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This publication provides guidance to prospects, applicants, students, faculty and staff.

1 . McGill University reserves the right to mak

Publication Information

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1 About Agricultural & Environmental Sciences (Undergraduate)

1.1 Location

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

The Faculty of Agricultural and Environmental Sciences and the School of Human Nutrition are located on the Macdonald Campus of McGill University, at the western end of the island of Montreal. Served by public transport (STM [*www.stm.info*], bus, and train), it is easily reached from the McGill Downtown Campus and from the Pierre Elliott Trudeau International Airport. Special arrangements can be made for prospective students to use the McGill inter-campus *shuttle bus service*. The shuttle service is available to all registered students who attend classes on both campuses.

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

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

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

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

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

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

1.3 Administrative Officers

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

Anja Geitmann; Diplom(Konstanz), Ph.D.(Siena)

Associate Deans

Valérie Orsat; B.Sc., M.Sc., Ph.D.(McG) (*Student Affairs*)

Salwa Karboune; B.Sc., M.Sc.,(Hassan II, Rabat), Ph.D.(Univ. de la Méditerranée) (*Research*)

Marilyn E. Scott; B.Sc.(New Br.), Ph.D.(McG.) (*Academic*)

Ian Strachan; B.Sc.(Tor.), M.Sc., Ph.D.(Qu.) (*Graduate Studies*)

Manager, Student Affairs

Silvana Pellecchia

Director, Academic and Administrative Services

Christine Butler; B.Com.(C'dia)

Assistant Director, Athletics and Recreation

Jill Barker; B.A.(C'dia)

General Manager, Macdonald Campus Farm

Paul Meldrum; B.J.(Hons.)(Car.)

Supervisor, Buildings and Grounds

Franco Nardi

Manager, Residence Life and Accommodations

Lindsay O'Connell; B.A.(McG.)

1.4 Faculty Admission Requirements

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

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

Student Affairs Office

1.5.5 Student Life

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

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

1.5.6 Fees

Please refer to the *Student Accounts* website for information and step-by-step instructions regarding fees.

1.5.6.1 Tuition Fees

General information on tuition and other fees is found in *University Regulations & Resources* > *Undergraduate* > *: Fees*.

1.5.6.2 Other Expenses

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

1.5.7 Immunization for Dietetics Majors

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

1.5.8 Language Requirement for Professions

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

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

1.6 Faculty Information and Regulations

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

1.6.1 Minimum Credit Requirement

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

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

Normally, Quebec students who have completed the *Diplôme d'études collTjET42.52 306.191 m569.48 306.191 l569.48 30GT42.52 306.191 m569.48 306.191 0.566 51*

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.

1.6.2 Minimum Grade Requirement

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

1.6.3 Academic Advisers

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

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

1.6.4 Categories of Students

1.6.4.1 Full-time Students

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

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

1.6.4.2 Part-time Students

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

1.6.5 Academic Standing

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

The following rules apply to your Academic Standing:

1. When your CGPA (or TGPA in the first term of the program) falls below 2.00, your Academic Standing becomes Probationary.
2. If you are in Probationary Standing, you may register for no more than 14 credits per term.
3. While in Probationary Standing, you must achieve a TGPA of 2.50 to continue in Probationary Standing or a CGPA of 2.00 in order to return to Satisfactory Standing. Failure to meet at least one of these conditions will result in Unsatisfactory Standing. (In the case of Fall term, this will be Interim Unsatisfactory Standing and the rules for Probationary Standing will apply.)
4. When your CGPA (or TGPA in the first term of the program) falls below 1.50, your Academic Standing becomes Unsatisfactory and you must withdraw. (In the case of Fall term, the Standing will be Interim Unsatisfactory Standing and the rules for Probationary Standing will apply.)
5. If you are in Unsatisfactory Standing, you may not continue in your program. You may apply for readmission only after your registration has been interrupted for at least one term (not including Summer term).
6. Readmission will be in the Standing Unsatisfactory/Readmit and a CGPA of 2.00 must be achieved to return to Satisfactory Standing or a TGPA of 2.50 must be achieved for Probationary Standing. If you fail to meet at least one of these conditions, you will be required to withdraw permanently.
7. Students in the School of Human Nutrition have additional standards in place for the professional program (Dietetics). See *section 3.5.1: Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Major Dietetics (115 credits)*.

1.6.5.1 Committee on Academic Standing

The Faculty's Committee on Academic Standing, consisting of academic staff, administrative staff, and a student representative, reviews special requests made by students regarding their academic life. Please inquire at the Student Affairs Office, Laird Hall 106, to obtain an application.

1.6.6 Credit System

The credit assigned to a particular course reflects the amount of effort it demands of you. Normally, one credit will represent three hours total work per weekDiblem

1.6.6.1 School of Continuing Studies Courses

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

1.6.7 Academic Credit Transfer

Transfer credits based on courses taken at other institutions (completed with a grade that is equal to or higher than the grade/CGPA required to graduate from the host university) before entrance to this Faculty are calculated and assigned after you are accepted, and have accepted the offer of admission.

Transfer credits may also be granted for courses taken at other university level institutions (completed with a grade that is equal to or higher than the grade/CGPA required to graduate from the host univ

Please see a Faculty Advisor in the *Student Affairs Office*, Laird Hall, 106 for more information.

1.6.11 Attendance and Conduct in Class

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

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

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

1.6.12 Incomplete Grades

Please refer to *University Regulations and Resources* > *Undergraduate* > *Student Records* > *: Incomplete Courses*.

1.6.13 Examinations

You should refer to *University Regulations and Resources* > *Undergraduate* > *: Examinations: General Information* for information about final examinations

- Bachelor of Science (Agricultural and Environmental Sciences)
- Bachelor of Science (Food Science)
- Bachelor of Science (Nutritional Sciences)
- Concurrent degree in Food Science and Nutritional Sciences
- Certificate in Ecological Agriculture
- Certificate in Food Science
- Diploma in Environment
- Diploma of Collegial Studies in Farm Management and Technology

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

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

- the Agricultural Economics Major and the Agro-Environmental Sciences Major – membership in the *Ordre des agronomes du Québec* and other provincial Institutes of Agriculture;
- Bioresource Engineering – membership as a professional engineer in any province of Canada and the *Ordre des agronomes du Québec*;
- the Dietetics Major – membership in the Dietitians of Canada and the *Ordre professionnel des diététistes du Québec*;
- Food Science – accreditation by the Institute of Food Technologists and professional accreditation by the *Ordre des chimistes du Québec*.

Professional Practice experiences to complete the Dietetics practicum are provided in the McGill teaching hospitals and in a wide variety of health, education, business, gov

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

2.1.3 AGRI 410D1 and AGRI 410D2 Agrology Internship

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

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

2.1.4 AGRI 499 Agricultural Development Internship

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

2.2 Exchange Programs (Overview)

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

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

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

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

2.3.2 Specializations

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

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

Full program descriptions are also listed at *section 3.2.2: Specialisations*.

- Agribusiness, *section 3.2.2.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Agribusiness (24 credits)*
- Animal Biology, *section 3.2.2.2: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Animal Biology (24 credits)*
- Animal Health and Disease, *section 3.2.2.3: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Animal Health and Disease (24 credits)*
- Animal Production, *section 3.2.2.4: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Animal Production (24 credits)*
- Applied Ecology, *section 3.2.2.5: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Applied Ecology (24 credits)*
- Ecological Agriculture, *section 3.2.2.6: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Ecological Agriculture (24 credits)*
- Environmental Economics, *section 3.2.2.7: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Environmental Economics (24 credits)*
- International Agriculture, *section 3.2.2.8: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - International Agriculture (24 credits)*
- Life Sciences (Multidisciplinary), *section 3.2.2.9: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Life Sciences (Multidisciplinary) (24 credits)*
- Microbiology and Molecular Biotechnology, *section 3.2.2.10: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Microbiology and Molecular Biotechnology (24 credits)*
- Plant Biology, *section 3.2.2.11: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Plant Biology (24 credits)*
- Plant Production, *section 3.2.2.12: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Plant Production (24 credits)*
- Professional Agrology, *section 3.2.2.13: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Professional Agrology (24 credits)*
- Professional Agrology for Agribusiness, *section 3.2.2.14: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Professional Agrology for Agribusiness (24 credits)*
- Soil and Water Resources, *section 3.2.2.15: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Soil and Water Resources (24 credits)*
- Wildlife Biology, *section 3.2.2.16: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Wildlife Biology (24 credits)*

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

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

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

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

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

Through the **Bio-Process Engineering** stream, students apply engineering to transform agricultural commodities and biomass into products such as food, fibre, fuel, and biochemicals. Topics include the engineering of foods and food processes, physical properties of biological materials, post-harvest technology, fermentation and bio-processing, the management of organic wastes, biotechnology, the design of machinery for bioprocessing, etc.

