7.3 Bachelor of Engineering (Bioresource) – B.Eng.(Bioresource)

### 7.3.1 Bioresource Engineering Major

The Department of Bioresource Engineering collaborates with other departments and the Faculty of Engineering in providing courses of instruction for a curriculum in Bioresource Engineering. Graduates qualify to apply for registration as professional engineers in any province of Canada. The professional agrology option qualifies graduates to apply for registration to the *Ordre des agronomes du Québec*.

There are five streams offered within the Bioresource Engineering Major. Via the appropriate choice of elective course sets, a particular area of study may be emphasized. More information about these streams and the suggested course sets for each can be found on the Department website at [www.mcgill.ca/bioeng](http://www.mcgill.ca/bioeng).

In the **Bio-Environmental Engineering** stream, students learn about soil and water quality management and conservation, geomatics, hydrology and water resources, organic waste treatment, use of GIS for biosystem operation, engineering for land development, climate control in buildings, ecosystem remediation, and many other related topics.

Students who follow the **Soil and Water** stream learn about hydrology, irrigation and drainage, soil and water management, environmental quality control and remediation, structural design, machinery design, artificial intelligence, GIS, and remote sensing.

In the **Ecological Engineering** stream, students learn how to apply principals of engineering and ecology to the design and implementation of complex ecological systems. They learn how to create systems that preserve and enhance natural ecological processes as a means of fulfilling design requirements.

In the **Food and Bioprocessing** stream, students are taught about the engineering of foods and food processes, physical properties of biological materials, post-harvest technology, fermentation and bio-processing, the management of organic wastes, biotechnology, the design of machinery for bioprocessing, etc.

Students who specialize in the **Agricultural Engineering** stream will learn about machine design, machinery, robotics, structural design, environmental quality control, waste management, artificial intelligence, GIS, remote sensing, complex system simulation, and much more.

The **Professional Agrology** option offers a course selection guided to qualify graduates for registration as professional agrologists with the *Ordre des agronomes du Québec*.

All required and complementary courses must be passed with a minimum grade of C. One term is spent taking courses from the Faculty of Engineering on the McGill downtown campus.

Students also have the opportunity to pursue a minor. Several possibilities are: Agricultural Production, Environment, Ecological Agriculture, Biotechnology, Computer Science, Construction Engineering and Management, Entrepreneurship, and Environmental Engineering. Details of some of these minors can be found under *Faculty of Engineering > Minor Programs*. To complete a minor, it is necessary to spend at least one extra term beyond the normal requirements of the B.Eng.(Bioresource) program.

See [section 5.5.1: Minimum Credit Requirement](#) for prerequisites and minimum credit requirements.

### 7.3.2 About the B.Eng. (Bioresource) Program

Bioresource engineering is the unique branch of engineering that includes biological engineering and bioengineering where professional engineering practice intersects with biological sciences. Bioresource engineers design, improve, and manage biology-based systems to operate in efficient and sustainable ways for the well-being of the environment and society.

### 7.3.3 Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) – Major Bioresource Engineering (113 credits)

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

Academic Adviser-U1: Professor Grant Clark

Macdonald-Stewart Building, Room 1-099

Telephone: 514-398-7784

#### Required Courses (53 credits)

AEMA 202	(3)	Intermediate Calculus
AEMA 305	(3)	Differential Equations
BREE 205	(3)	Engineering Design 1
BREE 210	(3)	Mechanical Analysis & 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 481	(.5)	Undergraduate Seminar 1
BREE 482	(.5)	Undergraduate Seminar 2
BREE 483	(.5)	Undergraduate Seminar 3
BREE 484	(.5)	Undergraduate Seminar 4
BREE 485	(1)	Undergraduate Seminar 5
BREE 486	(1)	Undergraduate Seminar 6
BREE 490	(3)	Engineering Design 2
BREE 495	(3)	Engineering Design 3
FACC 400	(1)	Engineering Professional Practice
MECH 289	(3)	Design Graphics
MIME 310	(3)	Engineering Economy

**Complementary Courses**

60 credits of the complementary courses selected as follow:

6 credits - Set A

9 credits - Set B (Natural Sciences and Mathematics)

9 credits - Set C (Social Sciences)

36 credits - Set D (Engineering)

**Set A**

One of the following:

AEMA 310	(3)	Statistical Methods 1
CIVE 302	(3)	Probabilistic Systems
MATH 323	(3)	Probability

One of the following:

CHEE 315	(4)	Heat and Mass Transfer
MECH 346	(3)	Heat Transfer

**Set B - Natural Sciences and Mathematics**

9 credits with a minimum of 3 credits chosen from the list below:

AEBI 210	(3)	Organisms 1
AEBI 211	(3)	Organisms 2
ENVB 305	(3)	Population & Community Ecology
ENVB 315	(3)	Science of Inland Waters
LSCI 202	(3)	Molecular Cell Biology
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
MICR 331	(3)	Microbial Ecology

Plus 6 credits chosen in consultation with the Academic Adviser.

**Set C - Social Sciences**

Minimum of 3 credits from the following list:

CHEE 230	(3)	Environmental Aspects of Technology
CIVE 469	(3)	Infrastructure and Society
ENVR 201	(3)	Society, Environment and Sustainability
MIME 308	(3)	Social Impact of Technology
SOCI 235	(3)	Technology and Society

Plus 6 credits of Social Sciences, Management Studies, Humanities, or Law courses at the U1 undergraduate level or higher with approval of the Academic Adviser.

Note: these 6 credits may include one 3-credit language course other than the student's normal spoken languages.

**Set D - Engineering**

36 credits from the following list with the option (and approval of the Academic Adviser) of taking a maximum of 6 credits from other courses offered in the Faculty of Engineering:

BREE 214	(3)	Geomatics
BREE 217	(3)	Hydrology and Water Resources
BREE 314	(3)	Agri-Food Buildings
BREE 315	(3)	Design of Machines
BREE 322	(3)	Organic Waste Management
BREE 325	(3)	Food Process Engineering
BREE 412	(3)	Machinery Systems Engineering
BREE 416	(3)	Engineering for Land Development
BREE 418	(3)	Soil Mechanics and Foundations
BREE 419	(3)	Structural Design
BREE 420	(3)	Engineering for Sustainability
BREE 423	(3)	Biological Material Properties
BREE 430	(3)	GIS for Natural Resource Management
BREE 497	(3)	Bioresource Engineering Project
BREE 501	(3)	Simulation and Modelling
BREE 502	(3)	Drainage/Irrigation Engineering
BREE 504	(3)	Instrumentation and Control
BREE 506	(3)	Advances in Drainage Management
BREE 509	(3)	Hydrologic Systems and Modelling
BREE 510	(3)	Watershed Systems Management
BREE 512	(3)	Soil Cutting and Tillage
BREE 515	(3)	Soil Hydrologic Modelling
BREE 518	(3)	Bio-Treatment of Wastes
BREE 519	(3)	Advanced Food Engineering
BREE 520	(3)	Food, Fibre and Fuel Elements
BREE 525	(3)	Climate Control for Buildings
BREE 530	(3)	Fermentation Engineering
BREE 531	(3)	Post-Harvest Drying
BREE 532	(3)	Post-Harvest Storage
BREE 533	(3)	Water Quality Management
CHEE 474	(3)	Biochemical Engineering
CIVE 317	(3)	Structural Engineering 1
CIVE 318	(3)	Structural Engineering 2

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

#### **7.3.4 Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) – Major Bioresource Engineering – Professional Agrology (113 credits)**

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

Academic Adviser-U1: Professor Grant Clark

Macdonald-Stewart Building, Room 1-099

Telephone: 514-398-7784

**Required Courses (56 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 & 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 481	(.5)	Undergraduate Seminar 1
BREE 482	(.5)	Undergraduate Seminar 2
BREE 483	(.5)	Undergraduate Seminar 3
BREE 484	(.5)	Undergraduate Seminar 4
BREE 485	(1)	Undergraduate Seminar 5
BREE 486	(1)	Undergraduate Seminar 6
BREE 490	(3)	Engineering Design 2
BREE 495	(3)	Engineering Design 3
FACC 400	(1)	Engineering Professional Practice
MECH 289	(3)	Design Graphics
MIME 310	(3)	Engineering Economy

### Complementary Courses

57 credits of the complementary courses selected as follows:

6 credits - Set A

12 credits - Set B (Natural Sciences)

6 credits - Set C (Social Sciences)

33 credits - Set D (Engineering)

#### Set A

6 credits

One course from the following:

AEMA 310	(3)	Statistical Methods 1
CIVE 302	(3)	Probabilistic Systems
MATH 323	(3)	Probability

One course selected from:

CHEE 315	(4)	Heat and Mass Transfer
MECH 346	(3)	Heat Transfer

**Set B - Natural Sciences**

6 credits from each of the following two groups:

**Group 1 - Biology**

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**

AEBI 210	(3)	Organisms 1
ANSC 250	(3)	Principles of Animal Science
ANSC 433	(3)	Animal Nutrition
ANSC 451	(3)	Dairy and Beef Production Management
ANSC 458	(3)	Swine and Poultry Production
PLNT 203	(3)	Economic Botany
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 331	(3)	Grains and Biofuel Crops

**Set C - Social Sciences**

3 credits from the following list:

CHEE 230	(3)	Environmental Aspects of Technology
CIVE 469	(3)	Infrastructure and Society
ENVR 201	(3)	Society, Environment and Sustainability
MIME 308	(3)	Social Impact of Technology
SOCI 235	(3)	Technology and Society

Plus one 3-credit Social Sciences, Management Studies, Humanities, Law, or Language course with permission of the Academic Adviser.

**Set D - Engineering**

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

(Minimum of 6 credits from Group 1 or Group 2 below)

**Group 1 - Soil and Water**

BREE 214	(3)	Geomatics
BREE 217	(3)	Hydrology and Water Resources
BREE 322	(3)	Organic Waste Management
BREE 416	(3)	Engineering for Land Development
BREE 418	(3)	Soil Mechanics and Foundations

BREE 430	(3)	GIS for Natural Resource Management
BREE 502	(3)	Drainage/Irrigation Engineering
BREE 506	(3)	Advances in Drainage Management
BREE 509	(3)	Hydrologic Systems and Modelling
BREE 510	(3)	Watershed Systems Management
BREE 512	(3)	Soil Cutting and Tillage
BREE 515	(3)	Soil Hydrologic Modelling
BREE 518	(3)	Bio-Treatment of Wastes
BREE 533	(3)	Water Quality Management

### Group 2 - Food Processing

BREE 325	(3)	Food Process Engineering
BREE 519	(3)	Advanced Food Engineering
BREE 520	(3)	Food, Fibre and Fuel Elements
BREE 530	(3)	Fermentation Engineering
BREE 531	(3)	Post-Harvest Drying
BREE 532	(3)	Post-Harvest Storage
CHEE 474	(3)	Biochemical Engineering

### Group 3 - Other Engineering

BREE 314	(3)	Agri-Food Buildings
BREE 315	(3)	Design of Machines
BREE 412	(3)	Machinery Systems Engineering
BREE 419	(3)	Structural Design
BREE 423	(3)	Biological Material Properties
BREE 497	(3)	Bioresource Engineering Project
BREE 501	(3)	Simulation and Modelling
BREE 504	(3)	Instrumentation and Control
BREE 525	(3)	Climate Control for Buildings
CIVE 317	(3)	Structural Engineering 1
CIVE 318	(3)	Structural Engineering 2

Revision, August 2011. End of revision.

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

### 7.3.5.1 Minor in Environmental Engineering

For more information, see [section 7.6.7: Minor in Environmental Engineering \(27 credits\)](#).

### 7.3.5.2 Barbados Field Study Semester

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

### 7.3.5.3 Internship Opportunities and Co-op Experiences

For more information, see [section 6.1: Internship Opportunities and Co-op Experience](#).

## 7.4 Bachelor of Science (Food Science) - B.Sc.(F.Sc.)

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

### Freshman Adviser

Dr. Alice Cherestes  
 Macdonald-Stewart Building, Room1-023  
 Telephone: 514-398-7980

### 7.4.1 Bachelor of Science (Food Science) (B.Sc.(F.Sc.)) - Major Food Science - Food Science Option (90 credits)

This program is intended for those students interested in the multidisciplinary field of food science. The courses are integrated to acquaint the student with food processing, food chemistry, quality assurance, analytical procedures, food products, standards, and regulations. The program prepares graduates for employment as scientists in industry or government, in regulatory, research, quality assurance, or product development capacities.

