



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

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

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7.5.5

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

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

2 History of the Faculty

Dedicated to improving the quality of life in Quebec's rural communities, Sir William Christopher Macdonald founded the School of Agriculture, the School for Teachers, and the School of Household Science at Macdonald College in Sainte-Anne-de-Bellevue in 1906. Macdonald College opened its doors to students in 1907 and its first degrees were awarded in 1911. The School for Teachers became the F

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

3.4 Lyman Entomological Museum and Research Laboratory

Originally established in 1914 and formerly housed in the Redpath Museum, the Lyman Entomological Museum was moved to the Macdonald Campus in 1961. It houses the largest university collection of insects in Canada, second in size only to the National Collection. The Museum also has an active graduate research program in association with the Department of Natural Resource Sciences. Study facilities are available, on request from the Curator, to all bona fide students of entomology. Visits by other interested parties can be arranged by calling 514-398-7914. More information is available at lyman.mcgill.ca.

3.5 Brace Centre for Water Resources Management

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

4 About Agricultural & Environmental Sciences (Undergraduate)

4.1 Location

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

The Faculty of Agricultural and Environmental Sciences and the School of Human Nutrition are located on the Macdonald Campus of McGill University, at the western end of the island of Montreal. Served by public transport (STM www.stm.info, bus, and train), it is easily reached from the McGill Downtown Campus and from the Pierre Elliott Trudeau International

4.3 Administrative Officers

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

Anja Geitmann

Associate Deans

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

Manager, Student Affairs

Silvana Pellecchia

Director, Academic and Administrative Services

Christine Butler

Assistant Dir

4.5.2 The Student Affairs Office

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

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

4.5.3 Student Services

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

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

4.5.4 Macdonald Campus Residences

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

4.5.5 Student Life

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

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

4.5.6 Fees

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

4.5.6.1 Tuition Fees

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

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

4.5.6.2 Other Expenses

In addition to tuition fees and the cost of accommodation and meals, you should be prepared to spend a minimum of \$1,000 (depending on your program) on prescribed textbooks and classroom supplies. The Macdonald Campus bookstore is open from 10:00 am to 5:00 pm, Monday to Friday. In addition to clothing and stationery, you can also purchase course materials online and pick them up at the Macdonald Campus Bookstore.

Uniforms are required for food laboratories. If you are in the B.Sc.(Nutr

4.6 Faculty Information and Regulations

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

While departmental and faculty advisers and staff are always available to give advice and guidance, the ultimate responsibility for completeness and correctness of your course selection and registration, for compliance with, and completion of your program and degree requirements, and for the observance of regulations and deadlines, *rests with you*

3. While in Probationary Standing, you must achieve a TGPA of 2.50 to continue in Probationary Standing or a CGPA of 2.00 in order to return to Satisfactory Standing. Failure to meet at least one of these conditions will result in Unsatisfactory Standing. (In the case of Fall term, this will be Interim Unsatisfactory Standing and the rules for Probationary Standing will apply.)
4. When your CGPA (or TGPA in the first term of the program) falls below 1.50, your Academic Standing becomes Unsatisfactory and you must withdraw. (In the case of Fall term, the Standing will be Interim Unsatisfactory Standing and the rules for Probationary Standing will apply.)
5. If you are in Unsatisfactory Standing, you may not continue in your program. You may apply for readmission only after your registration has been interrupted for at least one term (not including Summer term).
6. Readmission will be in the Standing Unsatisfactory/Readmit and a CGPA of 2.00 must be achieved to return to Satisfactory Standing or a TGPA of 2.50 must be achieved for Probationary Standing. If you fail to meet at least one of these conditions, you will be required to withdraw permanently.
7. Students in the School of Human Nutrition have additional standards in place for the professional program (Dietetics). See [section 6.5.1: Bachelor of Science \(Nutritional Sciences\) \(B.Sc.\(Nutr.Sc.\)\) - Major Dietetics \(115 credits\)](#).

4.6.5.1 Committee on Academic Standing

The Faculty's Committee on Academic Standing, consisting of academic staff, administrative staf

5. Normally, proposals for Second Academic Majors will be initiated before completion of U1 year of the First Academic Major.
6. The academic standards applicable to each major will be respected.