Students who follow the **Bio-Production Engineering** stream use natural sciences and engineering skills to design systems and machines for the production of different types of crop, animal-based products, and biomass. Students learn about design of machines and structures, different production systems and technologies, instrumentation and controls, geospatial data management, precision agriculture, and emerging intelligent bio-production concepts.

In addition, students may choose to follow the **Professional Agrology** option of Bioresource Engineering (usually associated with the Bio-Production Engineering stream) as well as the Bioresource Engineering Honors Program. Multiple minors are also available. F

2.8 Honours Programs (Overview)

Honours Programs

- *section 3.2.1.2: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Honours Agricultural Economics (42 cr*

2.11 Diploma Program (Undergraduate) (Overview)

Diploma Program (Undergraduate)

- Diploma in Environment – see *Bieler School of Environment > Undergraduate > Diploma in Environment* *Diploma (Applied Environmental Studies) (Diploma)*

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2.12 Diploma in Collegial Studies (Overview)

Diploma in Collegial Studies

- *section 4.3: Farm Management and Technology Program*

2.13 Environmental Sciences Programs (Overview)

2.13.1 Bieler School of Environment

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

EnA-uses.

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

3.1 Freshman Major

Program Director

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

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.

3.1.1 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 ,j1 0g0F4c CEGEP system8w red in ,j1 0g0g0F4c CEGEP sy)g uni

Elective - Winter (3 credits)

B.Sc. (Ag. & Env. Sci.) - Agricultural Economics Major - Freshman Program (30 credits)

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

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

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

Required Courses - Fall (14 credits)

AECH 110	(4)	General Chemistry 1
AEMA 101	(3)	Calculus 1
AEPH 112	(4)	Introductory Physics 1
AGEC 200**	(3)	Principles of Microeconomics

Required Courses - Winter (10 credits)

AEBI 122	(3)	Cell Biology
AEHM 205	(3)	Science Literacy
	(4)	

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

Students will automatically progress into the B.Sc.(Nutr.Sc.) Major Nutrition program after the Freshman year. Students interested in the B.Sc.(Nutr.Sc.) Major Dietetics program, after their Freshman year, have to apply to transfer by submitting a Program Change Application form. Requirements to be considered for transfer, including a minimum CGPA of 3.30, all pre-requisite courses, and communication skills are fully outlined in the transfer policy.

AGRI 196	(.5)	Freshman Seminar 2
	(4)	Organic Chemistry

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

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

Electives

To meet the minimum credit requirement for the degree.

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

Honours Plan B

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

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

Complementary Courses (9 credits)

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

- Accounting
- Statistics
- Written/Oral Communication

Specialization (21 - 24 credits)

Specializations designed to be taken with the Agricultural Economics Major:

- Agribusiness (24 credits)*
- Environmental Economics (24 credits)
- Professional Agrology (21 credits)*

ENVB 301	(3)	Meteorology
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
SOIL 315	(3)	Soil Nutrient Management

Complementary Courses (6 credits)

6 credits of complementary courses selected as follows:

One of:

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

One of:

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

Specialization

Choose at least one specialization of 18-24 credits.

Specializations designed to be taken with the Agro-Environmental Sciences Major:

- Animal Production
- Ecological Agriculture
- Plant Production
- *Professional Agrology
- Soil and Water Resources

* Membership to the OAQ requires students successfully complete one of the above specializations in addition to the Professional Agrology Specialization.

Electives

To meet the minimum credit requirement for the degree.

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

Program Director: Professor Roger Cue

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

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

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

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

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

The program has a strong field component that includes hands-on laboratories, visits to agricultural enterprises, and opportunities for internships. Classes and laboratories exploit the unique setting and facilities of the Macdonald Campus and Farm, which is a fully functioning farm in an urban setting that

exemplifies many of the issues at the forefront of modern agricultural production. Graduates of this program are eligible to become members of the Ordre des agronomes du Québec (OAQ).

Program Prerequisites

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

Required Courses (36 credits)

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

Complementary Courses (18 credits)

3 credits from the following:

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

3 credits from the following:

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

Honours Courses

12 credits of Honours Plan A or Plan B

Honours Plan A

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

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

Honours Plan B

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

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

Specialization

Choose at least one specialization of 18-24 credits.

Specializations designed to be taken with the Agro-Environmental Sciences Major:

- Animal Production
- Ecological Agriculture
- Plant Production
- Professional Agrology*
- Soil and Water Resources - this specialization is not offered.

* 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.

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

The Environmental Biology Major is about the biology, diversity, and ecology of a broad range of organisms, from plant and vertebrate animals to insects, anid byve

ENVB 497	(3)	Research Project 1
ENVB 498	(3)	Research Project 2
FAES 300	(3)	Internship 2
MICR 331	(3)	Microbial Ecology
PLNT 304	(3)	Biology of Fungi
PLNT 358	(3)	Flowering Plant Diversity
PLNT 460	(3)	Plant Ecology
SOIL 300	(3)	Geosystems
WILD 302	(3)	Fish Ecology
WILD 307	(3)	Natural History of Vertebrates
WOOD 441	(3)	Integrated Forest Management

Specialization

At least one specialization of 18-24 credits.

Specializations designed to be taken with the Environmental Biology Major:

- Applied Ecology

- Plant Biology

- Wildlife Biology

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

Electives

To meet the minimum credit requirement for the degree.

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

Program Director: Professor Joann Whalen

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

In addition to satisfying the Honours requirements, students must apply for the Honours program in March or April of their U2 year. It is the responsibility of the student to find a professor who is willing to support and supervise the research project. No student will be accepted into the program until a supervisor has agreed to supervise the student. Applicants must have a minimum CGPA of 3.3 to enter the Honours program and they must earn a B grade (3.0) or higher in the courses making up the Honours program. Students are required to achieve a minimum overall CGPA of 3.3 at graduation to obtat e9hws prog46.214 283.84o20 155.582 Tm(T(s EnTj1 0.06 3816o20 155.582 Tm(vironmental Biology Mawho ed umeet tbe Biology)Tj of the Honours Proi ram and the studeprog46.214 283.84o20 155.582 Tm(T(s EnTj1 0.06 3816o20 155.582 Tm(vironmental Biology Mawho ed umeet tbe Biology)Tj

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AEBI 211	(3)	Organisms 2
AEBI 212	(3)	Evolution and Phylogeny
AEHM 205	(3)	Science Literacy
AEMA 310	(3)	Statistical Methods 1
ENVB 210	(3)	The Biophysical Environment
ENVB 222	(3)	St. Lawrence Ecosystems
ENVB 305	(3)	Population and Community Ecology
ENVB 410g	(3)	Ecosystem Ecology

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

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

Specialization

At least one specialization of 18-24 credits.

Specializations designed to be taken with the Environmental Biology Major:

- Applied Ecology

- Plant Biology

- Wildlife Biology

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

Electives

To meet the minimum credit requirement for the degree.

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

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

Program Director: Professor Sergio Burgos

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

Program Prerequisites

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

Required Courses (33 credits)

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

Complementary Courses (9 credits)

AGRI 215	(3)	Agro-Ecosystems Field Course
AGRI 505 gic	(3)	Principles of Ecological Agriculture

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

Specialization (24 credits)

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

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

Program Director: Professor Sergio Burgos

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

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

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

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

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

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

Program Prerequisites

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

Required Courses (33 credits)

AEBI 210	(3)	Organisms 1
AEMA 310	(3)	Statistical Methods 1
AGEC 200	(3)	Principles of Microeconomics
AGEC 442	(3)	Economics of International Agricultural Development
AGRI 411	(3)	Global Issues on Development, Food and Agriculture
AGRI 493	(3)	International Project Management
ANSC 250	(3)	Principles of Animal Science
		The BiophAAtA383 Tm((3))Tj1 0 0 2j11Man-B0

Program Prerequisites

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

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

Required Courses (33 credits)

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

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

Complementary Courses (9 credits)

9 credits of the complementary courses selected from:

ANSC 234	(3)	Biochemistry 2
ANSC 250	(3)	Principles of Animal Science
ANSC 312	(3)	Animal Health and Disease
ANSC 323	(3)	Mammalian Physiology
ANSC 324	(3)	Developmental Biology and Reproduction
ANSC 326	(3)	Fundamentals of Population Genetics
ANSC 420	(3)	Animal Biotechnology
BINF 511	(3)	Bioinformatics for Genomics
BTEC 306	(3)	Experiments in Biotechnology
ENVB 210	(3)	The Biophysical Environment
ENVB 222	(3)	St. Lawrence Ecosystems
FAES 300	(3)	Internship 2
LSCI 451	(3)	Research Project 1
LSCI 452	(3)	Research Project 2
MICR 331	(3)	Microbial Ecology
MICR 338	(3)	Bacterial Molecular Genetics
MICR 341	(3)	Mechanisms of Pathogenicity
MICR 450	(3)	Environmental Microbiology
NRSC 333	(3)	Pollution and Bioremediation
PARA 410	(3)	Environment and Infection
PARA 424	(3)	Fundamental Parasitology

PLNT 304	(3)	Biology of Fungi
PLNT 353	(3)	Plant Structure and Function
PLNT 426	(3)	Plant Ecophysiology
PLNT 435	(3)	Plant Breeding

Specialization

At least one specialization of 18-24 credits from:

Specializations designed to be tak

LSCI 230	(3)	Introductory Microbiology
PARA 438	(3)	Immunology

Complementary Courses (9 credits)

9 credits of the complementary courses selected from:

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

Specialization

At least one specialization of 18-24 credits from:

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

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

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

Electives

To meet the minimum credit requirement for the degree.