Graduates have the academic qualifications for membership in the Canadian Institute of Food Science and Technology (CIFST). Graduates of Food Science Major with Food Science Option can also qualify for recognition by the Institute of Food Technologists (IFT).

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

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

Academic Adviser-U1: Professor Salwa Karboune

Macdonald-Stewart Building, Room 1-040

Telephone: 514-398-8666

#### Required Courses (51 credits)

Note: If an introductory CEGEP-level Organic Chemistry course has not been completed, then FDSC 230 (Organic Chemistry) must be completed as a replacement.

AEMA 310	(3)	Statistical Methods 1
AGRI 510	(3)	Professional Practice
BREE 324	(3)	Elements of Food Engineering
FDSC 200	(3)	Introduction to Food Science
FDSC 213	(3)	Analytical Chemistry 1
FDSC 251	(3)	Food Chemistry 1
FDSC 300	(3)	Principles of Food Analysis 1
FDSC 310	(3)	Post Harvest Fruit and Vegetable Technology
FDSC 319	(3)	Food Commodities
FDSC 330	(3)	Food Processing
FDSC 400	(3)	Food Packaging
FDSC 425	(3)	Principles of Quality Assurance
FDSC 442	(3)	Food Microbiology
FDSC 495D1	(1.5)	Food Science Seminar
FDSC 495D2	(1.5)	Food Science Seminar
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health

#### Additional Required Courses - Food Science Option (18 credits)



FDSC 233	(3)	Physical Chemistry
FDSC 305	(3)	Food Chemistry 2
FDSC 315	(3)	Separation Techniques in Food Analysis 1
FDSC 334	(3)	Analysis of Food Toxins and Toxicants
FDSC 405	(3)	Food Product Development
FDSC 410	(3)	Flavour Chemistry

**Electives (21 credits)**

Electives are selected in consultation with an academic adviser, to meet the minimum 90-credit requirement for the degree. A portion of these credits should be in the humanities/social sciences.

**7.4.2 Bachelor of Science (Food Science) (B.Sc.(F.Sc.)) - Major Food Science - Food Chemistry Option (90 credits)**

This program is intended for those students interested in the multidisciplinary field of food science. The courses are integrated to acquaint the student with food processing, food chemistry, quality assurance, analytical procedures, food products, standards, and regulations. The program prepares graduates for employment as scientists in industry or government, in regulatory, research, quality assurance, or product development capacities.

Graduates have the academic qualifications for membership in the Canadian Institute of Food Science and Technology (CIFST). Graduates of the Food Science Major with Food Chemistry Option can also qualify for recognition by the Institute of Food Technologists (IFT) and the Ordre des chimistes du Québec (OCQ). Food Chemistry Option is completed to 90 credits with free elective courses.

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

Academic Adviser-U1: Professor Salwa Karboune

Macdonald-Stewart Building, Room 1-040

Telephone: 514-398-8666

**Required Courses (51 credits)**

Note: If an introductory CEGEP-level Organic Chemistry course has not been completed, then FDSC 230 (Organic Chemistry) must be completed as a replacement.

AEMA 310	(3)	Statistical Methods 1
AGRI 510	(3)	Professional Practice
BREE 324	(3)	Elements of Food Engineering
FDSC 200	(3)	Introduction to Food Science
FDSC 213	(3)	Analytical Chemistry 1
FDSC 251	(3)	Food Chemistry 1
FDSC 300	(3)	Principles of Food Analysis 1
FDSC 310	(3)	Post Harvest Fruit and Vegetable Technology
FDSC 319	(3)	Food Commodities
FDSC 330	(3)	Food Processing
FDSC 400	(3)	Food Packaging
FDSC 425	(3)	Principles of Quality Assurance
FDSC 442	(3)	Food Microbiology
FDSC 495D1	(1.5)	Food Science Seminar
FDSC 495D2	(1.5)	Food Science Seminar
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health

**Additional Required Courses - Food 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 410	(3)	Flavour Chemistry
FDSC 490	(3)	Research Project 1
FDSC 491	(3)	Research Project 2
FDSC 515	(3)	Enzyme Thermodynamics/Kinetics
FDSC 520	(3)	Biophysical Chemistry of Food

### Electives (9 credits)

Electives are selected in consultation with academic adviser, to meet the minimum 90-credit requirement for the degree. A portion of these credits should be in the humanities/social sciences.

### 7.4.3 Concurrent Bachelor of Science in Food Science (B.Sc.(F.Sc.)) and Bachelor of Science Nutritional Sciences (B.Sc.(Nutr.Sc.)) - Food Science/Nutritional Science Major (122 credits)

The concurrent program B.Sc.(F.Sc.) and B.Sc.(Nutr.Sc.) is designed to give motivated students the opportunity to combine the two fields. The two disciplines complement each other with Food Science providing the scientific foundation in the fundamentals of food science and its application in the food system, while Nutritional Sciences brings the fundamental knowledge in the nutritional aspects of food and metabolism. The program aims to train students with the fundamental knowledge in both disciplines to promote the development of healthy food products for human consumption. The overall program is structured and closely integrated so as to satisfy the academic requirements of both degrees as well as the professional training or exposure to industry.

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

Academic Adviser-U1: Professor Selim Kermasha

Macdonald-Stewart Building, Room 1-033

Telephone: 514-398-7922

### Required Courses (79 credits)

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 425	(3)	Principles of Quality Assurance
FDSC 442	(3)	Food Microbiology

FDSC 497	(1.5)	Professional Seminar: Food
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 307	(3)	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)	Agriculture Business Management

At least 9 credits from the following:

AGEC 242	(3)	Management Theories and Practices
ENVR 203	(3)	Knowledge, Ethics and Environment
NRSC 340	(3)	Global Perspectives on Food
NUTR 301	(3)	Psychology
NUTR 322	(2)	Applied Sciences Communication
NUTR 446	(3)	Applied Human Resources

12 credits from the following:

FDSC 480	(12)	Industrial Stage/Food
NUTR 480	(12)	Industrial Stage/Nutrition

### Electives

13 credits to meet the credit requirements for the degree.

#### 7.4.3.1 About the Concurrent Bachelor of Science in Food Science (B.Sc.(F.Sc.)) and Bachelor of Science in Nutritional Sciences (B.Sc.(Nutr.Sc.)) Program

Unique in North America, the new concurrent degree program in Food Science and Nutritional Science offers the best education in these complementary fields and opens the door to a multitude of career paths.

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

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

##### 7.4.4.1 Certificate in Food Science

Detailed information on this certificate program can be found under [section 7.7.2: Certificate in Food Science \(30 credits\)](#) in this publication.

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

##### 7.5.1 Dietetics Major

###### Academic Advising Coordinator

Sandy Phillips, M.Sc., R.D.  
School of Dietetics and Human Nutrition

##### 7.5.2 Nutrition Major

###### Academic Advising Coordinator

Kristine G. Koski, Ph.D., R.D. (U.S.)  
School of Dietetics and Human Nutrition

##### 7.5.3 About the B.Sc. (Nutritional Sciences) Program

###### Freshman Adviser

Professor Alice Cherestes  
Macdonald-Stewart Building, Room1-023  
Telephone: 514-398-7980

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

The Dietetics Major, which includes a 40-week internship (Stage) as part of its degree requirements, is a professional program that leads to membership in a provincial regulatory body and professional licensure as a dietitian/nutritionist.

Graduates are qualified for challenging professional and leadership positions related to food and health, as dietitians, nutritionists, and food administrators. The designations "Dietitian" and "Nutritionist" are reserved titles associated with reserved acts in the province of Quebec. As clinical nutritionists, dietitians may work in health-care settings, nutrition counselling centres, clinics, and private practice. As community nutritionists, dietitians are involved in nutrition education programs through school boards, sports centres, and local and international health agencies. The dietitian in the food service sector participates in all aspects of management to assure quality food products and services. Postgraduate programs are available to qualified graduates. The duration of the program is 3.5 years.

Successful graduates are qualified to apply for membership with the Ordre professionnel des diététistes du Québec (O.P.D.Q.) and/or other provincial regulatory bodies, as well as Dietitians of Canada. Forty weeks of supervised professional experience, "Stage", in clinical and community nutrition and food service systems management are included in the undergraduate program.

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

Academic Advising Coordinator: Sandy Phillips, M.Sc., R.D.

School of Dietetics and Human Nutrition

Laird Hall, Room 199b

Telephone: 514-398-7982

###### Notes:

The School firmly applies prerequisite requirements for registration in all required courses in the Dietetics Major.

All required and complementary courses must be passed with a minimum grade of C.

### Advising Note for Professional Practice

\* Note: Successful completion of each rotation of each level of Stage (Professional Practice) is required to pass that level of Stage. Each level is a prerequisite for the next level and must be passed with a minimum grade of C. Undergraduate registration is restricted to students in the Dietetics Major, CGPA greater than or equal to 3.0. Students in the Dietetics Major who have a CGPA below a 3.0 for two consecutive years will not be permitted to continue in the program. Visiting and Special students must contact the Academic Advising Coordinator (Dietetics) regarding course registration approval.

Students are reminded that ethical conduct on Professional Practice (Stage) rotations is required. The Faculty reserves the right to require the withdrawal of any student if at any time the Faculty feels the student has displayed unprofessional conduct or demonstrates incompetence.

### Required Courses (100 credits)

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

AEMA 310	(3)	Statistical Methods 1
AGEC 242	(3)	Management Theories and Practices
AGEC 343	(3)	Accounting and Cost Control
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 208*	(1)	Professional Practice Stage 1A
NUTR 209*	(3)	Professional Practice Stage 1B
NUTR 214	(4)	Food Fundamentals
NUTR 217	(4)	Application: Food Fundamentals
NUTR 310*	(1)	Professional Practice Stage 2A
NUTR 311*	(5)	Professional Practice Stage 2B
NUTR 322	(2)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1
NUTR 345	(3)	Food Service Systems Management
NUTR 346	(2)	Quantity Food Production
NUTR 403	(3)	Nutrition in Society
NUTR 408*	(1)	Professional Practice Stage 3A
NUTR 409*	(8)	Professional Practice Stage 3B
NUTR 436	(2)	Nutritional Assessment
NUTR 438	(2)	Interviewing and Counselling
NUTR 446	(3)	Applied Human Resources
NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 510*	(14)	Professional Practice - Stage 4
NUTR 545	(5)	Clinical Nutrition 2

### Complementary Courses (9 credits)

3 credits from either:

ANSC 330	(3)	Fundamentals of Nutrition
NUTR 307	(3)	Human Nutrition

Note: ANSC 330 or NUTR 307 must be taken in Fall of U2.

3 credits of Human Behavioural Science courses chosen from:

NUTR 301	(3)	Psychology
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Or equivalent from another faculty

3 credits from the social sciences that may include, but are not limited to:

AGEC 200	(3)	Principles of Microeconomics
ENVR 201	(3)	Society, Environment and Sustainability
ENVR 203	(3)	Knowledge, Ethics and Environment
RELG 270	(3)	Religious Ethics and the Environment

Or social science course from another faculty

### **Elective Courses (6 credits)**

Students who need to improve their proficiency in either English or French are strongly encouraged to choose their electives for that purpose. Students who wish to take language courses should check with the French Language Centre, Faculty of Arts, as placement testing may be required. Students are encouraged to develop a working knowledge of French in order to optimize their participation and learning in Stage placement sites.

Alternate elective choices may include, but are not limited to:

AEHM 300	(3)	ESL: High Intermediate 1
AEHM 301	(3)	ESL: High Intermediate 2
AEHM 330	(3)	Academic and Scientific Writing
NUTR 501	(3)	Nutrition in Developing Countries
NUTR 503	(3)	Bioenergetics and the Lifespan
NUTR 512	(3)	Herbs, Foods and Phytochemicals

### **A Compulsory Immunization**

A compulsory immunization program exists at McGill which is required for Dietetics students to practice. Students should complete their immunization before or soon after arriving at Macdonald campus; confirmation of medical/health documentation will be sent by the health nurse to the University Coordinator (Stage) and must be complete prior to commencement of Stage. Certain deadlines may apply.

## **7.5.5 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Food Function and Safety (90 credits)**

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

This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan from the molecular to the organismal level. The concentration in food function and safety covers the ranges from health effects of phytochemicals and food toxicants, food chemistry and analysis, food safety, product development and influence of constituents of food on health. This degree does not lead to professional licensure as a dietitian/nutritionist. Graduates are qualified for careers in the biotechnology field, pharmaceutical and/or food industries, government laboratories, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in research, medicine, and dentistry, or as specialists in nutrition.