4.6.8.1 Procedures for Minor Programs

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

4.6.9 Course Change Information

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

4.6.10 Graduate Courses Available to Undergraduates

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

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

4.6.11 Attendance and Conduct in Class

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

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

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

4.6.12 Incomplete Grades

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

4.6.13 Examinations

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

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

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

4.6.13.1 Reassessments and Rereads

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

4.6.13.2 Deferred Examinations

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

4.6.14 Degree Requirements

To be eligible for a B.Eng.(Bioresource), B.Sc.(Ag.Env.Sc.), B.Sc.(F.Sc.), or Concurrent B.Sc.(F.Sc.) and B.Sc.(Nutr.Sc.) degree, you must hav

You must have completed all Faculty and program requirements; see

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

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

5.3.1 Majors and Honours

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

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

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



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

5.3.2 Specializations

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

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

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

- Agribusiness, [section 6.2.2.1: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Agribusiness \(24 credits\)](#)
-

Global Nutrition
Health and Disease
Sports Nutrition

- Food Science/Nutritional Sciences (concurrent degree)

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

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

Freshman Adviser

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

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

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

5.8 Honours Programs (Overview)

Honours Programs

- [section 6.2.1.2: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Agricultural Economics \(42 credits\)](#)
- [section 6.2.1.4: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Agro-Environmental Sciences \(54 credits\)](#)
- [section 6.2.1.6: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Environmental Biology \(54 credits\)](#)
- [section 6.2.1.8: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Global Food Security \(54 credits\)](#)
- [section 6.2.1.10: Bachelor of Science \(Agricultural and Environmental Sciences\) \(B.Sc.\(Ag.Env.Sc.\)\) - Honours Life Sciences \(Biological and Agricultural\) \(54 credits\)](#)
- [section 6.3.2: Bachelor of Engineering \(Bioresource\) \(B.Eng.\(Bioresource\)\) - Honours Bioredits](#)

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

5.10 Post-Baccalaureate Certificate Programs (Overview)

The Faculty offers the following post-baccalaureate certificate programs.

Post-Baccalaureate Certificate Programs

- Ecological Agriculture
- Food Science

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

5.11 Diploma Program (Undergraduate) (Overview)

Diploma Program (Undergraduate)

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

5.12 Diploma in Collegial Studies (Overview)

Diploma in Collegial Studies

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

5.13 Environmental Sciences Programs (Overview)

5.13.1 Bieler School of Environment

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

5.13.2 Environmental Programs on the Macdonald Campus

A number of integrated environmental science programs are offered on the Macdonald Campus, particularly within the B.Sc.(Ag.Env.Sc.) and B.Eng.(Bioresource) degrees. The objective of these interdepartmental programs is to provide a well-rounded training in a specific interdisciplinary subject as well as a basis for managing natural resources. For a complete list of the programs, see [section 5: Overview of Programs Offered](#).

5.14 Graduate Programs

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

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

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

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

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

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

6 Browse Academic Programs

Degree programs at the undergraduate level in the Faculty may lead to a B.Sc. degree in Agricultural and Environmental Sciences (Ag.Env.Sc.), a B.Sc. in Food Science (F.Sc.), a B.Sc. in Nutritional Sciences (Nutr.Sc.), a B.Eng. in Bioresource Engineering or concurrent B.Sc. in both Food Science and Nutritional Sciences. The Faculty also offers post-baccalaureate undergraduate Certificate programs in Food Science and Ecological Agriculture as well as a Diploma in Environment.

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

6.1 Freshman Major

Program Director

Dr. David Titley-Peloquin
Macdonald-Stewart Building, Room 1-022
Telephone: 514-398-7976

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

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

Students who have completed the Diploma of Collegial Studies, Advanced Placement Exams, Advanced Levels, the International Baccalaureate, the French Baccalaureate, and/or McGill placement examinations may receive exemption and/or den9289.021 261.A.

Required Courses - Fall (14.5 credits)

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

Required Courses - Winter (12.5 credits)

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

Elective - Winter (3 credits)**B.Sc. (Ag. & Env. Sci.) - Agricultural Economics Major - Freshman Program (30 credits)**

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

Note: If you are not certain that you have adequate math and/or physics skills to commence the Freshman year you may wish to take preparatory courses prior to the normal Fall semester. You are encouraged to discuss your potential need with your academic adviser. Mathematical skill level will be determined during the first week of classes Tw1 0 0 1 67.52 428.644 Tssp0A(during the first week 438.364 Tm(ou5.906the first week)Tjf wish to26.029 1 0 0ren year0 1 193.32re

Advising Notes:

* Freshman students intending to major in Agricultural Economics in the B.Sc. (Ag. & Env. Sci.) degree program should note that the courses AEBI 120 (General Biology), AECH 111 (General Chemistry 2), and AEPH 114 (Introductory Physics 2) are required for all other majors in the B.Sc. (Ag. & Env. Sci.) degree. Students who are uncertain about their choice of major should be completing the "regular" Agricultural & Environmental Sciences Freshman program; the AGEC 200/201 courses would then be taken as part of the "regular" U1 curriculum should they ultimately decide on the Agricultural Economics Major.

** Freshman students planning to choose the Agricultural Economics Major will still be required to complete 90 credits in the Major. Since AGEC 200 and AGEC 201/AGEC 231 are normally required in the U1 year of the program, students who take these courses in their freshman year will be required to substitute 6 other credits. Students should discuss suitable replacement courses with their adviser.