3.2.2 Specialisations

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

9 credits selected from:

ANSC 234	(3)	Biochemistry 2
ANSC 251	(3)	Comparative Anatomy
ANSC 326	(3)	Fundamentals of Population Genetics
ANSC 400	(3)	Eukaryotic Cells and Viruses

ANSC 234	(3)	Biochemistry 2
ANSC 301	(3)	Principles of Animal Breeding
ANSC 312	(3)	Animal Health and Disease
ANSC 323	(3)	Mammalian Physiology
ANSC 324	(3)	Developmental Biology and Reproduction
ANSC 433	(3)	Animal Nutrition and Metabolism
ANSC 451	(3)	Dairy and Beef Production Management
ANSC 458	(3)	Swine and Poultry Production

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

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

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

Required Courses (12 credits)

ENVB 305	(3)	Population and Community Ecology

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

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

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

Required Courses (12 credits)

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

Complementary Courses (12 credits)

Minimum of 6 agronomic credits from:

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

Other complementary courses:

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

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

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

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

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

Required Courses (12 credits)

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

Complementary Courses (12 credits)

12 credits chosen from the following list:

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

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

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

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

Required Cour

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

Option B

15 credits from any of the McGill Field Study Semesters

African Field Study Semester

Barbados Field Study Semester

Barbados Interdisciplinary Tropical Studies Field Semester

Panama Field Study Semester

3 credits from the list in Option A

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

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

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

Complementary Courses (24 credits)

24 credits selected from the following list:

ANSC 312	(3)	Animal Health and Disease
ANSC 323	(3)	Mammalian Physiology
ANSC 324	(3)	Developmental Biology and Reproduction
ANSC 326	(3)	Fundamentals of Population Genetics
ANSC 350	(3)	Food-Borne Pathogens
ANSC 420	(3)	Animal Biotechnology
ANSC 424	(3)	Metabolic Endocrinology
ANSC 433	(3)	Animal Nutrition and Metabolism
ANSC 560	(3)	Biology of Lactation
ANSC 565	(3)	Applied Information Systems
BINF 511	(3)	Bioinformatics for Genomics
BTEC 306	(3)	Experiments in Biotechnology
BTEC 535	(3)	Functional Genomics in Model Organisms
BTEC 555	(3)	Structural Bioinformatics
ENTO 330	(3)	Insect Biology
ENTO 352	(3)	Biocontrol of Pest Insects
ENTO 440	(3)	Insect Diversity
ENTO 535	(3)	Aquatic Entomology
ENVB 301	(3)	Meteorology
ENVB 305	(3)	Population and Community Ecology
ENVB 313	(3)	Phylogeny and Biogeography
ENVB 315	(3)	Science of Inland Waters

BTEC 555	(3)	Structural Bioinformatics
		F

6 credits of complementary courses selected from:

AGRI 340	(3)	Principles of Ecological Agriculture
ENTO 352	(3)	Biocontrol of Pest Insects
PLNT 302	(3)	Forage Crops and Pastures
PLNT 307	(3)	Agroecology of Vegetables and Fruits
PLNT 318 663.68 Tm(e)Tj1 0 0	(3)	Urban Horticulture

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

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

** This program is currently not offered. **

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

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

Required Courses (15 credits)

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

Complementary Courses (9 credits)

* Note: Students may tak

Required Courses (16 credits)

ENVB 529	(3)	GIS for Natural Resource Management
WILD 307	(3)	Natural History of Vertebrates
WILD 350	(3)	Mammalogy
WILD 401	(4)	Fisheries and Wildlife Management
WILD 420	(3)	Ornithology

Complementary Courses (8 credits)

Note: A 2-credit course may replace one of the complementary courses with permission of the advisor.

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

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

For more information on this major, please see *section 2.4: Bachelor of Engineering in Bioresource Engineering – B.Eng.(Bioresource) (Overview)*.

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

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

Required Courses (59 credits)

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

BREE 453	(1)	Undergraduate Seminar 3 - Scientific Writing
BREE 485	(1)	Senior Undergraduate Seminar 1
BREE 490	(3)	Engineering Design 2
	(3)	Engineering Design 3

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.

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30 credits from the following list where 12 credits must be taken from 200-400 level courses, with the option (and approval of the Academic Adviser) of taking a maximum of 6 credits from other courses offered in the Faculty of Engineering:

BREE 214	(3)	Geomatics
BREE 217	(3)	Hydrology and Water Resources
BREE 314	(3)	Agri-Food Buildings
BREE 322	(3)	Organic Waste Management
BREE 325	(3)	Food Process Engineering
BREE 329	(3)	Precision Agriculture
BREE 412	(3)	Machinery Systems Engineering
BREE 416	(3)	Engineering for Land Development
BREE 418	(3)	Soil Mechanics and Foundations
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 509	(3)	Hydrologic Systems and Modelling
BREE 510	(3)	Watershed System Management (3) Advanced FBREE 518(3)BREE 518(3)
BREE 515	(3)	Soil Hydrologic Modelling
BREE 518	(3)	Ecological Engineering
BREE 519	(3)	Advanced Food Engineering
		Food, H dv 38c.0 0 1 5.ering

Required Courses (59 credits)

AEMA 202	(3)	Intermediate Calculus
AEMA 305	(3)	Differential Equations
BREE 205	(3)	Engineering Design 1
BREE 210	(3)	Mechanical Analysis and Design
BREE 216	(3)	Bioresource Engineering Materials
BREE 252	(3)	Computing for Engineers
BREE 301	(3)	Biothermodynamics
BREE 305	(3)	Fluid Mechanics
BREE 319	(3)	Engineering Mathematics
BREE 327	(3)	Bio-Environmental Engineering
BREE 341	(3)	Mechanics of Materials
BREE 415	(3)	Design of Machines and Structural Elements
BREE 420	(3)	Engineering for Sustainability
BREE 451	(1)	Undergraduate Seminar 1 - Oral Presentation
BREE 452	(1)	Undergraduate Seminar 2 Poster Presentation
BREE 453	(1)	Undergraduate Seminar 3 - Scientific Writing
BREE 485	(1)	Senior Undergraduate Seminar 1
BREE 490	(3)	Engineering Design 2
BREE 495	(3)	Engineering Design 3
ECSE 461	(3)	Electric Machinery
FACC 250	(0)	Responsibilities of the Professional Engineer
FACC 300	(3)	Engineering Economy
FACC 400	(1)	Engineering Professional Practice
MECH 289	(3)	Design Graphics

Complementary Courses (54 credits)

54 credits of the complementary courses selected as follows:

Honours Courses

Students choose either Plan A or Plan B

Honours Plan A

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

12 credits from:

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

OR

Honours Plan B

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

6 credits from:

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

Plus 6 credits of BREE courses at the 500 level.

6 credits - Set A

Set A

3 credits from the following:

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

3 credits from the following:

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

9 credits - Set B (Natural Sciences and Mathematics)

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 and 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.

9 credits - Set C (Social Sciences)

Set C - Social Sciences

Minimum of 3 credits from the following list:

ENVR 201	(3)	Society, Environment and Sustainability
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.

18 credits - Set D (Engineering)

Set D - Engineering

18 credits from the following list where 12 credits must be taken from 200-400 level courses, 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
		Hydrology and W

BREE 305	(3)	Fluid Mechanics
BREE 319	(3)	Engineering Mathematics
BREE 327	(3)	Bio-Environmental Engineering
BREE 341	(3)	Mechanics of Materials
BREE 415	(3)	Design of Machines and Structural Elements
BREE 420	(3)	Engineering for Sustainability
BREE 451	(1)	Undergraduate Seminar 1 - Oral Presentation
BREE 452	(1)	Undergraduate Seminar 2 Poster Presentation
BREE 453	(1)	Undergraduate Seminar 3 - Scientific Writing
BREE 485	(1)	Senior Undergraduate Seminar 1
BREE 490	(3)	Engineering Design 2
BREE 495	(3)	Engineering Design 3
ECSE 461	(3)	Electric Machinery
FACC 250	(0)	Responsibilities of the Professional Engineer
FACC 300	(3)	Engineering Economy
FACC 400	(1)	Engineering Professional Practice
MECH 289	(3)	Design Graphics

Complementary Courses (51 credits)

51 credits of the complementary courses selected as follows:

6 credits - Set A

12 credits - Set B (Natural Sciences)

3 credits - Set C (Social Sciences)

30 credits - Set D (Engineering)

Set A

6 credits

3 credits from the following:

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

3 credits from the following:

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

Set B - Natural Sciences

6 credits from each of the following two groups:

Group 1 - Biology

AEBI 210	(3)	Organisms 1
AEBI 211	(3)	Organisms 2
	(3)	Molecular Cell Biology

LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology

Group 2 - Agricultural Sciences

ANSC 250	(3)	Principles of Animal Science
ANSC 433	(3)	Animal Nutrition and Metabolism
ANSC 451	(3)	Dairy and Beef Production Management
ANSC 458	(3)	Swine and Poultry Production
PLNT 300	(3)	Cropping Systems
PLNT 302	(3)	Forage Crops and Pastures
PLNT 307	(3)	Agroecology of Vegetables and Fruits
PLNT 312	(3)	Urban Horticulture
PLNT 322	(3)	Greenhouse Management
		Pesticides H433

BREE 530	(3)	Fermentation Engineering
BREE 531	(3)	Post-Harvest Drying
BREE 532	(3)	Post-Harvest Storage
BREE 535	(3)	Food Safety Engineering

Group 3 - Other Engineering

BREE 314	(3)	Agri-Food Buildings
BREE 412	(3)	Machinery Systems Engineering
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 522	(3)	Bio-Based Polymers

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

3.3.4.1 Minor in Environmental Engineering

For more information, see *section 3.6.9: Minor in Environmental Engineering*.