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

Academic Advising Coordinator: Professor Kristine Koski

School of Dietetics and Human Nutrition

Macdonald-Stewart Building, Room 2-039

Telephone: 514-398-7840

### **Required Courses (60 credits)**

All required courses must be passed with a minimum grade of C.

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
FDSC 200	(3)	Introduction to Food Science
FDSC 251	(3)	Food Chemistry 1
FDSC 300	(3)	Principles of Food Analysis 1
FDSC 305	(3)	Food Chemistry 2
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 322	(2)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1
NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 512	(3)	Herbs, Foods and Phytochemicals
NUTR 551	(3)	Analysis of Nutrition Data

### Complementary Courses (15 credits)

15 credits of complementary courses are selected as follows:

3 credits, one of the following courses:

ANSC 330	(3)	Fundamentals of Nutrition
NUTR 307	(3)	Human Nutrition

At least 3 credits from the following courses:

ANSC 560	(3)	Biology of Lactation
NUTR 420	(3)	Toxicology and Health Risks
NUTR 501	(3)	Nutrition in Developing Countries
NUTR 503	(3)	Bioenergetics and the Lifespan
NUTR 511	(3)	Nutrition and Behaviour
NUTR 545	(5)	Clinical Nutrition 2

At least 9 credits from the following courses:

AGRI 510	(3)	Professional Practice
ANSC 350	(3)	Food-Borne Pathogens
FDSC 315	(3)	Separation Techniques in Food Analysis 1
FDSC 319	(3)	Food Commodities
FDSC 330	(3)	Food Processing
FDSC 334	(3)	Analysis of Food Toxins and Toxicants

FDSC 405	(3)	Food Product Development
FDSC 410	(3)	Flavour Chemistry
FDSC 425	(3)	Principles of Quality Assurance
FDSC 442	(3)	Food Microbiology
FDSC 520	(3)	Biophysical Chemistry of Food
FDSC 535	(3)	Food Biotechnology
FDSC 537	(3)	Nutraceutical Chemistry
FDSC 540	(3)	Sensory Evaluation of Foods
NUTR 430	(3)	Directed Studies: Dietetics and Nutrition 1

### Electives (15 credits)

15 credits of electives are taken to meet the minimum credit requirement for the degree. Reciprocal agreement allows all students to take a limited number of electives at any Quebec university. With prior approval, students can take electives at any Canadian or international university.

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

### 7.5.6 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Global Nutrition (90 credits)

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

This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan from the molecular to the organismal level. The concentration in global nutrition emphasizes the importance of the interaction of nutrition, diet, water, environment, and infection. This degree does not lead to professional licensure as a dietitian/nutritionist. Graduates are qualified for careers in the biotechnology field, pharmaceutical and/or food industries, government laboratories, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in research, medicine, and dentistry, or as specialists in nutrition.

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

Academic Advising Coordinator: Professor Kristine Koski

School of Dietetics and Human Nutrition

Macdonald-Stewart Building, Room 2-039

Telephone: 514-398-7840

### Required Courses (60 credits)

All required courses must be passed with a minimum grade of C.

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
FDSC 200	(3)	Introduction to Food Science
FDSC 251	(3)	Food Chemistry 1
FDSC 305	(3)	Food Chemistry 2
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 322	(2)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1
NUTR 450	(3)	Research Methods: Human Nutrition



NUTR 501	(3)	Nutrition in Developing Countries
NUTR 512	(3)	Herbs, Foods and Phytochemicals
NUTR 551	(3)	Analysis of Nutrition Data

**Complementary Courses (15 credits)**

15 credits of complementary courses are selected as follows:

3 credits, one of the following courses:

ANSC 330	(3)	Fundamentals of Nutrition
NUTR 307	(3)	Human Nutrition

At least 3 credits selected from:

ANSC 560	(3)	Biology of Lactation
NUTR 420	(3)	Toxicology and Health Risks
NUTR 503	(3)	Bioenergetics and the Lifespan
NUTR 511	(3)	Nutrition and Behaviour
NUTR 545	(5)	Clinical Nutrition 2

At least 9 credits selected from:

AGEC 330	(3)	Agriculture and Food Markets
AGEC 442	(3)	Economics of International Agricultural Development
AGRI 340	(3)	Principles of Ecological Agriculture
AGRI 411	(3)	Global Issues on Development, Food and Agriculture
ANSC 560	(3)	Biology of Lactation
ANTH 227	(3)	Medical Anthropology
ANTH 302	(3)	New Horizons in Medical Anthropology
ENVR 203	(3)	Knowledge, Ethics and Environment
GEOG 303	(3)	Health Geography
GEOG 403	(3)	Global Health and Environmental Change
NRSC 221	(3)	Environment and Health
NRSC 340	(3)	Global Perspectives on Food
NUTR 403	(3)	Nutrition in Society
NUTR 430	(3)	Directed Studies: Dietetics and Nutrition 1
PARA 410	(3)	Environment and Infection
PARA 515	(3)	Water, Health and Sanitation

**Electives (15 credits)**

15 credits of Electives are taken to meet the minimum credit requirement for the degree. Reciprocal agreement allows all students to take a limited number of electives at any Quebec university. With prior approval, students can take electives at any Canadian or international university.

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

**7.5.7 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Health and Disease (90 credits)**

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

This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan. This concentration emphasizes the influence of diet and nutrition on human health and the pathophysiology of chronic disease. This degree does not lead to professional licensure as a dietitian/nutritionist. Graduates are qualified for careers in health research, pharmaceutical and/or food industries, government laboratories, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in research, medicine, and dentistry or as specialists in nutrition.

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

Academic Advising Coordinator: Professor Kristine Koski

School of Dietetics and Human Nutrition

Macdonald-Stewart Building, Room 2-039

Telephone: 514-398-7840

### Required Courses (60 credits)

All required courses must be passed with a minimum grade of C.

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
FDSC 200	(3)	Introduction to Food Science
FDSC 251	(3)	Food Chemistry 1
FDSC 305	(3)	Food Chemistry 2
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 322	(3)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1
NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 512	(3)	Herbs, Foods and Phytochemicals
NUTR 551	(3)	Analysis of Nutrition Data
PARA 438	(3)	Immunology

### Complementary Courses (15 credits)

15 credits of complementary courses are selected as follows:

3 credits, one of the following courses:

ANSC 330	(3)	Fundamentals of Nutrition
NUTR 307	(3)	Human Nutrition

At least 3 credits from the following:

ANSC 560	(3)	Biology of Lactation
NUTR 420	(3)	Toxicology and Health Risks
NUTR 501	(3)	Nutrition in Developing Countries
NUTR 503	(3)	Bioenergetics and the Lifespan

NUTR 511	(3)	Nutrition and Behaviour
NUTR 545	(5)	Clinical Nutrition 2

At least 9 credits from the following courses:

ANAT 214	(3)	Systemic Human Anatomy
ANAT 261	(4)	Introduction to Dynamic Histology
ANSC 312	(3)	Animal Health and Disease
ANSC 560	(3)	Biology of Lactation
MICR 341	(3)	Mechanisms of Pathogenicity
MIMM 314	(3)	Immunology
MIMM 414	(3)	Advanced Immunology
NUTR 430	(3)	Directed Studies: Dietetics and Nutrition 1
NUTR 436	(2)	Nutritional Assessment
PATH 300	(3)	Human Disease
PHAR 300	(3)	Drug Action
PHAR 301	(3)	Drugs and Disease
PHAR 303	(3)	Principles of Toxicology
PHGY 311	(3)	Channels, Synapses & Hormones
PHGY 312	(3)	Respiratory, Renal, & Cardiovascular Physiology
PHGY 313	(3)	Blood, Gastrointestinal, & Immune Systems Physiology
WILD 424	(3)	Parasitology

### Elective Courses (15 credits)

15 credits of electives are taken to meet the minimum credit requirement for the degree. A reciprocal agreement allows all students to take a limited number of electives at any Quebec university. With prior approval, students can take electives at any Canadian or international university.

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

### 7.5.8 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Nutritional Biochemistry (90 credits)

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

This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan from the molecular to the organismal level. This concentration in nutritional biochemistry links nutrigenomics, nutrigenetics, and biotechnology with human health, regulation of metabolism, and the pathophysiology of inherited and chronic disease. This degree does not lead to professional licensure as a dietitian/nutritionist. Graduates are qualified for careers in the biotechnology field, pharmaceutical and/or food industries, government laboratories, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in research, medicine, and dentistry, or as specialists in nutrition.

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

Academic Advising Coordinator: Professor Kristine Koski

School of Dietetics and Human Nutrition

Macdonald-Stewart Building, Room 2-039

Telephone: 514-398-7840

### Required Courses (60 credits)

All required courses must be passed with a minimum grade of C.

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology

ANSC 424	(3)	Metabolic Endocrinology
BTEC 306	(3)	Experiments in Biotechnology
FDSC 200	(3)	Introduction to Food Science
FDSC 251	(3)	Food Chemistry 1
FDSC 305	(3)	Food Chemistry 2
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 322	(2)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1
NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 512	(3)	Herbs, Foods and Phytochemicals
NUTR 551	(3)	Analysis of Nutrition Data

### Complementary Courses (15 credits)

15 credits of complementary courses are selected as follows:

3 credits, one of the following courses:

ANSC 330	(3)	Fundamentals of Nutrition
NUTR 307	(3)	Human Nutrition

At least 3 credits from the following:

ANSC 560	(3)	Biology of Lactation
NUTR 420	(3)	Toxicology and Health Risks
NUTR 501	(3)	Nutrition in Developing Countries
NUTR 503	(3)	Bioenergetics and the Lifespan
NUTR 511	(3)	Nutrition and Behaviour
NUTR 545	(5)	Clinical Nutrition 2

At least 9 credits from the following courses:

ANAT 262	(3)	Introductory Molecular and Cell Biology
ANSC 324	(3)	Developmental Biology and Reproduction
ANSC 400	(3)	Eukaryotic Cells and Viruses
ANSC 420	(3)	Animal Biotechnology
ANSC 506	(3)	Advanced Animal Biotechnology
ANSC 551	(3)	Carbohydrate and Lipid Metabolism
ANSC 552	(3)	Protein Metabolism and Nutrition
BINF 301	(3)	Introduction to Bioinformatics
BIOC 312	(3)	Biochemistry of Macromolecules

BIOL 300	(3)	Molecular Biology of the Gene
BIOL 301	(4)	Cell and Molecular Laboratory
BTEC 535	(3)	Functional Genomics in Model Organisms
EXMD 401	(3)	Physiology and Biochemistry Endocrine Systems
EXMD 502	(3)	Advanced Endocrinology 01
EXMD 503	(3)	Advanced Endocrinology 02
MICR 341	(3)	Mechanisms of Pathogenicity
MIMM 314	(3)	Immunology
NUTR 430	(3)	Directed Studies: Dietetics and Nutrition 1
PARA 438	(3)	Immunology

### Elective Courses (15 credits)

15 credits of electives are taken to meet the minimum credit requirement for the degree. A reciprocal agreement allows all students to take a limited number of electives at any Quebec university. With prior approval, students can take electives at any Canadian or international university.

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

### 7.5.9 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Sports Nutrition (90 credits)

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

This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan from the molecular to the organismal level. The concentration in sports nutrition integrates the influence of exercise and physical activity on health and chronic disease prevention. This degree does not lead to professional licensure as a dietitian/nutritionist. Graduates are qualified for careers in the biotechnology field, pharmaceutical and/or food industries, government laboratories, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in research, medicine, and dentistry, or as specialists in nutrition.

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

Academic Advising Coordinator: Professor Kristine Koski

School of Dietetics and Human Nutrition

Macdonald-Stewart Building, Room 2-039

Telephone: 514-398-7840

### Required Courses (60 credits)

All required courses must be passed with a minimum grade of C.