6.1.2 Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) - Freshman Program (30 credits)

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

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

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

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

Required Courses - Fall (14.5 credits)

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

Required Courses - Winter (15.5 credits)

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

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

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

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

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

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

Required Courses - Fall (14.5 credits)

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

Required Courses - Winter (12.5 credits)

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

Elective - Winter (3 credits)

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

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

Required Courses - Fall (14.5 credits)

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

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

Required Courses - Winter (15.5 credits)

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

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

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

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

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

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

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

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

Program Prerequisites

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

Required Courses (36 credits)

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

Complementary Courses (6 credits)

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

Statistics

Written/Oral Communication

Specialization (24 credits)

Specializations designed to be taken with the Agricultural Economics Major:

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

- Agribusiness (24 credits)

- Environmental Economics (24 credits)

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

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

Electives

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Honours Courses

Students choose either Plan A or Plan B.

Honours Plan A

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

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

Honours Plan B

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

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

Complementary Courses (9 credits)

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

- Accounting
- Statistics
- Written/Oral Communication

Specialization (21 - 24 credits)

Specializations designed to be taken with the Agricultural Economics Major:

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

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

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

Electives

To meet the minimum credit requirement for the degree.

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

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

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

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

Program Prerequisites

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

Required Courses (36 credits)

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

Complementary Courses (6 credits)

6 credits of complementary courses selected as follows:

One of:

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

One of:

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

Specialization

Choose at least one specialization of 18-24 credits.

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

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

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

Electives

To meet the minimum credit requirement for the degree.

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

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

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

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

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

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

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

Program Prerequisites

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

Required Courses (36 credits)

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

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

Specialization

At least one specialization of 18-24 credits.

Specializations designed to be taken with the Environmental Biology Major:

- Applied Ecology
- Plant Biology
- Wildlife Biology

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

Electives

To meet the minimum credit requirement for the degree.

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

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

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

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

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

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

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

Program Prerequisites

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

Required Courses (36 credits)

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

Complementary Courses (18 credits)

6 credits from the following:

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

Honours Courses 123.A2 credits of Honours864 3g221 0 0544logy

12 credits of Honours864 3g221 8.1 T3logy

Honours Plan B

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

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

Specialization

At least one specialization of 18-24 credits.

Specializations designed to be taken with the Environmental Biology Major:

- Applied Ecology
- Plant Biology
- Wildlife Biology

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

Electives

To meet the minimum credit requirement for the degree.

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

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

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

Program Prerequisites

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

Required Courses (33 credits)

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

Complementary Courses (9 credits)

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

Specialization (24 credits)

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

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

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

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

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

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

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

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

Program Prerequisites

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

Required Courses (33 credits)

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

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

Complementary Courses (21 credits)

9 credits from the following:

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

Honours Courses

12 credits of Honours Plan A or Plan B:

Honours Plan A

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

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

OR

Honours Plan B

A minimum of two 3-credit Honours courses and 6 credits in 400- or 500-level courses, from the Faculty of Agricultural and Environmental Sciences, selected in consultation with the Program Director of the student's major. The topic of the Honours research project must be on a topic rlnHonours rese59.143 Tm(j34suls,r73.94

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

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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 Environment and Infection

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

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

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

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

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

Required Courses (12 credits)

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

Complementary Courses (12 credits)

9 credits chosen from the following list:

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

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

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

The specialization in Animal Biology i

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

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

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

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

Required Courses (18 credits)

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

Complementary Courses (6 credits)

6 credits of complementary courses selected from:

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

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

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

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

Required Courses (24 credits)

ANSC 234	(3)	Biochemistry 2
ANSC 301	(3)	Principles of Animal Breeding
ANSC 312	(3)	Animal Health and Disease

ANSC 323	(3)	Mammalian Physiology
ANSC 324	(3)	Developmental Biology and Reproduction
ANSC 433	(3)	Animal Nutrition and Metabolism
ANSC 451	(3)	Dairy and Beef Production Management
ANSC 458	(3)	Swine and Poultry Production

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

Food, water, air, the materials we use, and much of the diversity of life and recreation we enjoy are products of ecological systems. We manage ecosystems to provide these services and our use and mis-use often degrades the ability of ecosystems to provide the benefits and services we value. In the Applied

WILD 421

(3)

Wildlife Conservation

Bachelor of Science (Agricultural and Envir

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
		Wildlife Conserv

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

Option B

15 credits from any of the McGill Field Study Semesters

African Field Study Semester

Barbados Field Study Semester

Barbados Interdisciplinary Tropical Studies Field Semester

Panama Field Study Semester

3 credits from the list in Option A

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

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

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

Complementary Courses (24 credits)

24 credits selected from the following list:

ANSC 312	(3)	Animal Health and Disease
ANSC 323	(3)	Mammalian Physiology
ANSC 324	(3)	Developmental Biology and Reproduction
ANSC 326	(3)	Fundamentals of Population Genetics
ANSC 350	(3)	Food-Borne Pathogens
ANSC 420	(3)	Animal Biotechnology
ANSC 424	(3)	Metabolic Endocrinology
ANSC 433	(3)	Animal Nutrition and Metabolism
ANSC 560	(3)	Biology of Lactation
ANSC 565	(3)	Applied Information Systems
BINF 511	(3)	Bioinformatics for Genomics
BTEC 306	(3)	Experiments in Biotechnology
BTEC 535	(3)	Functional Genomics in Model Organisms
BTEC 555	(3)	Structural Bioinformatics
ENTO 330	(3)	Insect Biology
ENTO 352	(3)	Biocontrol of Pest Insects
ENVB 301	(3)	Meteorology
ENVB 305	(3)	Population and Community Ecology
ENVB 313	(3)	Phylogeny and Biogeography
ENVB 506	(3)	Quantitative Methods: Ecology
ENVB 529	(3)	GIS for Natural Resource Management
FDSC 442	(3)	Food Microbiology

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

This specialization emphasizes the study of plants from the cellular to the organismal level.

PLNT 302	(3)	Forage Crops and Pastures
PLNT 307	(3)	Agroecology of Vegetables and Fruits
PLNT 312	(3)	Urban Horticulture
PLNT 322	(3)	Greenhouse Management
SOIL 535	(3)	Soil Ecology

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

This Specialization is required for students who wish to qualify for membership in the Ordre des agronomes du Québec (OAQ). It cannot be taken alone; it must be taken with the Major Agro-Environmental Sciences and a Second specialization in Animal Production, Ecological Agriculture, Plant Production, or Soil and Water Resources. This Specialization focuses on working in the professional agrology industry and covers agricultural legislation as well as professional conduct.

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

F

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

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

Mammalogy

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

Complementary Courses (51 credits)

Set A

3 credits from the following:

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

3 credits from the following:

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

Set B - Natural Sciences and Mathematics

Minimum of 3 credits chosen from the following list:

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Set D - Engineering

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

BREE 214	(3)	Geomatics
BREE 217	(3)	Hydrology and Water Resources
BREE 314	(3)	Agri-Food Buildings
BREE 322	(3)	Organic Waste Management
BREE 325	(3)	Food Process Engineering
BREE 329	(3)	Precision Agriculture
BREE 403	(3)	Biological Material Properties
BREE 412	(3)	Machinery Systems Engineering
BREE 416	(3)	Engineering for Land Development
BREE 419	(3)	Structural Design
BREE 497	(3)	Bioresource Engineering Project
BREE 501	(3)	Simulation and Modelling
BREE 502	(3)	Drainage/Irrigation Engineering
BREE 509	(3)	Hydrologic Systems and Modelling.
BREE 510	(3)	Watershed Systems Management
BREE 515	(3)	Soil Hydrologic Modelling
BREE 518	(3)	Ecological Engineering
BREE 519	(3)	Advanced Food Engineering
BREE 520	(3)	Food, Fibre and Fuel Elements
BREE 522	(3)	Bio-Based Polymers
BREE 529	(3)	GIS for Natural Resource Management
BREE 530	(3)	Fermentation Engineering
BREE 531	(3)	Post-Harvest Drying
BREE 532	(3)	Post-Harvest Storage
BREE 533	(3)	Water Quality Management
BREE 535	(3)	Food Safety Engineering

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

Complementary Courses (51 credits)

Honours Courses

Students choose either Plan A or Plan B

Honours Plan A

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

12 credits from:

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

OR

Honours Plan B

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

6 credits from:

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

Plus 6 credits of BREE courses at the 500 level.

Set A

3 credits from the following:

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

3 credits from the following:

CHEE 315 (3) Heat and Mass Transfer

(3) Heat Transfer

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

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

The B.Eng.(Bioresource); Major in Bioresource Engineering; Professional Agrology program focuses on biological, agricultural, food, environmental areas, and applying professional engineering skills to biological systems.

BREE 490	(3)	Engineering Design 2
BREE 495	(3)	Engineering Design 3
BREE 504	(3)	Instrumentation and Control

Set C - Social Sciences

3 credits from the following list:

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

Note: ENVR courses have limited enrolment.