3.3.4.2 Barbados Field Study Semester

For more information, see *Study Abroad & Field Studies* > *Undergraduate* > *: Barbados Field Semester*.

3.3.4.3 Internship Opportunities

For more information, see *section 2.1: Internship Opportunities*.

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

Please refer to *section 2.5: Bachelor of Science in Food Science – B.Sc.(F.Sc.) (Overview)* for advising and other information on these B.Sc.(F.Sc.) programs.

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

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

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

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

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

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

Required Courses (51 credits)

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

AEMA 310	(3)	Statistical Methods 1
AGRI 510	(3)	Professional Practice
BREE 324	(3)	Elements of Food Engineering
FDSC 200	(3)	Introduction to Food Science

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

A minimum of two 3-credit Honours courses and 6 credits in 400- or 500-level courses, from the Faculty of Agricultural and Environmental Sciences, selected

FDSC 315	(3)	Separation Techniques in Food Analysis 1
FDSC 334	(3)	Analysis of Food Toxins and Toxicants
FDSC 405	(3)	Food Product Development
FDSC 490	(3)	Research Project 1
FDSC 491	(3)	Research Project 2
FDSC 515	(3)	Enzymology
FDSC 516	(3)	Flavour Chemistry
FDSC 520	(3)	Biophysical Chemistry of Food

Electives (6 credits)

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

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

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

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

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

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

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

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

Required Courses (80 credits)

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
FDSC 200	(3)	Introduction to Food Science
FDSC 213	(3)	Analytical Chemistry 1
FDSC 251	(3)	Food Chemistry 1
FDSC 300	(3)	Principles of Food Analysis 1
FDSC 305	(3)	Food Chemistry 2
FDSC 310	(3)	Post Harvest Fruit and Vegetable Technology
FDSC 315	(3)	Separation Techniques in Food Analysis 1
FDSC 319	(3)	Food Commodities
FDSC 330	(3)	Food Processing
FDSC 334	(3)	Analysis of Food Toxins and Toxicants
FDSC 400	(3)	Food Packaging
FDSC 442	(3)	Food Microbiology

FDSC 497	(1.5)	Professional Seminar: Food
FDSC 525	(3)	Food Quality Assurance
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 307	(3)	Metabolism and Human Nutrition
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1
NUTR 497	(1.5)	Professional Seminar: Nutrition
NUTR 512	(3)	Herbs, Foods and Phytochemicals

Complementary Courses (30 credits)

Complementary courses are selected as follows:

At least 9 credits from the following:

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

At least 9 credits from the following:

ANSC 551	(3)	Carbohydrate and Lipid Metabolism
ANSC 552	(3)	Protein Metabolism and Nutrition
ENVR 203	(3)	Knowledge, Ethics and Environment
FDSC 516	(3)	Flavour Chemistry
FDSC 535	(3)	Food Biotechnology
FDSC 536	(3)	Food Traceability
FDSC 537	(3)	Nutraceutical Chemistry
NUTR 322	(3)	Applied Sciences Communication
NUTR 341	(3)	Global Food Security
NUTR 503	(3)	Nutrition and Exercise

12 credits from the following:

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

Elective Courses (12 credits)

Electives are selected in consultation with an academic adviser.

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

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

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

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

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

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

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

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

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

Required Courses (80 credits)

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
FDSC 200	(3)	Introduction to Food Science
FDSC 213	(3)	Analytical Chemistry 1
FDSC 251	(3)	Food Chemistry 1
FDSC 300	(3)	Principles of Food Analysis 1
FDSC 305	(3)	Food Chemistry 2
FDSC 310	(3)	Post Harvest Fruit and Vegetable Technology
FDSC 315	(3)	Separation Techniques in Food Analysis 1
FDSC 319	(3)	Food Commodities
FDSC 330	(3)	Food Processing
FDSC 334	(3)	Analysis of Food Toxins and Toxicants
FDSC 400	(3)	Food Packaging
FDSC 442	(3)	Food Microbiology
FDSC 497	(1.5)	Professional Seminar: Food
FDSC 525	(3)	Food Quality Assurance
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 307	(3)	Metabolism and Human Nutrition
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1

NUTR 497	(1.5)	Professional Seminar: Nutrition
NUTR 512	(3)	Herbs, Foods and Phytochemicals

Honours Courses

Students choose either Plan A or Plan B.

Honours Plan A

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

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

Honours Plan B

A minimum of two 3-credit Honours courses and 6 credits in 400- or 500-level courses, from the Faculty of Agricultural and Environmental Sciences, selected s major

Electives are selected in consultation with an academic adviser.

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

3.4.5.1 Certificate in Food Science

Detailed information on this certificate program can be found under *section 3.7.2: Certificate (Cert.) Food Science (30 credits)* in this publication.

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

Please refer to *section 2.6: Bachelor of Science in Nutritional Sciences – B.Sc.(Nutr.Sc.) (Overview)* for advising and other information regarding the Dietetics and Nutrition majors.

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

The Major Dietetics, which includes a 40-week internship (Stage) as part of its degree requirements, is a professional program that leads to eligibility for membership in a provincial regulatory body and registration as a professional Dietitian/Nutritionist (R.D. or p.dt). 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 dietitians/nutritionists, dietitians may work in healthcare settings, nutrition counselling centres, clinics, and private practice. As community nutritionists, dietitians are involved in nutrition education programs through community health programs, school boards, 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, with the 40 weeks of supervised internship (Stage) integrated into each year in a planned sequence. Successful graduates are qualified to apply for membership with the Ordre professionnel des diététistofesf()Tj/F1ed ()Tj/F1eto 8"00APSc.(Nutr

NUTR 311*	(5)	Professional Practice Stage 2B
NUTR 322	(3)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 341	(3)	Global Food Security
NUTR 342	(3)	Applied Human Resources
NUTR 343	(3)	Financial Management and Accounting
NUTR 344	(4)	Clinical Nutrition 1
NUTR 345	(3)	Food Service Systems Management
NUTR 346	(3)	Applied Food Service Management
NUTR 408*	(1)	Professional Practice Stage 3A
NUTR 409*	(9)	Professional Practice Stage 3B
NUTR 438	(3)	Interviewing and Counselling
NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 505	(3)	Public Health Nutrition
NUTR 508*	(7)	Professional Practice Stage 4A
NUTR 509*	(7)	Professional Practice Stage 4B
NUTR 511	(3)	Nutrition and Behaviour
NUTR 545	(4)	Clinical Nutrition 2
NUTR 546	(4)	Clinical Nutrition 3

Elective Courses (3 credits)

Students who need to improve their proficiency in either English or French are strongly encouraged to choose their electi

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

Complementary Courses (15 credits)

15 credits of complementary courses are selected as follows:

Common Complementary Courses

At least 6 credits from the following courses:

ANSC 433	(3)	Animal Nutrition and Metabolism
ANSC 551	(3)	Carbohydrate and Lipid Metabolism
ANSC 552	(3)	Protein Metabolism and Nutrition
ANSC 560	(3)	Biology of Lactation
FDSC 537	(3)	Nutraceutical Chemistry
FDSC 545	(3)	Advances in Food Microbiology
NUTR 501	(3)	Nutrition in Developing Countries
NUTR 503	(3)	Nutrition and Exercise
NUTR 511	(3)	Nutrition and Behaviour
NUTR 545	(4)	Clinical Nutrition 2
NUTR 546	(4)	Clinical Nutrition 3
NUTR 551	(3)	Analysis of Nutrition Data
PARA 438	(3)	Immunology

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 442	(3)	Food Microbiology
FDSC 516	(3)	Flavour Chemistry
FDSC 520	(3)	Biophysical Chemistry of Food
FDSC 525	(3)	Food Quality Assurance
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
NUTR 551	(3)	Analysis of Nutrition Data