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
FDSC 200	(3)	Introduction to Food Science
FDSC 251	(3)	Food Chemistry 1
FDSC 305	(3)	Food Chemistry 2
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 322	(2)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1

NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 503	(3)	Bioenergetics and the Lifespan
NUTR 512	(3)	Herbs, Foods and Phytochemicals
NUTR 551	(3)	Analysis of Nutrition Data

### Complementary Courses (15 credits)

15 credits of complementary courses are selected as follows:

3 credits, one of the following courses:

ANSC 330	(3)	Fundamentals of Nutrition
NUTR 307	(3)	Human Nutrition

At least 3 credits from the following:

ANSC 560	(3)	Biology of Lactation
NUTR 420	(3)	Toxicology and Health Risks
NUTR 501	(3)	Nutrition in Developing Countries
NUTR 511	(3)	Nutrition and Behaviour
NUTR 545	(5)	Clinical Nutrition 2

At least 9 credits from:

ANAT 214	(3)	Systemic Human Anatomy
EDKP 330	(3)	Physical Activity and Health
EDKP 395	(3)	Exercise Physiology
EDKP 444	(3)	Ergonomics
EDKP 445	(3)	Exercise Metabolism
EDKP 446	(3)	Physical Activity and Ageing
EDKP 448	(3)	Exercise and Health Psychology
EDKP 449	(3)	Exercise Pathophysiology 2
EDKP 485	(3)	Exercise Pathophysiology 1
EDKP 542	(3)	Environmental Exercise Physiology
NUTR 430	(3)	Directed Studies: Dietetics and Nutrition 1
NUTR 436	(2)	Nutritional Assessment

### Electives (15 credits)

15 credits of electives are taken to meet the minimum credit requirement for the degree. Reciprocal agreement allows all students to take a limited number of electives at any Quebec university. With prior approval, students can take electives at any Canadian or international university.

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

## 7.5.10 Bachelor of Science (Nutritional Sciences) – Related Programs

### 7.5.10.1 Minor in Human Nutrition

Detailed information on this Minor can be found under [section 7.6.8: Minor Human Nutrition \(24 credits\)](#) in this publication.

### 7.5.10.2 Concurrent Bachelor of Science in Food Science – B.Sc.(F.Sc.) and Bachelor of Science in Nutritional Sciences – B.Sc.(Nutr.Sc.) – Food Science/Nutritional Science Major

Detailed information on this concurrent program can be found under [section 7.4.3: Concurrent Bachelor of Science in Food Science \(B.Sc.\(F.Sc.\)\) and Bachelor of Science Nutritional Sciences \(B.Sc.\(Nutr.Sc.\)\) - Food Science/Nutritional Science Major \(122 credits\)](#) in this publication.

## 7.6 Minor Programs

The Faculty of Agricultural and Environmental Sciences offers a number of minor programs.

For registration information, see [section 5.5.8.1: Procedures for Minor Programs](#).

### 7.6.1 Minor in Environment (McGill School of Environment)

For information about the Minor in Environment, consult [McGill School of Environment > Minor in Environment](#).

### 7.6.2 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Minor Agricultural Economics (24 credits)

The Minor in Agricultural Economics will complement a student's education in four ways. First, as a social science, Economics will provide an alternative perspective for students in the Faculty. Second, the Minor will provide an excellent foundation of the workings of the economy at large. Third, it will aid students in understanding the business environment surrounding the agri-food industry. Finally, it will challenge students to analyze the interaction between the agricultural economy and the natural resource base.

Minor Coordinator: Professor John Henning

Macdonald-Stewart Building, Room 3-038

Telephone: 514-398-7826

#### Required Courses (12 credits)

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 343	(3)	Accounting and Cost Control
AGEC 425	(3)	Applied Econometrics
AGEC 430	(3)	Agriculture, Food and Resource Policy
AGEC 442	(3)	Economics of International Agricultural Development
AGEC 450	(3)	Agriculture Business Management
AGEC 491	(3)	Research & Methodology
AGEC 492	(3)	Special Topics in Agricultural Economics 01

### 7.6.3 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 publication.

Academic Adviser: Professor Jaswinder Singh

Department of Plant Science

Telephone: 514-398-7906

#### 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
PLNT 331	(3)	Grains and Biofuel Crops

### 7.6.4 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.

Academic Adviser: Professor Roger Cue



Department of Animal Science

Telephone: 514-398-7805

### 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)

A minimum of 9 credits selected from the following list:

ANSC 251	(3)	Comparative Anatomy
ANSC 326	(3)	Fundamentals of Population Genetics
ANSC 330	(3)	Fundamentals of Nutrition
ANSC 400	(3)	Eukaryotic Cells and Viruses
ANSC 424	(3)	Metabolic Endocrinology
ANSC 433	(3)	Animal Nutrition
ANSC 560	(3)	Biology of Lactation
ANSC 565	(3)	Applied Information Systems
LSCI 451	(3)	Research Project 1

## 7.6.5 Minor Animal Health and Disease (24 credits)

The Minor in Animal Health and Disease is offered to students wishing to understand general animal physiology and function, the susceptibility of animals to various diseases, methods for limiting and controlling potential outbreaks, and the resulting implications for the animal, the consumer, and the environment. It is an ideal choice for students who are interested in the care of animals, or in working in laboratories where diseases are being researched. It would also be useful to students who wish to apply to most veterinary colleges in North America.

This Minor is not open to students in B.Sc.(Ag.Env.Sc.) programs. These students may register for the specialization in Animal Health and Disease.

Academic Adviser: Professor Sarah Kimmins

Macdonald-Stewart Building, Room 1-091

Telephone: 514-398-7658

### Required Courses (15 credits)

ANSC 312	(3)	Animal Health and Disease
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
MICR 341	(3)	Mechanisms of Pathogenicity
PARA 438	(3)	Immunology

### Complementary Courses (9 credits)

9 credits selected from the following list:

ANSC 251	(3)	Comparative Anatomy
ANSC 330	(3)	Fundamentals of Nutrition
ANSC 350	(3)	Food-Borne Pathogens

LSCI 451	(3)	Research Project 1
PARA 410	(3)	Environment and Infection
WILD 311	(3)	Ethology
WILD 424	(3)	Parasitology

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

The Minor Ecological Agriculture is designed to focus on the principles underlying the practice of ecological agriculture and is suitable for students wishing to farm and do extension and government work, and those intending to pursue postgraduate studies in this field.

This Minor can be associated with existing major programs in the Faculty, but in some instances it may require more than 90 credits to meet the requirements of both the Major and the Minor.

Students are advised, during the U1 year, to consult their Major program adviser and the Academic Adviser of the Minor. At the time of registration for the U2 year, students must declare their intent to obtain the Minor. With the agreement of their Major program adviser they must submit their program of courses already taken, and to be taken, to the Academic Adviser of the Minor. The Academic Adviser of the Minor will then certify which courses the student will apply toward the Minor and confirm that the student's program conforms with its requirements.

Academic Adviser: Dr. Caroline Begg

Raymond Building, Room 2-028a

Telephone: 514-398-8749

#### General Regulations

To obtain a Minor in Ecological Agriculture, students must:

- 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 (9 credits)

AGRI 215	(3)	Agro-Ecosystems Field Course
AGRI 340	(3)	Principles of Ecological Agriculture
RELG 270	(3)	Religious Ethics and the Environment

#### Complementary Courses (15 credits)

15 credits chosen from:

\* Note: Offered in alternate years.

AGEC 430	(3)	Agriculture, Food and Resource Policy
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
ENTO 352	(3)	Biocontrol of Pest Insects
MICR 331	(3)	Microbial Ecology
NUTR 512	(3)	Herbs, Foods and Phytochemicals
PLNT 302	(3)	Forage Crops and Pastures
PLNT 312*	(3)	Urban Horticulture
PLNT 426*	(3)	Plant Ecophysiology
PLNT 434	(3)	Weed Biology and Control
PLNT 460	(3)	Plant Ecology
SOIL 326	(3)	Soils in a Changing Environment

SOIL 335*	(3)	Soil Ecology and Management
SOIL 342	(3)	Organic Soil Fertilization
SOIL 445*	(3)	Agroenvironmental Fertilizer Use

### 7.6.7 Minor in Environmental Engineering (27 credits)

The Minor program consists of 27 credits in courses that are environment related. By means of a judicious choice of complementary and elective courses, Bioresource Engineering students may obtain this Minor with a minimum of 12 additional credits.

The Environmental Engineering Minor is administered by the Faculty of Engineering, Department of Civil Engineering and Applied Mechanics (see *Faculty of Engineering > Environmental Engineering Minor*).

#### Courses available in the Faculty of Agricultural and Environmental Sciences (partial listing):

BREE 322	Organic Waste Management
BREE 416	Engineering for Land Development
BREE 518	Bio-Treatment of Wastes
MICR 331	Microbial Ecology

Academic Adviser: Professor Shiv Prasher  
Macdonald-Stewart Building, Room 1-028  
Telephone: 514-398-7775

### 7.6.8 Minor Human Nutrition (24 credits)

The Minor Human Nutrition is intended to complement a student's primary field of study by providing a focused introduction to the metabolic aspects of human nutrition. It is particularly accessible to students in Biochemistry, Biology, Physiology, Anatomy and Cell Biology, Microbiology and Immunology, Animal Science, or Food Science programs. The completion of 24 credits is required, of which at least 18 must not overlap with the primary program. All courses must be taken in the appropriate sequence and passed with a minimum grade of C. Students may declare their intent to follow the Minor program at the beginning of their U2 year. They must then consult with the academic adviser in the School of Dietetics and Human Nutrition to obtain approval for their course selection. Since some courses may not be offered every year and many have prerequisites, students are cautioned to plan their program in advance.

The Minor program does not carry professional recognition; therefore, it is not suitable for students wishing to become nutritionists or dietitians. However, successful completion may enable students to qualify for many postgraduate nutrition programs.

Note:

Most courses listed at the 300 level and higher have prerequisites. Although instructors may waive prerequisite(s) in some cases, students are urged to prepare their program of study well before their final year.

Academic Adviser: Professor Linda Wykes  
Macdonald-Stewart Building, Room 2-042  
Telephone: 514-398-7843

#### Required Courses (6 credits)

NUTR 337	(3)	Nutrition Through Life
NUTR 450	(3)	Research Methods: Human Nutrition

#### Complementary Courses (18 credits)

18 credits are selected as follows:

3 credits in Biochemistry, one of:

ANSC 234	(3)	Biochemistry 2
BIOC 311	(3)	Metabolic Biochemistry

3 credits in Physiology, one of:

ANSC 323	(3)	Mammalian Physiology
PHGY 202	(3)	Human Physiology: Body Functions
PHGY 210	(3)	Mammalian Physiology 2

3 credits in Nutrition, one of:

ANSC 330	(3)	Fundamentals of Nutrition
NUTR 307	(3)	Human Nutrition

9 credits are selected as follows:

ANSC 551	(3)	Carbohydrate and Lipid Metabolism
ANSC 552	(3)	Protein Metabolism and Nutrition
NUTR 403	(3)	Nutrition in Society
NUTR 420	(3)	Toxicology and Health Risks
NUTR 436	(2)	Nutritional Assessment
NUTR 501	(3)	Nutrition in Developing Countries
NUTR 512	(3)	Herbs, Foods and Phytochemicals
NUTR 551	(3)	Analysis of Nutrition Data
PATH 300	(3)	Human Disease

One of:

MIMM 314	(3)	Immunology
PARA 438	(3)	Immunology

One of:

NUTR 430	(3)	Directed Studies: Dietetics and Nutrition 1
NUTR 431	(3)	Directed Studies: Dietetics and Nutrition 2

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

Students enter this Minor because they want to acquire a global understanding of agriculture as a central mechanism to help rural development, alleviate poverty and reach food security, especially in the developing world. This program provides students with coursework and a semester hands-on experience in a developing country (students must cover their costs), meeting locals and attending courses with McGill professors and/or local instructors. The field semester includes developing projects in local communities, observing subsistence agriculture in situ and participating in social activities which contribute to sensitize students to the development challenges that such countries face. What better way to study the practice of agriculture in a tropical setting than by going to a tropical destination? In Africa, or in Panama, or in Barbados! Students will learn about water resources, sustainable development, nutrition, planning and development, and a host of other fascinating topics, allowing them to sharpen their skills for career opportunities ahead.

Minor Adviser: Professor Humberto Monardes

Macdonald-Stewart Building, Room 1-093

Telephone: 514-398-7809

#### Required Courses (6 credits)

AGEC 442	(3)	Economics of International Agricultural Development
AGRI 411	(3)	Global Issues on Development, Food and Agriculture

**Complementary Courses (18 credits)**

18 credits of complementary courses selected as follows:

3 credits, one of the following:

NRSC 340	(3)	Global Perspectives on Food
NUTR 501	(3)	Nutrition in Developing Countries
PARA 515	(3)	Water, Health and Sanitation

15 credits, select one of the McGill Field Study Semesters listed below:

**African Field Study Semester (Winter)**

15 credits in African Field Study Semester are selected as follows:

9 credits of courses chosen from the complementary course set offered in the year of participation in the Field Study Semester.