Set D - Engineering

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

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

Group 1 - Soil and Water

BREE 214	(3)	Geomatics
BREE 217	(3)	Hydrology and Water Resources
BREE 322	(3)	Organic Waste Management
BREE 329	(3)	Precision Agriculture
BREE 416	(3)	Engineering for Land Development
BREE 502	(3)	Drainage/Irrigation Engineering
BREE 509	(3)	Hydrologic Systems and Modelling.
BREE 510	(3)	Watershed Systems Management
BREE 515	(3)	Soil Hydrologic Modelling
BREE 518	(3)	Ecological Engineering
BREE 529	(3)	GIS for Natural Resource Management
BREE 533	(3)	Water Quality Management

Group 2 - Food Processing

BREE 325	(3)	Food Process Engineering
BREE 519	(3)	Advanced Food Engineering
BREE 520	(3)	Food, Fibre and Fuel Elements
BREE 530	(3)	Fermentation Engineering
BREE 531	(3)	Post-Harvest Drying
BREE 532	(3)	Post-Harvest Storage
BREE 535	(3)	Food Safety Engineering

Group 3 - Other Engineering

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

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

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

Additional Required Courses - Food Science Option (21 credits)

FDSC 233	(3)	Physical Chemistry
FDSC 305	(3)	Food Chemistry 2
FDSC 315	(3)	Separation Techniques in Food Analysis 1
FDSC 334	(3)	Analysis of Food Toxins and Toxicants
FDSC 405	(3)	Food Product Development
FDSC 516	(3)	Flavour Chemistry
FDSC 540	(3)	Sensory Evaluation of Foods

Elective Courses (18 credits)

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

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

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

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

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

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

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

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

Graduates hav

FDSC 310	(3)	Post Harvest Fruit and Vegetable Technology
FDSC 319	(3)	Food Commodities
FDSC 330	(3)	Food Processing
FDSC 400	(3)	Food Packaging
FDSC 442	(3)	Food Microbiology
FDSC 495D1	(1.5)	Food Science Seminar
FDSC 495D2	(1.5)	Food Science Seminar
FDSC 525	(3)	Food Quality Assurance
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health

Additional Required Courses - Food Science Option (21 credits)

FDSC 233	(3)	Physical Chemistry
FDSC 305	(3)	Food Chemistry 2
FDSC 315	(3)	Separation Techniques in Food Analysis 1
FDSC 334	(3)	Analysis of Food Toxins and Toxicants
FDSC 405	(3)	Food Product Development
FDSC 516	(3)	Flavour Chemistry
FDSC 540	(3)	Sensory Evaluation of Foods

Honours Courses

Students choose either Plan A or Plan B.

Honours Plan A

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

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

Honours Plan B

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

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

Elective Courses (6 credits)

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

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

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

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

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

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

Required Courses (54 credits)

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

AEMA 310	(3)	Statistical Methods 1
AGRI 510	(3)	Professional Practice
BREE 324	(3)	Elements of Food Engineering
FDSC 200	(3)	Introduction to Food Science
FDSC 213	(3)	Analytical Chemistry 1
FDSC 251	(3)	Food Chemistry 1
FDSC 300	(3)	Principles of Food Analysis 1
FDSC 310	(3)	Post Harvest Fruit and Vegetable Technology
FDSC 319	(3)	Food Commodities
FDSC 330	(3)	Food Processing
FDSC 400	(3)	Food Packaging
FDSC 442	(3)	Food Microbiology
FDSC 495D1	(1.5)	Food Science Seminar
FDSC 495D2	(1.5)	Food Science Seminar
FDSC 525	(3)	Food Quality Assurance
FDSC 540	(3)	Sensory Evaluation of Foods
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health

Additional Required Courses - Food Chemistry Option (30 credits)ses - Food ChemistrFDSC 442

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

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

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

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

The concurrent program B.Sc.(F.Sc.) and B.Sc.(Nutr.Sc.) is designed to give motivated students the opportunity to combine the two fields. The two disciplines complement each other with Food Science providing the scientific foundation in the fundamentals of food science and its application in the food system, while Nutritional Sciences brings the fundamental kno

Complementary Courses (30 credits)

Complementary courses are selected as follows:

At least 9 credits from the following:

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

At least 9 credits from the following:

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

12 credits from the following:

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

Elective Courses (12 credits)

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 387	(3)	Clinical Nutrition

NUTR 387m(Rion 1)Tj1 0 06r.001 492.9416 Clinical Nutrition

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

This program is accredited by the P

Elective Courses (3 credits)

Students who need to improve their proficiency in either English or French are strongly encouraged to choose their electives for that purpose. Students who wish to take language courses should check with the French Language Centre, Faculty of Arts, as placement testing may be required.

Elective choice may include, but is not limited to:

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

Compulsory Immunization

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

*Advising Notes for Professional Practice (Stage):

The School firmly applies prerequisite requirements for re

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

Complementary Courses (12 credits)

12 credits of complementary courses are selected as follows:

Common Complementary Courses

6 credits from the following courses:

Elective Courses (15 credits)

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

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

This Major covers many aspects of human nutrition and food and their impact on health and society at the community and international level. It offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan. The specialization in global nutrition emphasizes the importance of the interaction of nutrition, diet, water, environment, and infection. This degree does not lead to professional licensure as a Dietitian/Nutritionist. Graduates are qualified for careers in national and international governmental and non-governmental food and health agencies, in world development programs, in the food sector, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in public health, epidemiology, research, medicine, and dentistry or as specialists in nutrition.