Elective Courses (15 credits)

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

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

This Major covers many aspects of human nutrition and food and their impact on health and society at the community and international level. It offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan. The specialization in global nutrition emphasizes the 2 uni

NUTR 337	(3)	Nutrition Through Life
	(4)	Clinical Nutrition 1

PARA 515	(3)	Water, Health and Sanitation
PPHS 501	(3)	Population Health and Epidemiology
PPHS 511	(3)	Fundamentals of Global Health
PPHS 529	(3)	Global Environmental Health and Burden of Disease

Elective Courses (15 credits)

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

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

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

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

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

Required Courses (60 credits)

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

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
FDSC 200	(3)	Introduction to Food Science
FDSC 251	(3)	Food Chemistry 1
FDSC 305	(3)	Food Chemistry 2
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 307	(3)	Metabolism and Human Nutrition
NUTR 322	(3)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1
NUTR 401	(1)	Emerging Issues in Nutrition
NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 512	(3)	Herbs, Foods and Phytochemicals
PARA 438	(3)	Immunology

Complementary Courses (15 credits)

15 credits of complementary courses are selected as follows:

Common Complementary Courses

At least 6 credits from the following:

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

At least 9 credits from the following courses:

ANAT 214	(3)	Systemic Human Anatomy
ANAT 261	(4)	Introduction to Dynamic Histology
ANSC 312	(3)	Animal Health and Disease
ANSC 560	(3)	Biology of Lactation
MICR 341	(3)	Mechanisms of Pathogenicity
MIMM 414	(3)	Advanced Immunology
NUTR 430	(3)	Directed Studies: Dietetics and Nutrition 1
NUTR 551	(3)	Analysis of Nutrition Data
PARA 424	(3)	Fundamental Parasitology
PATH 300	(3)	Human Disease
PHAR 300	(3)	Drug Action
PHAR 301	(3)	Drugs and Disease
PHAR 303	(3)	Principles of Toxicology
PHGY 311	(3)	Channels, Synapses and Hormones
PHGY 312	(3)	Respiratory, Renal, and Cardiovascular Physiology
PHGY 313	(3)	Blood, Gastrointestinal, and Immune Systems Physiology

Elective Courses (15 credits)

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

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

This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan from the molecular to the organismal level. This concentration in nutritional biochemistry links nutrigenomics, nutrigenetics, and biotechnology with human health, regulation of metabolism, and the pathophysiology of inherited and chronic disease. This de

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
	(3)	Biochemistry 1

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 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
BTEC 535	(3)	Functional Genomics in Model Organisms
EXMD 401	(3)	Physiology and Biochemistry Endocrine Systems
EXMD 502	(3)	Advanced Endocrinology 1
EXMD 503	(3)	Advanced Endocrinology 02
MICR 341	(3)	Mechanisms of Pathogenicity
MIMM 314*	(3)	Intermediate Immunology
MIMM 414	(3)	Advanced Immunology
NUTR 430	(3)	Directed Studies: Dietetics and Nutrition 1
NUTR 551	(3)	Analysis of Nutrition Data
PARA 438*	(3)	Immunology

Electives 2 a 02goriesRe

* Note: Students take either PARA 438 or MIMM 314

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.

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

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

LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 307	(3)	Metabolism and Human Nutrition
NUTR 322	(3)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1
NUTR 401	(1)	Emerging Issues in Nutrition
NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 503	(3)	Nutrition and Exercise
NUTR 512	(3)	Herbs, Foods and Phytochemicals

Complementary Courses (15 credits)

15 credits of complementary courses are selected as follows:

Common Complementary Courses

At least 6 credits from the following:

ANSC 433	(3)	Animal Nutrition and Metabolism
ANSC 551	(3)	Carbohydrate and Lipid Metabolism
ANSC 552	(3)	Protein Metabolism and Nutrition
ANSC 560	(3)	Biology of Lactation
FDSC 537	(3)	Nutraceutical Chemistry
FDSC 545	(3)	Advances in Food Microbiology
NUTR 501	(3)	Nutrition in Developing Countries
NUTR 511	(3)	Nutrition and Behaviour
NUTR 545	(4)	Clinical Nutrition 2
NUTR 546	(4)	Clinical Nutrition 3
NUTR 551	(3)	Analysis of Nutrition Data
PARA 438	(3)	Immunology

At least 9 credits from:

ANAT 214	(3)	Systemic Human Anatomy
EDKP 261	(3)	Motor Development
EDKP 330	(3)	Physical Activity and Public 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)	Neuromuscular and Inflammatory Pathophysiology
EDKP 485	(3)	Cardiopulmonary Exercise Pathophysiology
EDKP 495	(3)	Scientific Principles of Training

EDKP 542	(3)	Environmental Exercise Physiology
NUTR 430	(3)	Directed Studies: Dietetics and Nutrition 1
NUTR 551	(3)	Analysis of Nutrition Data

Elective Courses (15 credits)

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

3.5.7 Bachelor of Science (Nutritional Sciences) – Related Programs

3.5.7.1 Minor in Human Nutrition

Detailed information on this Minor can be found under *section 3.6.10: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Minor Human Nutrition (24 credits)* in this publication.

3.5.7.2 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 3.4.4.1: Concurrent Bachelor of Science in Food Science (B.Sc.(F.Sc.)) and Bachelor of Science Nutritional Sciences (B.Sc.(Nutr.Sc.)) - Food Science/Nutritional Science Major (Concurrent) (122 credits)* in this publication.

3.6 Minor Programs

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

For a full list of minors offered by the Faculty of Agricultural and Environmental Sciences, refer to *section 2.9: Minor Programs (Overview)*. For registration information, see *section 1.6.8.1: Procedures for Minor Programs*.

3.6.1 Minor in Environment (Bieler School of Environment)

For information about the Minor in Environment, consult *Bieler School of Environment* > *Undergraduate* > *Browse Academic Programs* > *: Minor in Environment*.

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

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

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

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

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

Required Courses (12 credits)

FAES 310	(3)	Agribusiness Entrepreneurship
INTG 201	(3)	Integrated Management Essentials 1
INTG 202	(3)	Integrated Management Essentials 2
MGPO 362	(3)	Fundamentals of Entrepreneurship

Complementary Courses (6 credits)

6 credits from the following:

BUSA 465	(3)	Technological Entrepreneurship
FAES 300*	(3)	Internship 2
MGPO 364	(3)	Entrepreneurship in Practice
MGPO 438	(3)	Social Entrepreneurship and Innovation

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

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

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

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

Required Courses (12 credits)

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

Complementary Courses (12 credits)

12 credits of complementary courses selected from:

AGEC 231	(3)	Economic Systems of Agriculture
AGEC 242	(3)	Management Theories and Practices
AGEC 320	(3)	Intermediate Microeconomic Theory
AGEC 332	(3)	Farm Management and Finance
AGEC 425	(3)	Applied Econometrics
AGEC 430	(3)	Agriculture, Food and Resource Policy
AGEC 442	(3)	Economics of International Agricultural Development
AGEC 450	(3)	Agribusiness Management
AGEC 491	(3)	Research and Methodology
AGEC 492	(3)	Special Topics in Agricultural Economics 01

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

This Minor program is designed to allow students in non-agricultural production majors to receive credit for courses in agricultural production and to stimulate "cross-over" studies. The Minor can be associated with existing major programs in the Faculty, but in some instances it may require more than 90 credits to meet the requirements of both the Major and the Minor.

Students are advised to consult their major program adviser and the Academic Adviser of the Minor in their first year. At the time of registration for their penultimate year, students must declare their intent to obtain a Minor Agricultural Production. With the agreement of their major program adviser, they must submit their program of courses already taken, and to be taken in their final year, to the Academic Adviser of the Agricultural Production Minor. The Academic Adviser of the Agricultural Production Minor will then certify which courses the student will apply towG9 0 7.742ultima.16icET326.857 10 -1.184 Tcm4282 Tn

2. Not all courses are offered every year. F

ANSC 424	(3)	Metabolic Endocrinology
ANSC 433	(3)	Animal Nutrition and Metabolism
ANSC 555	(3)	The Use and Welfare of Animals
ANSC 560	(3)	Biology of Lactation
ANSC 565	(3)	Applied Information Systems
LSCI 451	(3)	Research Project 1

3.6.6 Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) - Minor Animal Health and Disease (24 credits)

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

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

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

Required Courses (18 credits)

Animal Health and Disease

ENVB 305	(3)	Population and Community Ecology
ENVB 415	(3)	Ecosystem Management
		Assessing En

SOIL 535	(3)	Ecological Soil Management

Complementary Courses (12 credits)

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

3.6.9 Minor in Environmental Engineering

The Minor program consists of 21 credits in courses that are environment related. By means of a judicious choice of complementary courses, Bioresource Engineering students may obtain this Minor with a minimum of 12 additional credits.