6 credits of required courses as listed below:

GEOG 416	(3)	Africa South of the Sahara
NRSC 405	(3)	Natural History of East Africa

**Barbados Field Study Semester (Fall)**

15 credits selected as follows:

AGRI 452	(3)	Water Resources in Barbados
AGRI 519	(6)	Sustainable Development Plans
URBP 507	(3)	Planning and Infrastructure
URBP 520	(3)	Globalization: Planning and Change

**Barbados Interdisciplinary Tropical Studies Field Semester (Summer)**

15 credits selected as follows:

AEBI 421	(3)	Tropical Horticultural Ecology
AEBI 423	(3)	Sustainable Land Use
AEBI 425	(3)	Tropical Energy and Food
AEBI 427	(6)	Barbados Interdisciplinary Project

**Panama Field Study Semester (Winter)**

15 credits selected as follows:

9 credits of required courses

BIOL 553	(3)	Neotropical Environments
ENVR 451	(6)	Research in Panama

6 credits of complementary courses

Choose one of the following sets:

AGRI 550	(3)	Sustained Tropical Agriculture
HIST 510	(3)	Environmental History of Latin America (Field)

OR

GEOG 404	(3)	Environmental Management 2
GEOG 498	(3)	Humans in Tropical Environments

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## 7.7 Post-Baccalaureate Certificate Programs

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

### 7.7.1 Certificate in Ecological Agriculture (30 credits)

This 30-credit certificate program is very similar to the Minor program and is designed to focus on the principles underlying the practice of ecological agriculture. The certificate may be of special interest to professional agrologists who want further training, as well as formal recognition that they have completed a coherent program of courses beyond their B.Sc. studies.

Students holding a B.Sc. in agriculture or a related area are eligible to register for this program provided that they are otherwise acceptable for admission to the University. Students who have completed the Minor or specialization in Ecological Agriculture are not permitted to register for this program.

Academic Adviser: Dr. Caroline Begg

Raymond Building, Room 2-028a

Telephone: 514-398-8749

#### General Regulations

To obtain a certificate in Ecological Agriculture, students must complete a minimum total of 30 credits from the courses as given below.

#### Notes:

1. Most courses listed at the 300 level and higher have prerequisites. Although instructors may waive prerequisite(s) in some cases, students are urged to prepare their program of study to ensure that they have met all conditions.
2. Students using AGRI 310 toward the requirements of the Specialization/Minor/Certificate are limited to an experience on farms or other enterprises that are organic, biodynamic, or practising permaculture. The placement must be approved by the academic adviser for the specialization/Minor/certificate.

#### Required Courses (9 credits)

AGRI 215	(3)	Agro-Ecosystems Field Course
AGRI 340	(3)	Principles of Ecological Agriculture
RELG 270	(3)	Religious Ethics and the Environment

#### Complementary Courses (21 credits)

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

AGEC 430	(3)	Agriculture, Food and Resource Policy
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
ENTO 352	(3)	Biocontrol of Pest Insects
ENVB 305	(3)	Population & Community Ecology
ENVB 410	(3)	Ecosystem Ecology
MICR 331	(3)	Microbial Ecology
NUTR 512	(3)	Herbs, Foods and Phytochemicals
PLNT 302	(3)	Forage Crops and Pastures
PLNT 426*	(3)	Plant Ecophysiology
PLNT 434	(3)	Weed Biology and Control

PLNT 460	(3)	Plant Ecology
SOIL 326	(3)	Soils in a Changing Environment
SOIL 335*	(3)	Soil Ecology and Management
SOIL 342	(3)	Organic Soil Fertilization
SOIL 445*	(3)	Agroenvironmental Fertilizer Use
WILD 311	(3)	Ethology

### 7.7.2 Certificate in Food Science (30 credits)

This 30-credit program will appeal to mature students who have a first degree in a science-related discipline. Students must complete the Introduction to Food Science, Food Microbiology, and Quality Assurance courses, at least three Food Chemistry/Analysis courses, two Processing/Engineering courses, and at least one course in communication skills, ethics, or business skills. Entry to this program is permitted only in September.

Academic Adviser: Professor Hosahalli S. Ramaswamy

Macdonald-Stewart Building, Room 1-038

Telephone: 514-398-7919

#### Required Course (3 credits)

FDSC 200	(3)	Introduction to Food Science
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#### Complementary Courses (27 credits)

27 credits are selected as follows:

9 credits from the following:

FDSC 251	(3)	Food Chemistry 1
FDSC 300	(3)	Principles of Food Analysis 1
FDSC 305	(3)	Food Chemistry 2
FDSC 315	(3)	Separation Techniques in Food Analysis 1
FDSC 319	(3)	Food Commodities
FDSC 334	(3)	Analysis of Food Toxins and Toxicants
FDSC 410	(3)	Flavour Chemistry
FDSC 495D1	(1.5)	Food Science Seminar
FDSC 495D2	(1.5)	Food Science Seminar

6 credits from the following:

BREE 324	(3)	Elements of Food Engineering
FDSC 310	(3)	Post Harvest Fruit and Vegetable Technology
FDSC 330	(3)	Food Processing
FDSC 400	(3)	Food Packaging
FDSC 405	(3)	Food Product Development
FDSC 425	(3)	Principles of Quality Assurance

3 credits from the following:

FDSC 442	(3)	Food Microbiology
LSCI 230	(3)	Introductory Microbiology

NUTR 207 (3) Nutrition and Health

9 credits from the following:

AGRI 510	(3)	Professional Practice
FDSC 515	(3)	Enzyme Thermodynamics/Kinetics
FDSC 519	(3)	Advanced Food Processing
FDSC 520	(3)	Biophysical Chemistry of Food
FDSC 530	(3)	Advanced Analytical Chemistry
FDSC 535	(3)	Food Biotechnology
FDSC 536	(3)	Food Traceability
FDSC 537	(3)	Nutraceutical Chemistry

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## 7.8 Field Studies

### 7.8.1 African Field Study Semester

The Department of Geography, Faculty of Science, coordinates the 15-credit interdisciplinary African Field Study Semester. For more information, see *Field Studies and Study Abroad > African Field Study Semester*.

### 7.8.2 Barbados Field Study Semester

This program takes place at Bellairs Research Institute in Barbados; it is a full 15-credit program offered each Fall semester. For more information, see *Field Studies and Study Abroad > Barbados Field Study Semester*.

### 7.8.3 Barbados Interdisciplinary Tropical Studies Field Semester

This 15-credit program is offered at the Bellairs Research Institute in Barbados. For more information, see *Field Studies and Study Abroad > Barbados Interdisciplinary Tropical Studies Field Semester*.

### 7.8.4 Panama Field Study Semester

This program is a joint venture between McGill University and the Smithsonian Tropical Research Institute (STRI) in Panama. For more information, see *Field Studies and Study Abroad > Panama Field Study Semester*.

McGill students are eligible for a Mobility Award; see [www.mcgill.ca/studentaid/travelawards](http://www.mcgill.ca/studentaid/travelawards) for details or contact the Scholarships and Student Aid Office (SSAO) at [mobilityaward@mcgill.ca](mailto:mobilityaward@mcgill.ca).

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## 8 Graduate Programs

Graduate work may be undertaken on the Macdonald Campus, through the Departments of Animal Science, Bioresource Engineering, Food Science and Agricultural Chemistry, Natural Resource Sciences, Plant Science, the Institute of Parasitology, and the School of Dietetics and Human Nutrition.

The advanced courses of study offered lead to the degrees of Master of Science, Master of Science Applied, Doctor of Philosophy, Graduate Certificate in Biotechnology, and Graduate Certificate in Integrated Water Resources Management (IWRM).

Information on these programs and related fellowships is available from the Student Affairs Office, Macdonald Campus of McGill University, 21,111 Lakeshore Road, Laird Hall, Sainte-Anne-de-Bellevue, Quebec, H9X 3V9.

The *Graduate and Postdoctoral Studies Programs, Courses and University Regulations* publication is available at [www.mcgill.ca/study](http://www.mcgill.ca/study), and full information regarding graduate courses, theses, registration, fellowships, etc., can be accessed at [www.mcgill.ca/gps](http://www.mcgill.ca/gps).



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## 9 Farm Management and Technology Program

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### 9.1 Location

Farm Management and Technology Program  
Faculty of Agricultural and Environmental Sciences  
Macdonald Campus of McGill University  
21,111 Lakeshore Road, Harrison House  
Sainte-Anne-de-Bellevue, Quebec H9X 3V9

Telephone: 514-398-7814

Fax: 514-398-7955

Email: [fmt.macdonald@mcgill.ca](mailto:fmt.macdonald@mcgill.ca)

Website: [www.mcgill.ca/fmt](http://www.mcgill.ca/fmt)

---

### 9.2 Farm Management and Technology Program Faculty

#### Director

Peter Enright

#### Associate Director

Serge Lussier

#### Faculty Lecturers

Caroline Begg

Christian Molgat

Pascal Thériault

David Wees

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### 9.3 Diploma Farm Management Technology

This three-year academic and practical program is offered on the Macdonald campus and taught by the staff of the Faculty of Agricultural and Environmental Sciences of McGill University. The program is funded by the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec and authorized by the Ministère de l'Éducation, du Loisir et du Sport du Québec (MELS).

The educational goals of the program are:

1. to make our graduates competent in the exercise of their profession;
2. to help the student's integration into professional life;
3. to foster professional mobility;
4. to foster a need for continual development of professional knowledge.

#### Program Overview

Six academic terms are spent on the Macdonald campus studying a sequence of courses in soil, plant science, animal science, engineering, economics, and management. The first summer of the program includes a 13-week internship on an agricultural enterprise other than the home farm, or an agricultural business where the student learns the many skills and encounters the many problems related to modern commercial agriculture. Students prepare for their Enterprise internship during both academic semesters of Year 1 through two Farm Practice courses.

During the second summer, students are registered in Entrepreneurship 1, which involves agricultural enterprises. The students will be responsible for data collection to be used in their Farm Project and the Nutrient Management Plan 2 when they return to campus for the Fall semester. The internships and practicums will enable the students to relate their academic work to the reality of farming and the agri-food sector.

Finally, courses in English, Français, Humanities, Physical Education, and two complementary courses taken during the program will entitle the student to receive a Diplôme d'études collégiales (DEC) from the MELs. Students will also receive a certification from Macdonald campus stating that they have successfully completed the requirements of the Farm Management and Technology program.

### Program Outline

#### Administrative Unit

FMT 001	(1.33)	Farm Practice 1 (152-001-MC)
FMT 007	(2)	Health and Farm Safety (152-007-MC)
FMT 011	(1.33)	Farm Practice 2 (152-011-MC)
FMT 036	(6)	Enterprise Internship (152-036-MC)
FMT 037	(2.33)	Entrepreneurship 1 (152-037-MC)

#### Bioresource Engineering

FMT 003	(2)	Soil Preparation (152-003-MC)
FMT 004	(1.67)	Microcomputing (152-004-MC)
FMT 014	(1.67)	Machinery Management (152-014-MC)
FMT 018	(1.33)	Building Maintenance (152-018-MC)
FMT 019	(1.67)	Tools & Machinery Maintenance (152-019-MC)
FMT 021	(2)	Water and Soil Conservation (152-021-MC)
FMT 024	(1.67)	Farm Building Planning (152-024-MC)
FMT 027	(1.33)	Precision Farming (152-027-MC)

#### Agricultural Economics

FMT 002	(1.33)	Introduction to Economics (152-002-MC)
FMT 025	(2)	Farm Project (152-025-MC)
FMT 038	(2)	Financial and Managerial Accounting (152-038-MC)
FMT 039	(1.67)	Agri-Marketing (152-039-MC)
FMT 042	(2.33)	Budgeting, Finance and Policies (152-042-MC)
FMT 043	(2.67)	Entrepreneurship 2 (152-043-MC)
FMT 044	(1.33)	Management of Human Resources (152-044-MC)

#### Animal Science

FMT 005	(1.33)	Animal Anatomy and Physiology
FMT 008	(2.33)	Introduction to Animal Science (152-008-MC)

#### English

FMT 077	(2.67)	Intro to College English (603-101-MQ)
FMT 080	(2)	English Upgrading
FMT 082	(2.33)	Literary Genres (603-102-04)
FMT 083	(2.33)	Literary Themes (603-103-04)
FMT 084	(2)	English for FMT (603-VSA-04)

**Français**

FMTF 075	(2)	Langue française et communication (602-101-03)
FMTF 098	(2)	Français agricole (602-VSG-MC)

**Humanities**

FMTF 085	(2.33)	Humanities 1: Knowledge (345-103-04)
FMTF 086	(2)	Humanities 2: World Views (345-102-03)
FMTF 087	(2)	Humanities 3: Env.& Org. Issues (345-VSH-MC)

**Natural Resource Sciences**

FMTF 009	(2.67)	Soil Fertilization (152-009-MC)
FMTF 040	(1.67)	Nutrient Management Plan 1 (152-040-MC)
FMTF 041	(1.33)	Nutrient Management Plan 2 (152-041-MC)

**Physical Education**

FMTF 090	(1)	Physical Activity and Health (109-101-MQ)
FMTF 091	(1)	Physical Activity and Effectiveness (109-102-MQ)
FMTF 095	(1)	Active Living (109-105-02)

**Plant Science**

FMTF 006	(2.67)	Agricultural Botany
FMTF 017	(1.33)	Pesticide Use

**Elective Production Courses**

We offer four production courses in the area of Animal Science and four production courses in the area of Plant Science. Students must take a minimum of two courses in each category for a total of four courses. Students could elect to take more than four courses if they wish, after a discussion with their academic adviser. They must take a minimum of two courses per semester.