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

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

Required Courses (63 credits)

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

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
FDSC 200	(3)	Introduction to Food Science
FDSC 251	(3)	Food Chemistry 1
FDSC 305	(3)	Food Chemistry 2
LSCI 204	(3)	Genetics
		Biochemistry 1

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

6 credits selected from:

AGEC 330	(3)	Agriculture and Food Markets
AGEC 442	(3)	Economics of International Agricultural Development
A	(3)	Principles of Ecological Agriculture

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 an

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

Complementary Courses (12 credits)

12 credits of complementary courses are selected as follows:

Common Complementary Courses

6 credits from the following:

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

6 credits from the following courses:

ANAT 214	(3)	Systemic Human Anatomy
ANAT 261	(4)	Introduction to Dynamic Histology
ANAT 262	(3)	Introductory Molecular and Cell Biology
ANAT 322	(3)	Neuroendocrinology
ANSC 312	(3)	Animal Health and Disease
ANSC 324	(3)	Developmental Biology and Reproduction
ANSC 400	(3)	Eukaryotic Cells and Viruses
ANSC 560	(3)	Biology of Lactation
BIOL 300	(3)	Molecular Biology of the Gene
BTEC 306	(3)	Experiments in Biotechnology
MICR 341	(3)	Mechanisms of Pathogenicity
NUTR 430	(3)	Directed Studies: Dietetics and Nutrition 1
PARA 424	(3)	Fundamental Parasitology
PATH 300	(3)	Human Disease
PHAR 300	(3)	Drug Action
PHAR 301	(3)	Drugs and Disease
PHAR 303	(3)	Principles of Toxicology
PHGY 311	(3)	Channels, Synapses and Hormones
PHGY 312	(3)	Respiratory, Renal, and Cardiovascular Physiology
PHGY 313	(3)	Blood, Gastrointestinal, and Immune Systems Physiology

Elective Courses (15 credits)

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

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

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

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

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

Required Courses (63 credits)

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

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
EDKP 395	(3)	Exercise Physiology
FDSC 200	(3)	Introduction to Food Science
FDSC 251	(3)	Food Chemistry 1
FDSC 305	(3)	Food Chemistry 2
LSCI 204	(3)	Genetics
LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 307	(3)	Metabolism and Human Nutrition
NUTR 322	(3)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1
NUTR 401	(1)	Emerging Issues in Nutrition
NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 503	(3)	Nutrition and Exercise
NUTR 512	(3)	Herbs, Foods and Phytochemicals

Complementary Courses (12 credits)

12 credits of complementary courses are selected as follows:

Common Complementary Courses

6 credits from the following:

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

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

6 credits from:

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

Elective Courses (15 credits)

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

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

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

Required Courses (75 credits)

AEMA 310	(3)	Statistical Methods 1
ANSC 234	(3)	Biochemistry 2
ANSC 323	(3)	Mammalian Physiology
ANSC 424	(3)	Metabolic Endocrinology
FDSC 200	(3)	Introduction to Food Science
FDSC 251	(3)	Food Chemistry 1
FDSC 305	(3)	Food Chemistry 2
LSCI 204	(3)	Genetics

LSCI 211	(3)	Biochemistry 1
LSCI 230	(3)	Introductory Microbiology
NUTR 207	(3)	Nutrition and Health
NUTR 214	(4)	Food Fundamentals
NUTR 307	(3)	Metabolism and Human Nutrition
NUTR 322	(3)	Applied Sciences Communication
NUTR 337	(3)	Nutrition Through Life
NUTR 344	(4)	Clinical Nutrition 1
NUTR 401	(1)	Emerging Issues in Nutrition
NUTR 450	(3)	Research Methods: Human Nutrition
NUTR 491	(3)	Honours Research 1
NUTR 492	(3)	Honours Research 2
NUTR 493	(3)	Honours Research 3
NUTR 494	(3)	Honours Research 4
NUTR 507	(3)	Advanced Nutritional Biochemistry
NUTR 537	(3)	Advanced Human Metabolism
NUTR 551	(3)	Analysis of Nutrition Data

6.5.8 Bachelor of Science (Nutritional Sciences) – Related Programs

6.5.8.1 Minor in Human Nutrition

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

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

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

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

Students are advised to consult their major program adviser and the Academic Adviser of the Minor in their first year. At the time of registration for their penultimate year, students must declare their intent to obtain a Minor Agricultural Production. With the agreement of their major program adviser, they must submit their program of courses already taken, and to be taken in their final year, to the Academic Adviser of the Agricultural Production Minor. The Academic Adviser of the Agricultural Production Minor will then certify which courses the student will apply toward the Minor and that the student's program conforms with the requirements of the Minor.