The Environmental Engineering Minor is administered by the Faculty of Engineering, Department of Civil Engineering (see *Faculty of Engineering* > *Undergraduate* > *Browse Academic Units & Programs* > *Minor Programs* > *: Bachelor of Engineering (B.Eng.) - Minor Environmental Engineering (21 credits)*).

Courses available in the Faculty of Agricultural and Environmental Sciences (partial listing)	
BREE 217	Hydrology and Water Resources
BREE 322	Organic Waste Management
BREE 416	Engineering for Land Development
BREE 518	Ecological Engineering
MICR 331	Microbial Ecology

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

3.6.10 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Minor Human Nutrition (24 credits)

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

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

Note:

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

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

Required Courses (6 credits)

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

Complementary Courses (18 credits)

18 credits are selected as follows:

3 credits in Biochemistry, one of:

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

ANSC 323	(3)	Mammalian Physiology
	(3)	Mammalian Physiology 2

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

Complementary Courses (18 credits)

Students select 18 credits from either Option A or Option B

Option A

18 credits from the following:

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

Option B

15 credits from any of the McGill Field Study Semesters:

African Field Study Semester

Barbados Field Study Semester

Barbados Interdisciplinary Tropical Studies Field Semester

Panama Field Study Semester

Plus 3 credits from the list in Option A

3.7 Post-Baccalaureate Certificate Programs

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

3.7.1 Certificate (Cert.) Ecological Agriculture (30 credits)

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

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

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

General Regulations

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

Notes:

1. Most courses listed at the 300 level and higher have prerequisites. Although instructors may waive prerequisite(s) in some cases, students are urged to prepare their program of study to ensure that they have met all conditions.

2. Students using AGRI 310 toward the requirements of the Specialization/Minor/Certificate are limited to an experience on farms or other enterprises that are organic, biodynamic, or practising permaculture. The placement must be approved by the academic adviser for the specialization/Minor/certificate.

Required Courses (12 credits)

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

Complementary Courses (18 credits)

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

AGRI 310	(3)	Internship in Agriculture/Environment
AGRI 411	(3)	Global Issues on Development, Food and Agriculture
AGRI 435	(3)	Soil and Water Quality Management
ANSC 312	(3)	Animal Health and Disease
ENTO 352	(3)	Biocontrol of Pest Insects
ENVB 305	(3)	Population and Community Ecology
ENVB 415	(3)	Ecosystem Management
MICR 331	(3)	Microbial Ecology
NUTR 341	(3)	Global Food Security
PARA 424	(3)	Fundamental Parasitology
PLNT 302	(3)	Forage Crops and Pastures
PLNT 307	(3)	Agroecology of Vegetables and Fruits
PLNT 434	(3)	Weed Biology and Control
PLNT 460	(3)	Plant Ecology
SOIL 326	(3)	Soils in a Changing Environment
WOOD 441	(3)	Integrated Forest Management

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

This program is geared toward mature students, who have an undergraduate degree in a science-related di6319h 462.6lcanagementwiod2 251.703 Tm(m is geared to)(302

FDSC 251	(3)	Food Chemistry 1
FDSC 300	(3)	Principles of Food Analysis 1
FDSC 305	(3)	Food Chemistry 2
FDSC 310	(3)	Post Harvest Fruit and Vegetable Technology
FDSC 315	(3)	Separation Techniques in Food Analysis 1
FDSC 319	(3)	Food Commodities
FDSC 330	(3)	Food Processing
FDSC 400	(3)	Food Packaging
		Food Product De

4 Academic Units

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

- *section 4.1: Department of Animal Science*
- *section 4.2: Department of Bioresource Engineering*
- *section 4.3: Farm Management and Technology Program*
- *section 4.4: Department of Food Science and Agricultural Chemistry*
- *section 4.5: School of Human Nutrition*
- *section 4.6: Department of Natural Resource Sciences*
- *section 4.7: Institute of Parasitology*
- *section 4.8: Department of Plant Science*

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

4.1 Department of Animal Science

4.1.1 Location

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

4.1.2 About the Department of Animal Science

The Department of Animal Science has a number of programs for students who wish to study animal science at the undergraduate le

Emeritus Professors

Eugene Donefer; B.Sc., M.Sc.(Cornell), Ph.D.(McG.)

John F. Hayes; B.Sc., M.Sc.(Dublin), Ph.D.(N. Carolina St.)

Urs Kühnlein; B.Sc.(ETH Zurich), Ph.D.(Geneva)

Sherman Touchburn; M.S.A.(Br. Col.), Ph.D.(Ohio St.)

Professors

Xin Zhao; B.Sc., M.Sc.(NAU), Ph.D.(Cornell) (*James McGill Professor*)

Associate Professors

Vilceu Bordignon; D.V.M.(URCAMP, Brazil), M.Sc.(UFPel, Brazil), Ph.D.(Montr.)

Sergio Burgos; B.Sc.(Flor.), M.Sc.(Calif., Davis), Ph.D.(Guelph)

Roger I. Cue; B.Sc.(Newcastle, UK), Ph.D.(Edin.)

Raj Duggavathi; B.V.Sc., M.V.Sc.(B'lore), Ph.D.(Sask.)

Sarah Kimmins; B.Sc.(Dal.), M.Sc.(Nova Scotia Ag.), Ph.D.(Dal.) (*CRC Chair, Tier 2*)

Arif F. Mustafa; B.Sc., M.Sc.(UofK, Sudan), Ph.D.(Sask.)

Elsa Vasseur; B.Sc., M.Sc.(ISA, Lille), M.Sc.(AgroParisTech), Ph.D.(Lav

For more information on programs associated with this department, see *section 3.3: B.Eng Bioresource*.

4.2.3 Bioresource Engineering Faculty

Chair

Viacheslav I. Adamchuk

Graduate Program Director

G.S. Vijaya Raghavan

Associate Graduate Program Director

Mark Lefsrud

Emeritus Professors

Robert S. Broughton; B.S.A., B.A.Sc.(Tor.), S.M.(MIT), Ph.D.(McG.), LL.D.(Dal.)

Robert Kok; B.E.Sc., Ph.D.(UWO)

Professors

Viacheslav I. Adamchuk; B.Sc.(NUBiP), M.Sc., Ph.D.(Purd.)

Jan Adamowski; B.Eng.(RMC), M.Phil.(Camb.), M.B.A.(WUT, LBS, HEC Paris, NHH), Ph.D.(WUT) (*Liliane and David M. Stewart Scholar in Water Resources*) (*William Dawson Scholar*)

Chandra A. Madramootoo; B.Sc.(Agr.Eng.), M.Sc., Ph.D.(McG.), D.Sc.(Guelph) (

Associtus Pr

Research/Academic Associates
Sarah MacPherson; B.Sc. (C'dia), Ph.D. (McG.)
Darwin Lyew; B.Sc., M.Sc., Ph.D.(McG.)
Technical
Scott Manktelow

4.3 Farm Management and Technology Program

4.3.1 Location

Farm Management and Technology Program
Faculty of Agricultural and Environmental Sciences
Macdonald Campus of McGill University
21,111 Lakeshore Road, Harrison House
Sainte-Anne-de-Bellevue QC H9X 3V9
Telephone: 514-398-7814
Fax: 514-398-7955
Email: *fmt.macdonald@mcgill.ca*
Website: *mcgill.ca/fmt*

4.3.2 About the Farm Management and Technology Program

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

4.3.3 Diploma of College Studies — Farm Management Technology

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

The educational goals of the program are:

1. to make our graduates competent in the exercise of their profession;

2. to help the student's integration into professional life;

3. to foster professional mobility;

4. to foster a need for continual development of professional knowledge.

Program Overview

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

During the second summer, students are registered in Enterprise 412.442 Tm2(gistered in Enterprise pErprisithree-year aca 0 ltur.782 412.442431 rgT, studenmv3geme

FMT4 003	(1.33)	Information Management (152-VSC-MC)
FMT4 004	(1.33)	Animal Physiology and Anatomy (152-VSD-MC)
FMT4 005	(2.33)	Introduction to Plant Science (152-VSE-MC)
FMT4 006	(1.33)	Pesticides and the Environment (152-VSF-MC)
FMTP 080	(2)	English Upgrading
FMTP 090	(1)	Physical Activity and Health (109-101-MQ)

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

Winter 3

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

The passing grade is 60%. The mark indicating that the student has successfully completed the Comprehensive Assessment will appear on the student's transcript.

English Exit Examination

All students who wish to graduate and obtain the DEC must pass the English Exit Examination that is prepared and corrected by the MEESR. Students must take this examination on the dates selected by the MEESR.

4.3.4 Farm Management and Technology Program Faculty

Director

Peter Enright; B.Sc.(Agr.Eng.), M.Sc.(McG.)

Associate Director

David Wees; B.Sc.(Agr.), M.Sc.(McG.)

Faculty Lecturers

Caroline Begg; B.Sc.(Agr.)(McG.), M.Sc.(Sask.), Ph.D.(McG.)