**Animal Science Category**

FMTF 028	(2.67)	Dairy Heifer Management (152-028-MC)
FMTF 029	(2.67)	Dairy Herd Management (152-029-MC)
FMTF 030	(2.67)	Swine and Poultry (152-030-MC)
FMTF 031	(2.67)	Beef and Sheep (152-031-MC)

**Plant Science Category**

FMTF 032	(2.67)	Fruit and Vegetable Crops (152-032-MC)
FMTF 033	(2.67)	Greenhouse Crops (152-033-MC)
FMTF 045	(2.67)	Field Crop Production (152-045-MC)
FMTF 046	(2.67)	Field Crop Management (152-046-MC)

**Complementary Courses\***

Students must take the following complementary courses to meet the program requirements:

\* After consultation with their academic adviser, students can substitute complementary courses taken at another collegial institution. This includes science courses which are required for further studies in a degree program. The cost associated with courses taken elsewhere must be assumed by the students.

FMTF 096	(2)	Forests, Forestry and Society (305-032-MC)
FMTF 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 offered by the MELS. Students must take this examination on the date selected by the MELS.

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## 9.4 Entrance Requirements – FMT

1. Students should have a good practical knowledge of farming under eastern Canadian conditions. One year of experience is recommended, but under special conditions a four-month summer season is acceptable.
2. The minimum academic entrance requirements are a Quebec High School Leaving Certificate (Secondary V), or its equivalent and any other academic requirement set by the *Ministère de l'Éducation, du Loisir et du Sport* (MELS).
3. All candidates for admission must make arrangements to come to the Macdonald campus for an interview prior to admission to the program.
4. Admission to this program is only in the Fall semester.
5. We strongly encourage incoming students to acquire their driver's permit (both for cars **and** farm equipment) before coming to Macdonald campus. This is first for safety reasons, given that students work with farm equipment (Soil Preparation) very early on as they arrive at Macdonald. As well, most farmers require their employees and trainees (stagiaires) to drive and possess the appropriate driver's license.

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## 9.5 Registration – FMT

Students in the Farm Management and Technology program must register online using Minerva at [www.mcgill.ca/minerva](http://www.mcgill.ca/minerva) for each semester at McGill.



**Note:** The University reserves the right to make changes without prior notice to the information contained in this publication, including the alteration of various fees, schedules, conditions of admission and credit requirements, and the revision or cancellation of particular courses. In normal circumstances, individual courses will not be offered with fewer than five registrants.

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## 9.6 Academic Rules and Regulations – FMT

The Farm Management and Technology program follows the rules and regulations of McGill University as well as from the *Ministère de l'Éducation, du Loisir et du Sport du Québec* for the collegial level.

### 9.6.1 Sessional Dates – FMT

The number of teaching and examination days is set by the *Ministère de l'Éducation, du Loisir et du Sport du Québec*. The sessional dates vary from year to year. At the present time, each semester has 75 teaching days and seven days of exams.

### 9.6.2 Last Day for Withdrawal or Course Additions – FMT

The last day to make course registration changes for Fall term courses is September 20.

The last day to make course registration changes for Winter term courses is February 15.

### 9.6.3 Academic Standing – FMT

Attendance in class is compulsory. Students with attendance of less than 80% may not be permitted to write examinations.

Examinations and other work in courses will be marked according to the percentage system. The minimum passing mark in a course is 60%.

When a student's cumulative percent average (CPA) or semestrial percent average (SPA) first drops below 60%, or they fail four or more courses in a semester, withdrawal is advised. Students who choose to remain in the program are on probation.

Students on probation are normally permitted to register for no more than 10 credits per semester. They are not permitted to be on probation for more than one semester unless they obtain an SPA of 70% or higher.

Students who do not raise their CPA to 60% (or obtain an SPA of 70%) while on probation are not permitted to continue. They are required to withdraw from the program for one year. If, after this period, students wish to be readmitted, they must apply in writing to the Director of the program.

#### **9.6.4 Handbook on Student Rights and Responsibilities**

This *Handbook* is a compendium of regulations and policies governing student rights and responsibilities at McGill University. It is published jointly by the Dean of Students' Office and the Secretariat. A copy of the *Handbook* can be found at [www.mcgill.ca/secretariat/policies/students](http://www.mcgill.ca/secretariat/policies/students) or obtained from the Student Affairs Office or the Student Services Centre on the Macdonald campus.

#### **9.6.5 Institutional Policy on the Evaluation of Student Achievement – FMT**

The policy has the following objectives:

- to establish and explain the principles followed in evaluating student learning;
- to describe the means of translating these principles into practice and to establish the required procedures;
- to articulate the appropriate responsibilities of students, instructors, departments, and academic administrators;
- to account to students, parents, universities, and employers for the standards of learning at the campus;
- to create an environment of awareness and free discussion of pedagogical concerns within all segments of the campus community;
- to provide information that will allow students to more fully understand and participate in the educational process;
- to provide the framework within which instructors and academic administrators can exercise their professional judgment in a competent, just, and coherent fashion.

Copies are available in the Library and students are informed of it at registration.

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### **9.7 Fees and Expenses – FMT**

#### **9.7.1 Fees**

Tuition fees for all full-time students who are eligible for the Farm Management and Technology program are paid by the *Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec*. Student Services and Student Societies' fees, as well as course material fees, will be charged according to the schedule in effect for all Macdonald campus students. At the time of publishing, the fees\* were \$841.10 for the Fall semester, and \$680.67 for the Winter semester.

\* 2010-11 fees, subject to change without notice.

#### **9.7.2 Textbooks and Supplies**

The cost of textbooks and supplies is estimated at \$200.00 per semester.

#### **9.7.3 Financial Assistance**

In-Course Financial Aid (including loans and bursaries) is available to full-time students on the basis of demonstrated financial need; however, it is recommended that all applicants apply for the maximum government student assistance program for which they are eligible. Students may apply for In-Course Financial Aid through the *Financial Aid & Awards Menu* on Minerva and will then be asked to make an appointment with the Loan Administrator who visits the Student Services Centre, Macdonald campus, every Wednesday to meet with students with financial difficulties. For more information, see *University Regulations and Resources > Scholarships and Student Aid*, or contact the Student Services Centre at 514-398-7992.

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### **9.8 Residence Accommodation – FMT**

Laird Hall is a co-educational residence with a capacity of 250 students. It accommodates students in double and single rooms. Each floor includes shared washrooms, a fully-equipped kitchen, a television lounge, and a laundry room. For more information, refer to *University Regulations and Resources > Residential Facilities > University Residences – Macdonald Campus*; [www.mcgill.ca/macdonald-residences](http://www.mcgill.ca/macdonald-residences) or email [residences.macdonald@mcgill.ca](mailto:residences.macdonald@mcgill.ca).

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## 10 Department of Animal Science

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### 10.1 Location

Macdonald Stewart Building, Room MS1-084

Telephone: 514-398-7794

Fax: 514-398-7964

Email: [animal.science@mcgill.ca](mailto:animal.science@mcgill.ca)

Website: [www.mcgill.ca/animal](http://www.mcgill.ca/animal)

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### 10.2 About the Department of Animal Science

There are excellent programs available for those students interested in the study of animal science at the undergraduate level. Whether students are interested in the improvement of livestock production from the point of view of nutrition, breeding and reproduction, or the study of animals in a health context, or even the biotechnology aspects that provide a basis for further laboratory research and an opening to animal models and their impact on human health and disease, there is a specialization that will appeal to those needs.

The Department of Animal Science plays a crucial role in the offering of four important specializations:

- Animal Biology
- Animal Health and Disease
- Animal Production
- International Agriculture

Each of these specializations must be taken within the context of a major, depending on the orientation of a student towards animal production management, animal biotechnology, further studies in animal health, international studies, and/or graduate studies.

A student with an interest in animals, who wishes to become a professional agrologist (a member of the *Ordre des agronomes du Québec*), should register in the Agro-Environmental Sciences Major and take the specialization in Animal Production (as well as the obligatory specialization in Professional Agrology).

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### 10.3 Department of Animal Science Faculty

#### Chair

Kevin M. Wade

#### Emeritus Professors

Roger B. Buckland

Eduardo R. Chavez

Eugene Donefer

Bruce R. Downey

Urs Kuhnlein

John E. Moxley

Sherman Touchburn

#### Professors

J. Flannan Hayes

Xin Zhao (*James McGill Professor*)

---

**Associate Professors**

Vilceu Bordignon  
Roger I. Cue  
Humberto G. Monardes  
Arif Mustafa  
Leroy E. Phillip  
Kevin Wade  
David Zadworny

**Assistant Professors**

Martin Chénier  
Raj Duggavathi  
Sarah Kimmins

**Adjunct Professors**

Hernan Baldassarre  
Pierre Lacasse  
Daniel Lefebvre  
Bruce Murphy

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## 11 Department of Bioresource Engineering

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### 11.1 Location

Macdonald Stewart Building, Room MS1-027  
McGill University, Macdonald Campus  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue, Quebec H9X 3V9  
Canada

Telephone: 514-398-7773  
Fax: 514-398-8387  
Email: [shiv.prasher@mcgill.ca](mailto:shiv.prasher@mcgill.ca)  
Website: [www.mcgill.ca/bioeng](http://www.mcgill.ca/bioeng)

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### 11.2 About the Department of Bioresource Engineering

Bioresource Engineering is an interdisciplinary program that integrates engineering, design, and the biological sciences. It is a unique profession that applies engineering principles to the enhancement and sustainability of the world's natural resources. Bioresource engineers seek solutions to problems that involve plants, animals, and the environment. Bioresource Engineering includes the design, construction, operation, maintenance, remediation, and upgrading of systems that contain biological components. This also includes the design of many of the technological constructions that are part of such systems. Thus, Bioresource Engineering includes quite a few sub-disciplines, which are linked because of their biological orientation.

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### 11.3 Department of Bioresource Engineering Faculty

#### Chair

Shiv O. Prasher

#### Emeritus Professors

Robert S. Broughton

Robert Kok

#### Professors

Suzelle Barrington

Chandra Madramootoo (*James McGill Professor*)

Edward McKyes

Shiv O. Prasher (*James McGill Professor*)

G.S. Vijaya Raghavan (*James McGill Professor*)

#### Associate Professors

Viacheslav Adamchuk

Michael O. Ngadi (*William Dawson Scholar*)

#### Assistant Professors

Jan Adamowski

Grant Clark

Mark Lefsrud

Valérie Orsat

#### Adjunct Professors

Joyce Boye

Young Choi

Murray Clamen

Aleksandra Drizo

Samuel Gamede

Serge Guiot

Pierre Jutras

Stephen Light

Jose Martinez

Philippe Savoie

Boris Tartakovsky

Clément Vigneault

#### Faculty Lecturers

Alice Cherestes

Marcia Knutt



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## 12 Department of Food Science and Agricultural Chemistry

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### 12.1 Location

Macdonald-Stewart Building, Room MS1-034  
McGill University, Macdonald Campus  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue, Quebec H9X 3V9  
Canada

Telephone: 514-398-7898

Fax: 514-398-7977

Email: [foodscience@mcgill.ca](mailto:foodscience@mcgill.ca)

Website: [www.mcgill.ca/foodscience](http://www.mcgill.ca/foodscience)

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### 12.2 About the Department of Food Science

**Food Science** is a multidisciplinary field involving chemistry, biochemistry, nutrition, microbiology, and processing that gives students the scientific knowledge to solve real problems associated with the many facets of the food system. Food Science is still a relatively new and growing discipline, brought about mainly as a response to the social changes taking place in North America and other parts of the developed world. The current trend toward merger between **food** and **pharmaceutical industries** to produce the next generation of new food products such as functional foods and nutraceuticals is the biggest challenge facing the discipline of Food Science today. You can be part of it. The programs offered are: **B.Sc. Food Science (Food Chemistry or Food Science option)** and **Concurrent degree, which includes B.Sc. Food Science/B.Sc. Nutritional Sciences**. For more information on these programs, see [section 7.4: Bachelor of Science \(Food Science\) - B.Sc.\(F.Sc.\)](#).