Notes:

1. Most courses listed at the 300 level and higher have prerequisites. Although instructors may waive prerequisite(s) in some cases, students are urged to prepare their program of study well before their final year.
2. Not all courses are offered every year. For information on available courses, consult Class Schedule at <http://www.mcgill.ca/minerva>. Complete listings can be found in the "Courses" section of this eCalendar.

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

General Regulations

To obtain a Minor in Agricultural Production, students must:

- a) ensure that their academic record at the Univ

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

Required Courses (15 credits)

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

Complementary Courses (9 credits)

9 credits selected from:

ANSC 234	(3)	Biochemistry 2
ANSC 251	(3)	Comparative Anatomy
ANSC 326	(3)	Fundamentals of Population Genetics
ANSC 400	(3)	Eukaryotic Cells and Viruses
ANSC 424	(3)	Metabolic Endocrinology
ANSC 433	(3)	Animal Nutrition and Metabolism
ANSC 555	(3)	The Use and Welfare of Animals
		Biology of Lact0 Tm4SC 555

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

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

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

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

To obtain a Minor in Applied Ecology, students must:

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

Required Courses (9 credits)

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

Complementary Courses (15 credits)

15 credits from the following:

AGRI 340	(3)	Principles of Ecological Agriculture
AGRI 435	(3)	Soil and Water Quality Management
BREE 327	(3)	Bio-Environmental Engineering
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WILD 420	(3)	Ornithology
WILD 421	(3)	Wildlife Conservation

Bachelor of Science (Agricultural and Envir

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 > : Bac](#)

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

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

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

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

Required Courses (6 credits)

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

Complementary Courses (18 credits)

Students select 18 credits from either Option A or Option B

Option A

18 credits from the following:

AGEC 333	(3)	Resource Economics
AGEC 430	(3)	Agriculture, Food and Resource Policy
AGRI 215	(3)	Agro-Ecosystems Field Course
AGRI 325	(3)	Sustainable Agriculture and Food Security
AGRI 499	(3)	Agricultural Development Internship
BREE 510	(3)	Watershed Systems Management
ENVB 437GR	(3)	Assessing Environmental Impact

Option B

15 credits from any of the McGill Field Study Semesters:

Africa Field Study Semester

Barbados Field Study Semester

Barbados Interdisciplinary Tropical Studies Field Semester

Panama Field Study Semester

Plus 3 credits from the list in Option A

6.7 Post-Baccalaureate Certificate Programs

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

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

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

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

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

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

Required Course (3 credits)

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

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

AGRI 510	(3)	Professional Practice
BREE 324	(3)	Elements of Food Engineering
BREE 535	(3)	Food Safety Engineering
FDSC 213	(3)	Analytical Chemistry 1
FDSC 251	(3)	Food Chemistry 1
FDSC 300	(3)	Principles of Food Analysis 1
FDSC 305	(3)	Food Chemistry 2
FDSC 310	(3)	Post Harvest Fruit and Vegetable Technology
FDSC 315	(3)	Separation Techniques in Food Analysis 1
FDSC 319	(3)	Food Commodities
FDSC 330	(3)	Food Processing
FDSC 400	(3)	Food Packaging
FDSC 405	(3)	Food Product Development

6.8 Field Studies

6.8.1 Africa Field Study Semester

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

6.8.2 Barbados Field Study Semester

This program takes place at Bellairs Research Institute in Barbados; it is a full 15-credit program offered each Fall semester. For more information, see [Study Abroad & Field Studies > Undergraduate > : Barbados Field Semester](#).

6.8.3 Barbados Interdisciplinary Tropical Studies Field Semester

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

6.8.4 Panama Field Study Semester

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

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

7 Academic Units

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

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

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

7.1 Department of Animal Science

7.1.1 Location

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

Website: mcgill.ca/animal

7.1.2 About the Department of Animal Science

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

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

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

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

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

7.1.3 Animal Science Faculty

Chair

Raj Duggavathi

Emeritus Professors

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

Professor

Xin Zhao

Associate Professors

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

Assistant Professors

Jennifer Ronholm; Alexander Bekele-YJeffil0 gBM wishistant Pr

7.2.2 About the Department of Bioresource Engineering

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

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

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

7.2.3 Bioresource Engineering Faculty

Chair

Viacheslav I. Adamchuk

Graduate Program Director

G.S. Vijaya Raghavan

Associate Graduate Program Director

Zhiming Qi

Emeritus Professors

Robert S. Broughton; Robert Kok

Professors

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

Associate Professors

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

Assistant Professors

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

Adjunct Professors

Marie-Josée Dumont; Boris Tartakovsky

Faculty Lecturers

Fernando Altamura; Alice Cherestes; DaAlice Cherestes; Da

7.3 Farm Management and Technology Program

7.3.1 Location

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

7.3.2 About the Farm Management and Technology Program

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

7.3.3 Diploma of College Studies — Farm Management Technology

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

The educational goals of the program are:

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

Program Overview

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

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

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

Program Outline

F

Winter 1

FMT4 007	(2)	Health and Safety (152-VSG-MC)
FMT4 008	(2.33)	Animal Genetics and Nutrition (152-VSH-MC)
FMT4 009	(2)	Soil Fertility (152-VSJ-MC)
FMT4 010	(1.33)	Winter Stage (152-VSK-MC)
FMT4 011	(2)	Farm Accounting (152-VSL-MC)

Winter 3

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

Elective Production Courses

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

Animal Science Category

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

Plant Science Category

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

Complementary Courses*

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

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

FMT4 074	(2)	Complementary Course 2
FMT4 097	(2)	Landscape Design (504-VSG-MC)

Comprehensive Assessment

The objective of this examination is to ensure that students have attained the objectives and standards for each competency in the program. Successful completion of the Comprehensive Assessment is mandatory to obtain the DEC.

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

English Exit Examination

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

7.3.4 Farm Management and Technology Program Faculty

Director

Pascal Thériault

Associate Director

David Wees

Faculty Lectur

7.3.5.4 Academic Standing – FMT

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

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

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

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

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

7.5 School of Human Nutrition

7.5.1 Location

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

7.5.2 About the School of Human Nutrition

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

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

The **Dietetics Major** is an accredited professional program which leads to eligibility to re

7.5.4 Human Nutrition Faculty

Director

Ryan J. Mailloux

Professors Emeriti

Harriet V. Kühnlein, Timothy A. Johns

Professors

Luis B. Agellon, Linda J. Wykes

Associate Professors

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

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

Trenea Delormier (

ST JOHN'S COLLEGE

Adjunct Professors

Isabelle Germain (

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

Proof of English proficiency:

Some applicants to the School's programs may be asked to prove *English Proficiency* as part of the application process.

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

Proof of French proficiency:

Applicants will be required to prove *proficiency in French*.

7.5.6.1 Quebec CEGEP Students

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

Prerequisites:

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

Dietetics:

Applicants to this program are advised to have all prerequisite courses completed prior to entry. It may be possible to be admitted missing some of the prerequisites; however, this is a highly competitive program and students with all of the prerequisites will be given priority. * If you are admitted missing some prerequisites, you will be required to complete them in addition to your BSc.(Nutr.Sc.) program requirements. **Please note that this will extend the length of your program by one year as without all prerequisite courses completed you will be unable to register for your first stage.** If at all possible, e all1)

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

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

Nutrition:

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

- one semester of calculus for science

and two of the following:

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

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

7.5.6.3 Transfer Students – Interfaculty

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

The programs that are open in January can be found on the [January 2018 Interfaculty Transfer Page](#). Jan 2018 Interfaculty Transfer Page | 49.438 253440 0 1 .508.32 Tm(December 1)T..903 238.48 0 0 1 67.52 65

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

For more information on Interfaculty transfers, please refer to [University R6 Transfer Page](#). University R6 Transfer Page | Studentnr ac4 4T 0 1 0 0 1 268.426 469.44 Tm(eadmissio g/F1mc0 G0 g/rogThe dead

7.5.7 Academic Information and Regulations

7.5.7.1 Academic Standing

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

Dietetics students please note:

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

7.6.3 Natural Resource Sciences Faculty

Chair

Brian Driscoll

Graduate Program Director

Sébastien Faucher

Program Director - Agricultural Economics

Paul J. Thomassin

Emeritus Professors

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

Professors

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

7.7.3 Parasitology Faculty

Director

Reza Salavati

Emeritus Professor

Timothy G. Geary

Professors

Roger Prichard; Reza Salavati

Associate Professors

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

Assistant Professors

Igor Cestari; Qian (Vivian) Liu; Thavy Long

Associate Members

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

Adjunct Professors

Traian Sulea; Karine Thivierge; Fernando Lopes

7.8 Department of Plant Science

7.8.1 Location

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

7.8.2 About the Department of Plant Science

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

Associate Chair and Graduate Program Director

Valérie Gravel

Associate Graduate Program Director

Mehran Dastmalchi

Emeriti Professors

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

Professors

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

Associate Professors

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

Assistant Professors

Mehran Dastmalchi; Valerio Hoyos-Villegas

Faculty Lecturers

Caroline Begg; David Wees

Academic Associate

Frieda Beauregard

Adjunct Professors

Konstantinos Aliferis; Annick Bertrand

8 Instructional Staff**Instructional Staff**

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