Christian Molgat; B.Sc.(Bio.)(Ott.), B.Sc.(Agr.)(Guelph)

Pascal Thériault; B.Sc.(Agr.), M.Sc.(Kansas St.)

4.3.5 Academic Rules and Information – FMT

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

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

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

   For **international students**, a recognized French proficiency test may be required. An English proficiency test may also be required. For details on proof of English proficiency, visit *mcgill.ca/applying/requirements/prep*.
4. All candidates for admission must make arrangements to come to the Macdonald campus for an interview prior to admission to the program.
5. Admission to this program is only in the Fall semester.
6. We strongly encourage incoming students to acquire their driver's permit (both for cars **and** farm equipment) before coming to Macdonald campus. This is first for safety reasons, given that students may work with farm equipment during the first semester. As well, most farmers require their employees and trainees (stagiaires) to drive and possess the appropriate driver's license.

4.3.5.2 Important Dates – FMT

4.3.5.2.1 Sessional Dates

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

the Macdonald Student Service Centre. For more information, consult *University Regulations and Resources* > *Undergraduate* > *: Scholarships and Student Aid* or contact the Student Services Centre at 514-398-7992.

4.3.7 Residence Accommodation – FMT

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

4.4 Department of Food Science and Agricultural Chemistry

4.4.1 Location

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

4.4.2 About the Department of Food Science

Food Science is a multidisciplinary field involving chemistry, biochemistry, nutrition, microbiology, and processing that gives students the scientific knowledge to solve real problems associated with the many facets of the food system. Food Science is still a relatively new and growing discipline, brought about mainly as a response to the social changes taking place in North America and other parts of the developed world. The current trend toward 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.

Associate Professors

Stephane Bayen; B.Sc.(ENSCM), M.Sc.(NUS), M.Eng.(ENSCM), Ph.D.(NUS)

Saji George; B.Sc., M.Sc.(MGU, Kerala), Ph.D.(NUS) (*Canada Research Chair*)

Ashraf A. Ismail; B.Sc., Ph.D.(McG.)

Salwa Karboune; B.Sc., M.Sc.(IAV Hassan II), D.E.A., Ph.D.(Aix-Marseille)

Xiaonan Lu; B.Sc.(Ocean), M.Sc., Ph.D. (Wash. St.) *(Ian and Jayne Munro Chair in Food Safety)*

Assistant Professor

Jennifer Ronholm; B.Sc.(Wat.), Ph.D.(Ott.) (*joint appt. with Animal Science*)

Yixiang Wang; B.Sc., Ph.D.(Wuhan)

Adjunct Professors

Luis Garcia; M.Sc.(Guelph)

Lawrence Goodridge; B.Sc., M.Sc., Ph.D.(Guelph)

Jocelyn Pare; B.Sc.(McG.), Ph.D.(Car.)

Ali Taherian; B.Sc.(SBU, Iran), M.Sc., Ph.D.(McG.)

Research/Academic Associates

Jacqueline Sedman; B.Sc., Ph.D.(McG.)

4.5 School of Human Nutrition

4.5.1 Location

Macdonald Stewart Building
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue QC H9X 3V9
Canada
Telephone: 514-398-7773
Fax: 514-398-7739
Email:

Academic Associate

Patrick Cortbaoui; Ph.D.(McG.), Ag.Eng. (*Managing Director, Margaret A. Gilliam Institute for Global Food Security*)

Senior Faculty Lecturers

Sandy Phillips; B.Sc., M.Sc.(A.)(McG.), Dt. P. (*University Coordinator, Professional Practice (Stage) in Dietetics*)

Hugues Plourde; B.Sc.(McG.), M.Sc., Ph.D.(Montr.), Dt. P.

Maureen Rose; B.Sc., M.Ed., Ph.D.(McG.), Dt. P. (*Director, Food and Nutrition Laboratories*)

Faculty Lecturers

Paul-Guy Duhamel; B.Sc.(McG.), M.Sc.(Montr.), Dt. P. (*Manager, Food and Nutrition Laboratories*)

Mary Hendrickson; B.A.(St. Benedict), B.Sc.(Minn.), M.Sc.(Colo. St.), Dt. P.

Joane Routhier; B.Sc.(McG.)

Associate Members

Anaesthesia: Franco Carli, Thomas Schricker

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

Medicine and Health Sciences: L. John Hoffer, Larry Lands, José Morais

Nursing: Rosetta Antonacci

Parasitology: Marilyn E. Scott

Adjunct Professors

Kevin A. Cockell; B.Sc., Ph.D.(Guelph) (*Health Canada*)

Isabelle Germain; B.Sc.(Montr.), M.Sc., Ph.D.(McG.) (*Agriculture and Agri-Food Canada*)

Elizabeth D. Mansfield; B.Sc.(C'dia), B.Sc., M.Sc., Ph.D.(McG.),

Hope Weiler; B.A.Sc.(Guelph), Ph.D.(McM.), R.D.(CDO) (*on leave*)

Affiliate Members

Kathryn Arcudi; B.Sc. (McG.) *(CIUSSS du Centre-Ouest-de-l'Île-de-Montreal)*

Marie-Ève Besner; B.Sc.(Laval), PDt (*Montreal Children's Hospital*)

Sarah Bluden; B.Sc.(McG.), PDt, CDE (*LMC Diabetes and Endocrinology*)

Sophie Brousseau; B.Sc.(McG.), PDt (*Ste-Anne's Hospital*)

Catherine Delorme; B.Sc.(McG.); B.Sc.(Montr.), PDt (*Ste-Anne's Hospital*)

Thea Demmers; B.Sc., M.Sc. (McG.) *(C'dia)*

Linda Falcon; B.Sc.(Montr.), PDt (*Douglas Mental Health Institute*)

Alexander McLean; B.Sc.(McG.), PDt (*Lakeshore General Hospital*)

Monica Melcone; B.Sc.(McG.), PDt (*Ste-Anne's Hospital*)

Laura Li Ching Ng; B.Sc.(McG.), PDt (*McGill University Health Centre*)

Piraveena Pirematha san; B.Sc.(McG.) PDt, CDE, CBE *(CIUSSS du Centre-Ouest-de-l'Île-de-Montreal)*

Marilyn Rabin; B.Sc.(McG.), PDt (*Douglas Mental Health Institute*)

Donna Schafer; B.Sc., M.Sc.(McG.), PDt (*CIUSSS Centre-Ouest de l'Ile de Montréal*)

Sondra Sherman; B.Sc., B.F.Sc.(McG.), RD, CDE (*Jewish General Hospital*)

Patricia Urrico; B.Sc.(McG.), PDt (*Jewish General Hospital*)

4.5.5 Application Procedures

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

Application deadlines:

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

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

4.5.6 Admission Requirements

Nutrition:

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

Dietetics:

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

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

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

Proof of English proficiency:

Some applicants to all of the above programs may be asked to prove *English Proficiency* as part of the application process.

See the *Applying to Undergraduate Studies* website for information on applying to programs in the School of Human Nutrition.

4.5.6.1 Quebec CEGEP Students

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

Prerequisites:

- Math NYA (00UN or 01Y1) **and** NYB (00UP or 01Y2)
- Biology NYA (00UK or 01Y5)**and** Biology II (00XU or 01YJ)
- Chemistry NYA (00UL or 01Y6) **and**Organic Chemistry (00XV or 01YH)
- Physics NYA (00UR or 01Y7) **and**0 1 175.42(00XU or 01YT wO/F3 8.1 Tf1 0 0 1 182.5952718.101 Tm(and)Tj/F1 8.1 Tf1 0 0 1 195.652 Tm9781 Tm(0 1 175.42r

- Physics NYA (00UR or 01Y7)

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

More information can be found on the *Applying to Undergraduate Studies* website.

4.5.6.2 Transfer Students

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

Basic science requirements are:

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

Please note that math and science courses completed at other institutions that are not directly equivalent to the math and science courses in the B.Sc.(Nutr.Sc.) programs, can be used for admissions purposes, but cannot be used to grant exemptions. **If any of the math and science prerequisite courses completed are deemed not equiv**

- one semester of general chemistry with lab
- one semester of organic chemistry with lab
- two semesters (three if done at CEGEP) of physics (mechanics, electricity and magnetism, and waves and optics) with labs

If they are missing any of the prerequisites, they must apply into the Nutrition major, complete any remaining prerequisites and apply to transfer after their first year in Nutrition. Transfer into the Dietetics program depends on GPA and may require a *communications skills interview*.

Nutrition:

Students may be accepted with a minimum of three prerequisites:

- one semester of calculus for science

and two of the following:

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

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

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

4.5.7 Academic Information and Regulations

4.5.7.1 Academic Standing

For general information, see *section 1.6.5: Academic Standing*.