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### 12.3 Department of Food Science and Agricultural Chemistry Faculty

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

#### Chair

Varoujan Yaylayan

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

#### Professors

Inteaz Alli

William D. Marshall

Hosahalli S. Ramaswamy

Frederik R. van de Voort

#### Associate Professors

Ashraf A. Ismail

Selim Kermasha

Benjamin K. Simpson

Varoujan Yaylayan

#### Assistant Professors

Martin Chénier

**Assistant Professors**

Salwa Karboune

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## 13 Department of Natural Resource Sciences

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### 13.1 Location

Macdonald-Stewart Building, Room MS3-040  
McGill University, Macdonald Campus  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue, Quebec H9X 3V9  
Canada

Telephone: 514-398-7890  
Fax: 514-398-7990  
Email: [info@nrs.mcgill.ca](mailto:info@nrs.mcgill.ca)  
Website: [www.mcgill.ca/nrs](http://www.mcgill.ca/nrs)

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### 13.2 About the Department of Natural Resource Sciences

Our environment is comprised of many interacting components: interactions between the earth's atmosphere and forests or crops, between plants and other organisms in the soil, between soil properties and nutrients available to plants, between vegetation and the wildlife it supports, between ecological communities on the land and those of the rivers and lakes nearby, between microbial organisms and food, between insects, plants and animals, between human activities such as agriculture, forestry, and industrial development, and natural ecological processes. In turn, all these processes are greatly affected by the actions of governments that rely primarily on feedback from societal and industrial groups, economists, and policy experts to provide guidelines for the management of our natural resources.

The courses and academic programs offered by the Department of Natural Resource Sciences allow students to explore interactions among the components of terrestrial and aquatic ecosystems, and governance through the development of a strong, interdisciplinary background in fundamental, applied, and social sciences.

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### 13.3 Department of Natural Resource Sciences Faculty

**Chair**

Benoît Côté

**Emeritus Professors**

Nayana N. Barthakur  
Edmund Idziak  
Angus F. Mackenzie  
Robert A. MacLeod  
Peter H. Schuepp  
Robin K. Stewart

**Professors**

David M. Bird  
Peter Brown (*joint appt. with Geography and McGill School of Environment*)

**Professors**

James W. Fyles (*Tomlinson Professor of Forest Ecology*)

William H. Hendershot

**Associate Professors**

Christopher Buddle

Benoît Côté

Mark A. Curtis

Brian T. Driscoll

Gary B. Dunphy

John Henning

Murray Humphries

David J. Lewis

Ian Strachan

Paul Thomassin

Joann Whalen

Terry A. Wheeler

Lyle Whyte

**Assistant Professors**

Elena Bennett (*joint appt. with McGill School of Environment*)

Gordon Hickey

Nicolas Kosoy (*joint appt. with McGill School of Environment*)

Anwar Naseem

Christopher Solomon

**Curators**

Stephanie Boucher

Christina Idziak

**Associate Members**

Colin A. Chapman (*Anthropology*)

Lauren J. Chapman (*Biology*)

David Green (*Redpath Museum*)

William D. Marshall (*Dept. of Food Science and Agricultural Chemistry*)

Marilyn Scott (*Institute of Parasitology*)

Donald L. Smith (*Dept. of Plant Science*)

**Adjunct Professors**

Denis Angers

Guy Boivin

Michel Bouchard

Kimberly Fernie

Charles W. Greer

#### Adjunct Professors

Daniel Houle  
Jean-Pierre Savard  
Elwin G. Smith  
Geoffrey Sunahara  
Charles Vincent  
Frederick G. Whoriskey

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## 14 Department of Plant Science

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### 14.1 Location

Raymond Building, Room R2-019  
McGill University, Macdonald Campus  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue, Quebec H9X 3V9  
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Fax: 514-398-7897  
Email: [plant.science@mcgill.ca](mailto:plant.science@mcgill.ca)  
Website: [www.mcgill.ca/plant](http://www.mcgill.ca/plant)

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### 14.2 About the Department of Plant Science

Our understanding of biological systems has advanced exponentially during the 20th century, and technological developments now allow us to pose questions that simply could not be asked a few decades ago. We also live at a time of great challenges: the human population is now close to 7 billion and continues to rise at an alarming rate, the climate is changing, worldwide energy availability is going down, quality freshwater is getting scarce, biodiversity is disappearing, and a number of wild habitats are threatened by human activities.

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

The Department of Plant Science contributes to several undergraduate programs that will train tomorrow's agrologists, ecologists, botanists, and biotechnologists. These include specializations in Ecological Agriculture, Plant Biology, Plant Production, and also the Environmetrics and Food Production and Environment Domains of the McGill School of the Environment. See related program information under [section 7.2: Bachelor of Science \(Agricultural and Environmental Sciences\) – B.Sc.\(Ag.Env.Sc.\)](#).

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### 14.3 Department of Plant Science Faculty

#### Chair

Philippe Seguin

#### Emeritus Professors

Deborah Buszard  
Ralph H. Estey  
William F. Grant

**Professors**

Pierre Dutilleul  
Donald L. Smith  
Alan K. Watson

**Associate Professors**

Jacqueline C. Bede  
Sylvie de Blois  
Danielle J. Donnelly  
Suha Jabaji  
Ajjamada C. Kushalappa  
Philippe Seguin  
Katrine A. Stewart (*post-retirement*)  
Martina V. Stromvik  
Marcia J. Waterway

**Assistant Professors**

Jean-Benoit Charron  
Jaswinder Singh

**Faculty Lecturers**

Caroline Begg  
Serge Lussier  
David Wees

**Associate Members**

Gregory Brown (*Department of Biology*)  
Timothy A. Johns (*School of Dietetics and Human Nutrition*)

**Adjunct Professors**

Annick Bertrand  
Marc Fortin  
Sylvie Jenni  
Shahrokh Khanizadeh

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**15 School of Dietetics and Human Nutrition**

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**15.1 Location**

Macdonald Stewart Building, Room MS2-039  
McGill University, Macdonald Campus  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue, Quebec H9X 3V9

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Website: [www.mcgill.ca/dietetics](http://www.mcgill.ca/dietetics)

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## 15.2 About the School of Dietetics and Human Nutrition

Health and well-being of individuals in relation to food choices and physiological status prevails as the unifying theme of the programs in the School of Dietetics and Human Nutrition. The availability of food, normal metabolism and clinical nutrition, community nutrition at the local and international level, the evaluation of nutritional products and their use in nutrition, and the communication of information about food and health form the core of academic programs.

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## 15.3 School of Dietetics and Human Nutrition Faculty

### Director

Kristine G. Koski

### Professor Emerita

Harriet V. Kuhnlein

### Professors

Luis B. Agellon

Timothy A. Johns

### Associate Professors

Grace Egeland (*Canada Research Chair*)

Katherine Gray-Donald

Kristine G. Koski

Stan Kubow

Louise Thibault

Hope Weiler (*Canada Research Chair*)

Linda Wykes (*William Dawson Scholar*)

Grace S. Marquis (*Canada Research Chair*)

### Lecturers

Peter Bender (PT)

Lynda Fraser (PT)

Mary Hendrickson

Linda Jacobs Starkey

Maureen Rose

Joane Routhier

Sandy Phillips

Hugues Plourde

TBA

**Adjunct Professors**

Laurie H.M. Chan

Kevin A. Cockell

**Cross-Appointed Staff**

Food Science and Agricultural Chemistry: Selim Kermasha

Medicine: Ross Andersen, Louis Beaumier, Franco Carli, Stephanie Chevalier, Réjeanne Gougeon, L. John Hoffer, Larry Lands, Errol Marliiss, José Morais, Celia Rodd, Thomas Schrickler, Jean-François Yale, Ralph Lattermann

Parasitology: Marilyn E. Scott

MUHC: Sonya Page

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**16 Institute of Parasitology**

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**16.1 Location**

Institute of Parasitology  
 Parasitology Building  
 McGill University, Macdonald Campus  
 21,111 Lakeshore Road  
 Sainte-Anne-de-Bellevue, Quebec H9X 3V9  
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**16.2 Institute of Parasitology Faculty****Director**

Timothy Geary

**Professors**

John Dalton

Timothy Geary

Roger Prichard

**Associate Professors**

Robin Beech

Elias Georges

Armando Jardim

Paula Ribeiro

Marilyn Scott

#### Assistant Professors

Florence Dzierszynski  
Petra Rohrbach  
Reza Salavati

#### Associate Members

Greg Matlashewski  
Martin Olivier  
Mary Stevenson  
Brian Ward

#### Adjunct Professors

Sean Forrester  
David Marcogliese  
Terence Spithill

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## 17 Instructional Staff

Adamchuck, Viacheslav I.; B.S.(National Agricultural Univ. of Ukraine), M.S., Ph.D.(Purd.); Associate Professor of Bioresource Engineering

Adamowski, Jan; B.Eng.(RMC), M.Phil.(Camb./MIT), M.B.A.(Warsaw/HEC Paris/London Business School/Norwegian School of Economics and Business Administration), Ph.D.(Warsaw); Assistant Professor of Bioresource Engineering

Agellon, Luis B.; B.Sc., Ph.D.(McM.); Professor of Human Nutrition (*Canada Research Chair*)

Alli, Inteaz; B.Sc.(Guyana), M.Sc., Ph.D.(McG.); Professor of Food Science and Agricultural Chemistry

Barrington, Suzelle; B.Sc.(Agr.Eng.), Ph.D.(McG.); Professor of Bioresource Engineering

Bede, Jacqueline; B.Sc.(Calg.), M.Sc., Ph.D.(Tor.); Associate Professor of Plant Science

Beech, Robin N.; B.Sc.(Nott.), Ph.D.(Edin.); Associate Professor of Parasitology

Begg, Caroline; B.Sc.(Agr.)(McG.), M.Sc.(Sask.), Ph.D.(McG.); Faculty Lecturer, Department of Plant Science

Bennett, Elena; B.A.(Oberlin), M.Sc., Ph.D.(Wisc.); Assistant Professor of Ecosystem Ecology and McGill School of Environment

Bird, David M.; B.Sc.(Guelph), M.Sc., Ph.D.(McG.); Fellow A.O.U., Professor of Wildlife Biology and Director, Avian Science and Conservation Centre

Bordignon, Vilceu; Ag.Tec.(EAPC), M.Sc., D.V.M.(Universidade da Região da Campanha (Brazil)), Ph.D.(Montr.); Associate Professor of Animal Science

Brown, Peter G.; B.A.(Haver.), M.A., Ph.D.(Col.); Professor of Natural Resource Sciences (*joint appoint. with Geography and McGill School of Environment*)

Buddle, Christopher; B.Sc.(Guelph), Ph.D.(Alta.); Associate Professor of Forest Insect Ecology

Charron, Jean-Benoit; B.Sc.(Montr.), M.Sc., Ph.D.(UQAM); Assistant Professor of Plant Science

Chenier, Martin R.; B.Sc., M.Sc.(Laval), Ph.D.(McG.); Assistant Professor of Food Safety

Cherestes, Alice; B.A., M.A., Ph.D.(CUNY); Faculty Lecturer, Faculty of Agricultural and Environmental Sciences

Clark, Grant; B.Sc.(Agr.Eng.)(Alta.), Ph.D.(McG.); Assistant Professor of Bioresource Engineering

Côté, Benoît; B.Sc., Ph.D.(Laval); Associate Professor of Woodland Resources, Chair of Department of Natural Resource Sciences

Cue, Roger I.; B.Sc.(Newcastle, UK), Ph.D.(Edin.); Associate Professor of Animal Science

Dalton, John P.; B.Sc., Ph.D.(Dublin); Professor of Parasitology (*Canada Research Chair*)

de Blois, Sylvie; B.Sc.(Agr.)(McG.), M.Sc., Ph.D.(Montr.); Associate Professor of Plant Science and McGill School of Environment

Donnelly, Danielle J.; B.Sc.(Agr.)(McG.), M.Sc.(Br. Col.), Ph.D.(S. Fraser); Associate Professor of Plant Science

Driscoll, Brian T.; B.Sc., Ph.D.(McM.); Associate Professor of Microbiology



Duggavathi, Rajesha; B.V.Sc., M.V.Sc.(Univ. of Agricultural Sciences, Bangalore), Ph.D.(Sask.); Assistant Professor of Animal Science

Dunphy, Gary B.; B.Sc.(New Br.), M.Sc., Ph.D.(Nfld.); Associate Professor of Entomology

Dutilleul, Pierre R.; B.Sc., Ph.D.(Belgium); Professor of Statistics

Dzierszynski, Florence; Bacc.(Université de Lille I), M.Sc.(Université de Compiègne/Université de Lille I), Ph.D.(Université de Lille I); Assistant Professor of Parasitology (*Canada Research Chair*)

Egeland-Hovda, Grace M.; B.A.(Luther), Ph.D.(Pitt.); Associate Professor of Human Nutrition (*Canada Research Chair*)

Ellyett, William R.; B.A.(Sir G. Wms.), B.Ed.(P.E.)(McG.); Faculty Lecturer (PT), Farm Management and Technology Program and Director of Athletics

Enright, Peter; B.Sc.(Agr.Eng.), M.Sc.(McG.); Faculty Lecturer, Director, Farm Management and Technology Program

Fyles, James W.; B.Sc., M.Sc.(Vic., BC), Ph.D.(Alta.); Professor of Woodland Resources (*Tomlinson Professor of Forest Ecology*)

Geary, Timothy G.; B.Sc.(Notre Dame), Ph.D.(Mich.); Professor of Parasitology, Director, Institute of Parasitology, (*Canada Research Chair in Parasite Biotechnology*)

Georges, Elias; B.Sc., Ph.D.(McG.); Associate Professor of Parasitology

Gray-Donald, Katherine; B.Sc., Ph.D.(McG.); Associate Professor of Human Nutrition

Hayes, J. Flannan; B.Agr.Sc., M.Agr.Sc.(Dublin), Ph.D.(N. Carolina St.); Professor of Animal Science

Hendershot, William H.; B.Sc.(Tor.), M.Sc.(McG.), Ph.D.(Br. Col.); Associate Dean (Academic), Professor of Soil Science

Hendrickson-Nelson, Mary; B.A.(College of St. Benedict), B.Sc.(Minn.), M.Sc.(Colo. St.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition

Henning, John C.; B.Sc., Ph.D.(Guelph); Associate Professor of Agricultural Economics

Hickey, Gordon M.; B.F.Sc.(Melb.), Ph.D.(Br. Col.); Assistant Professor of Natural Resource Sciences

Humphries, Murray; B.Sc.(Manit.), Ph.D.(Alta.); Associate Professor of Wildlife Biology (*NSERC Northern Chair*)

Ismail, Ashraf A.; B.Sc., Ph.D.(McG.); Associate Professor of Food Science and Agricultural Chemistry

Jabaji, Suha; B.Sc.(AUB), M.Sc.(Guelph), Ph.D.(Wat.); Associate Professor of Plant Science and Associate Dean (Research and Graduate Education)

Jacobs Starkey, Linda; B.Sc.(H.Ec.)(Mt. St. Vin.), M.Sc., Ph.D.(McG.), RD, FDC; Faculty Lecturer, School of Dietetics and Human Nutrition

Jardim, Armando; B.Sc., Ph.D.(Vic., BC); Associate Professor of Parasitology

Johns, Timothy A.; B.Sc.(McM.), M.Sc.(Br. Col.), Ph.D.(Mich.); Professor of Human Nutrition

Karboune, Salwa; B.Sc., M.Sc.(Institut Agronomique et Vétérinaire Hassan II), Ph.D.(Univ. de la Méditerranée); Assistant Professor of Food Science

Kermasha, Selim; B.Sc.(Baghdad), D.Sc.(Nancy); Associate Professor of Food Science and Agricultural Chemistry

Kimmins, Sarah; B.Sc.(Dal.), M.Sc.(Nova Scotia Ag.), Ph.D.(Dal.); Assistant Professor of Animal Science

Knutt, Marcia E.; H.B.Sc.(W. Ont.), M.A., Ph.D.(Brandeis); Faculty Lecturer, Department of Bioresource Engineering

Koski, Kristine G.; B.S., M.S.(Wash.), Ph.D.(Calif., Davis); Associate Professor of Human Nutrition and Director, School of Dietetics and Human Nutrition

Kosoy, Nicolas; B.Sc.(Universidad Simon Bolivar), M.Sc.(Kent), M.Sc.(Universidad Autonoma de Barcelona), Ph.D.(Univ. of Tilburg); Assistant Professor of Environmental and Ecological Economics and McGill School of Environment

Kubow, Stan; B.Sc.(McG.), M.Sc.(Tor.), Ph.D.(Guelph); Associate Professor of Dietetics and Human Nutrition

Kushalappa, Ajjamada C.; B.Sc., M.Sc.(B'lore), Ph.D.(Flor.); Associate Professor of Plant Science

Lefsrud, Mark G.; B.S.(Sask.), M.S.(Rutg.), Ph.D.(Tenn.); Assistant Professor of Bioresource Engineering

Lewis, David J.; B.Sc., M.Sc., Ph.D.(Mem.); Associate Dean (Student Affairs) and Associate Professor of Entomology

Lussier, Serge; B.Sc.(Agr.)(McG.); Assistant Director and Faculty Lecturer, Farm Management and Technology Program

Madramootoo, Chandra; B.Sc.(Agr.Eng.), M.Sc., Ph.D.(McG.); P.Eng., Dean (*James McGill Professor*)

Marquis, Grace S.; B.A.(Ind.), M.Sc.(Mich. St.), Ph.D.(C'nell); Associate Professor of Human Nutrition (*Canada Research Chair*)

Marshall, William D.; B.Sc.(New Br.), Ph.D.(McM.); Professor of Food Science and Agricultural Chemistry

McKyes, Edward; B.Eng., M.Eng., Ph.D.(McG.), F.C.S.A.E.; Professor of Bioresource Engineering

Moffat, Donald; B.Ed.(P.E.)(McG.), Grad. Dip. in Sports Admin.(C'dia); Faculty Lecturer (PT), Farm Management and Technology Program and Coordinator Campus Recreation, Athletics and Recreation

Molgat, Christian; B.Sc.(Guelph), B.Sc.(Ott.); Faculty Lecturer, Farm Management and Technology Program

Monardes, Humberto G.; B.Sc.(Concepcion, Chile), M.Sc., Ph.D.(McG.); Associate Professor of Animal Science

Mustafa, Arif F.; B.Sc., M.Sc.(Khartoum), Ph.D.(Sask.); Associate Professor of Animal Science

Naseem, Anwar; B.Sc.(McG.), M.A., M.Sc.(Penn.), Ph.D.(Mich. St.); Assistant Professor of Agricultural Economics

Ngadi, Michael O.; B.Eng.(Nigeria), M.A.Sc., Ph.D.(Nova Scotia TC.); Associate Professor of Bioresource Engineering (*William Dawson Scholar*)

Orsat, Valerie; B.Sc., M.Sc., Ph.D.(McG.); Assistant Professor of Bioresource Engineering

Phillip, Leroy E.; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(Guelph); Associate Professor of Animal Science

Phillips, Sandra; B.A.(Qu.), B.Sc.(F.Sc.), M.Sc.(McG.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition

Plourde, Hugues; B.Sc.(Nutr.Sci.)(McG.), M.Sc.(Nutr.)(Montr.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition

Prasher, Shiv O.; B.Tech., M.Tech.(Punjab), Ph.D.(Br. Col.); Professor of Bioresource Engineering and Chair of Department (*James McGill Professor*)

Prichard, Roger K.; B.Sc., Ph.D.(N.S.W.); Professor, Institute of Parasitology (*James McGill Professor*)

Raghavan, G.S. Vijaya; B.Eng.(Bangalore), M.Sc.(Guelph), Ph.D.(Colo. St.); F.A.S.A.E, F.C.S.A.E., F.A.S.M.E.; Professor of Bioresource Engineering (*James McGill Professor*)

Ramaswamy, Hosahalli; B.Sc.(Bangalore), M.Sc.(Mysore), M.Sc., Ph.D.(Br. Col.); Professor of Food Science and Agricultural Chemistry

Ribeiro, Paula A.; B.Sc., Ph.D.(York); Associate Professor of Parasitology

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Rohrbach, Petra; B.Sc.(McG.), Diplom Biology(Heidel.), Dr. rer. Nat.(Deutsches Krebsforschungszentrum); Assistant Professor of Parasitology

Rose, Maureen; B.Sc.(F.Sc.), M.Ed., Ph.D.(McG.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition

Routhier, Joane; B.Sc.(F.Sc.)(McG.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition

Salavati, Reza; B.A, M.A.(Calif. St.), Ph.D.(Wesl.); Assistant Professor of Parasitology

Scott, Marilyn E.; B.Sc.(New Br.), Ph.D.(McG.); Associate Professor of Parasitology and Director, McGill School of Environment

Seguin, Philippe; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(Minn.); Associate Professor of Plant Science and Chair of Department

Simpson, Benjamin K.; B.Sc.(Univ. Sc. & Tech., Kumasi), Ph.D.(Nfld.); Associate Professor of Food Science and Agricultural Chemistry

Singh, Jaswinder; B.Sc., M.Sc.(Punjab Agricultural University), Ph.D.(Syd.); Assistant Professor of Plant Science

Smith, Donald L.; B.Sc., M.Sc.(Acad.), Ph.D.(Guelph); Professor of Plant Science (*James McGill Professor*)

Solomon, Christopher T.; B.Sc.(C'nell), Ph.D.(Wisc.); Assistant Professor of Fish Biology

Strachan, Ian; B.Sc.(Tor.), M.Sc., Ph.D.(Qu.); Associate Professor of Agrometeorology

Stromvik, Martina V.; B.A., M.S.(Stockholm), Ph.D.(Ill.-Chic.); Associate Professor of Plant Science

Thériault, Pascal; B.Sc.(Agr.), M.Sc.(KSU); Faculty Lecturer, Farm Management and Technology Program

Thibault, Louise; B.Sc., M.Sc., Ph.D.(Laval); Associate Professor of Dietetics and Human Nutrition

Thomassin, Paul; B.Sc.(Agr.)(McG.), M.S., Ph.D.(Hawaii Pac.); Associate Professor of Agricultural Economics

Titman, Rodger D.; B.Sc.(McG.), M.Sc.(Bishop's), Ph.D.(New Br.); Fellow A.O.U., Associate Professor (Post-retirement) of Wildlife Biology

van de Voort, Frederik R.; B.Sc., M.Sc., Ph.D.(Br. Col.); Professor of Food Science and Agricultural Chemistry

Wade, Kevin; B.Agr.Sc., M.Agr.Sc.(Dublin), Ph.D.(C'nell); Associate Professor of Animal Science and Chair, Department of Animal Science

Waterway, Marcia J.; B.A.(Calvin), M.S.(Wisc.), Ph.D.(C'nell); Associate Professor of Plant Science and Curator, McGill University Herbarium

Watson, Alan K.; B.Sc.(Agr.), M.Sc.(Br. Col.), Ph.D.(Sask.); Professor of Agronomy and Director, Phytarium/Biopesticide Quarantine Facility

Wees, David D.; B.Sc.(Agr.), M.Sc.(McG.); Faculty Lecturer, Department of Plant Science

Weiler, Hope; B.A.Sc.(Guelph), Ph.D.(McM.); Associate Professor of Human Nutrition (*Canada Research Chair*)

Whalen, Joann; B.Sc.(Agr.)(Dal.), M.Sc.(McG.), Ph.D.(Ohio St.); Associate Professor of Soil Science (*William Dawson Scholar*)

Wheeler, Terry; B.Sc.(Nfld.), M.Sc., Ph.D.(Guelph); Associate Professor of Entomology and Director, Lyman Entomological Museum and Research Laboratory

Whyte, Lyle G; B.Sc.(Regina), Ph.D.(Wat.); Associate Professor of Microbiology (*Canada Research Chair*)

Wykes, Linda; B.Sc., M.Sc., Ph.D.(Tor.); Associate Professor of Dietetics and Human Nutrition (*William Dawson Scholar*)

Yaylayan, Varoujan A.; B.Sc., M.Sc.(Beirut), Ph.D.(Alta.); Associate Professor of Food Science and Agricultural Chemistry

Zadworny, David; B.Sc., Ph.D.(Guelph); Associate Professor of Animal Science

Zhao, Xin; B.Sc., M.Sc.(Nanjing IT), Ph.D.(C'nell); Professor of Animal Science (*James McGill Professor*)