Dietetics students please note:

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

4.6 Department of Natural Resource Sciences

4.6.1 Location

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

4.6.2 About the Department of Natural Resource Sciences

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

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

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

- Environmental Biology;

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

to the **Specialisations** such as:

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

Natural Resourc7 T 407 55m7ife Sciences ni Economics; and

Associate Professors

Gordon Hickey; B.For.Sci.(Melb.), Ph.D.(Br. Col.), EMPA(ANZSOG, Monash) – *Sustainable Natural Resource Management* (*William Dawson Scholar*)

Murray Humphries; B.Sc.(Manit.), M.Sc.(Alta.), Ph.D.(McG.) – *Wildlife Biology*

Nicolas Kosoy; B.Sc.(USB), M.Sc., Ph.D.(Autonoma, Barcelona) (*joint appt. with Bieler School of Environment*) – *Ecological Economics*

Ian B. Strachan; B.Sc.(Tor.), M.Sc., Ph.D.(Qu.) – *Micrometeorology*

Assistant Professors

Mary Doidge; B.A., B.Sc., M.Sc.(Guelph), Ph.D. (MSU)

Kyle Elliott; B.Sc.(Br. Col.), M.Sc., Ph.D.(Manit.) (*Canada Research Chair*) – *Avian Conservation Biology*

Aurélie Harou; B.Sc.(Sus.), M.Sc.(Calif., Davis), Ph.D.(Cornell)

Jessica Gillung; B.Sc.(UFPR), M.Sc.(São Paulo), Ph.D.(Calif., Davis)

Cynthia Kallenbach; B.Sc.(Sonoma St.), M.Sc., M.Sc.(Calif., Davis), Ph.D.(N. Hamp.)

Melissa McKinney; B.Sc.(Br. Col.), M.Sc.,(Windsor), Ph.D.(Car.) (*Canada Research Chair*) *Ecological Change*

Denis Roy; B.Sc.(Qu.), M.Sc., Ph.D.(Windsor)

Associate Member

Christopher Barrington-Leigh (*School of Environment*)

David M. Green (*Redpath Museum*)

Jacqueline Bede (*Plant Science*)

Robin Thomas Naylor (*Economics)*

Adjunct Professors

Kimberly Fernie

Charles W. Greer

Affiliate Member

Adrian Unc

Geoffrey Sunahara

4.7 Institute of Parasitology

4.7.1 Location

Institute of Parasitology
Parasitology Building
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue QC H9X 3V9
Canada
Telephone: 514-398-7722
Fax: 514-398-7857
Email: *graduate.parasitology@mcgill.ca*
Website: *mcgill.ca/parasitology*

4.7.2 About the Institute of Parasitology

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

For more information, please visit the Institute of Parasitology *website*.

4.7.3 Parasitology Faculty

Director

Reza Salavati

Emeritus Professors

Timothy G. Geary; B.Sc.(Notre Dame), Ph.D.(Mich.)

Professors

Roger Prichard; B.Sc., Ph.D.(UNSW) (*James McGill Professor*)

Reza Salavati; B.Sc. M.Sc.(Calif. St.), Ph.D.(Wesl.)

Marilyn Scott; B.Sc.(New Br.), Ph.D.(McG.)

Associate Professors

Robin N. Beech; B.Sc.(Nott.), Ph.D.(Edin.) (*Dean of Students*)

Elias Georges; B.Sc., Ph.D.(McG.) (*Canadian Pacific Chair in Biotechnology*)

Armando Jardim; B.Sc., Ph.D.(Vic., BC)

Petra Rohrbach; B.Sc.(McG.), Ph.D.(Heidel.)

Jianguo (Jeff) Xia; B.Sc.(PKUHSC), M.Sc., Ph.D.(Alta.) (*Canada Research CHair in Bioinformatics and Big Data Analytics*)

Assistant Professors

Igor Cestari; B.Sc.(UFPE, Brazil), M.Sc., Ph.D.(FIOCRUZ, Brazil)

Qian (Vivian) Liu; B.Sc.(Ocean U, China), Ph.D.(WSU)

Thavy Long; B.Sc., M.Sc., Ph.D.(ULille)

Fernando Lopes; B.Sc.(UniBH, Brazil), M.Sc., Ph.D.(UFMG, Brazil)

Associate Members

Gregory J. Matlashewski; B.Sc.(C'dia), Ph.D.(Ott.)

Momar Ndao; B.Sc., DVM(UCAD, Senegal), M.Sc., Ph.D.(IMFA, Belgium)

Martin Olivier; B.Sc., M.Sc.(Montr.), Ph.D.(McG.)

Mary Stevenson; B.A.(Hood Coll.), M.Sc., Ph.D.(CUA)

Brian Ward; M.Sc.(Oxf.), M.D.,C.M.(McG.), DTM&H(Lond.)

Adjunct Professors

Boakye Boatin; M.D.(Ghana), M.Sc.(Liv.), M.Phil.(Lond.)

Tatiana Scorza Dagert; B.Sc.(ULA, Venezuela), M.Sc., Ph.D.(VUB, Belgium)

Traian Sulea; M.Sc.(UPT, Romania), Ph.D.(UVT, Romania)

Karine Thivierge; B.Sc.(Laval), M.Sc., Ph.D.(McG.)

4.8 Department of Plant Science

4.8.1 Location

Raymond Building, Room R2-019
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue QC H9X 3V9
Canada

Telephone: 514-398-7773
Fax: 514-398-8732
Email: *plant.science@mcgill.ca*
Website: *mcgill.ca/plant*

4.8.2 About the Department of Plant Science

Our understanding of biological systems has advanced exponentially during the twenty-first century, and technological developments now allow us to pose

Faculty Lecturers

Caroline Begg; B.Sc.(Agr.)(McG.), M.Sc.(Sask.), Ph.D.(McG.)

David Wees; B.Sc.(Agr.), M.Sc.(McG.)

Academic Associate

Frieda Beauregard B.Sc. M.Sc. Ph.D.(McG.)

Adjunct Professors

Konstantinos Aliferis

Annick Bertrand

Antoine Page

5 Instructional Staff

Instructional Staff

Bsricultural UChmictruyTj1 0 0 1 70.52 394.818 Tm(Baede Jancqueine B.Sc.(QCalg.), M.Sc., Ph.D.(M

Adamchuk, Viacheslav I.; B.S.(National Agricultural Univ., Ukraine), M.S., Ph.D.(Purd.); Professor, Bioresource Engineering and Chair, Department of Bioresource Engineering

Adamowski, Jan; B.Eng.(RMC), M.Phil.(Camb./MIT), M.B.A.(Warsaw/HEC Paris/London Business School/NHH), Ph.D.(Warsaw); Associate Professor, Bioresource Engineering (*William Dawson Scholar*)

Agellon, Luis B.; B.Sc., Ph.D.(McM.); Professor, Human Nutrition

Akbarzadeh Shafaroudi, Abdolhamid; B.Sc.(IUT, Iran), M.Sc.(AUT, Iran), Ph.D.(New Br.); Assistant Professor, Bioresource Engineering (*Canada Research Chair*)

Altamura, Fernando; B.Sc. (AES), M.Sc., Ph.D.(McG.); Faculty Lecturer, Bioresource Engineering

Biecch; Robi Nu. B.Sc.(QNotu), Ph.D.(MEdin); Bssociate Professor Associate Professor

Basu, Niladri; B.Sc.(Qu.), M.Sc.(Br. Col.), Ph.D.(McG.); Associate Professor, Nutrition/EnH4b1onent l A

Instructional Staff

de Blois, Sylvie; B.Sc.(McG.), M.Sc., Ph.D.(Montr.); Associate Professor, Plant Science

Driscoll, Brian T.; B.Sc., Ph.D.(McM.); Associate Professor, Microbiology and Chair, Department of Natural Resource Sciences

Duggavathi, Raj; B.V.Sc., M.V.Sc.(B'lore), Ph.D.(Sask.); Associate Professor and Chair, Animal Science

Duhamel, Paul-Guy; B.Sc.(McG.), M.Sc.(Montr.); Faculty Lecturer (Professional), Human Nutrition

Dumont, Marie-Josée; B.Eng., M.Sc.(Laval), Ph.D.(Alta.); Associate Professor, Bioresource Engineering (*William Dawson Scholar*)

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

Dutilleul, Pierre R.; B.Sc., M.Sc., Ph.D.(Louvain); Professor, Statistics

Elliott, Kyle H.; B.Sc.(Br. Col.), M.Sc., Ph.D.(Manit.); Assistant Professor, Avian Conservation Biology (*Canada Research Chair*)

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

Fabry, Frederic; B.Sc., M.Sc., Ph.D.(McG); Associate Professor, Department of Atmospheric and Oceanic Sciences and Bieler School of Environment, Director, Bieler School of Enviroment

Faucher, Sébastien P.; B.Sc., M.Sc., Ph.D.(Montr.); Associate Professor, Microbiology

Freeman, Julia; B.A.(S. Fraser), M.A.(McG.), Ph.D.(Br. Col.); Faculty Lecturer, Bieler School of Environment

Geitmann, Anja; Diplom(Konstanz), Ph.D.(Siena); Dean, Faculty of Agricultural and Environmental Sciences, and Associate Vice-Principal (Macdonald Campus) (*Canada Researc*