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

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## ***Publication Information***

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## 2.3 General Statement Concerning Higher Degrees

Graduate and Postdoctoral Studies (GPS) oversees all programs leading to graduate diplomas, certificates, and higher degrees, with the exception of some programs in the School of Continuing Studies. It is responsible for admission policies, the supervision of graduate students' work, and for recommending to Senate those who may receive the degrees, diplomas, and certificates.

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## 3 Important Dates 2016–2017

For all dates relating to the academic year, consult [www.mcgill.ca/importantdates](http://www.mcgill.ca/importantdates).

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## 4 Graduate Studies at a Glance

Please refer to [University Regulations and Resources > Graduate > : Graduate Studies at a Glance](#) for a list of all graduate departments and degrees currently being offered.

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## 5 Program Requirements

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### 5.1 Master's Degrees

#### Residence Requirements – Master's Degrees

Refers to the number of terms (or years) students must be registered on a full-time basis to complete their program. Students are NOT permitted to graduate until they have fulfilled the residence requirement (or paid the corresponding fees) in their program.

- The following master's programs have a **minimum** residence requirement of **three full-time terms**: M.Arch., M.A., M.Eng., LL.M., M.Mus. (**except** M.Mus. in Sound Recording), M.Sc., M.S.W., M.Sc.A. (**except** M.Sc.A. in Communication Sciences and Disorders).
- The following master's programs have a **minimum** residence requirement of **four full-time terms**: M.I.St.; M.Mus. in Sound Recording; M.U.P.; M.A. (60 credits – Counselling Psychology – thesis; 78 credits – Educational Psychology); M.A. Teaching and Learning – Non-Thesis; M.Sc.A. in Communication Sciences and Disorders; S.T.M., Religious Studies.
- The residence requirement for the master's program in Education (M.Ed.); Information Studies (M.I.St.); Management (M.B.A.); Religious Studies (S.T.M.); M.A. Counselling Psychology – Non-Thesis; M.A. Teaching and Learning – Non-Thesis; M.Sc. in Public Health – Non-Thesis; M.Sc.A. Nursing; M.Sc.A. Occupational Therapy; M.Sc.A. Physical Therapy; and students in part-time programs is determined on a per course basis. Residence requirements are fulfilled when students complete all course requirements in their respective programs.
- For master's programs structured as Course, Project, or Non-Thesis options where the program is pursued on a part-time basis, residence requirements are normally fulfilled when students complete all course requirements in their respective programs (minimum 45 credits or a minimum of three full-time terms) and pay the fees accordingly.

These designated periods of residence represent minimum time requirements. There is no guarantee that the work for the degree can be completed in this time. Students must register for such additional terms as are needed to complete the program.

#### Coursework – Master's Degrees

Program requirements are outlined in the relevant departmental sections of the Graduate and Postdoctoral Studies [eCalendar](#).

The minimum credit requirement for any thesis or non-thesis master's degree at McGill is 45 credits.

Non-thesis degrees normally specify the course program which the candidate must follow.

The department concerned will examine the student's previous training and then decide which of the available courses in the area of specialization or related fields are required to bring the candidate to the proper level for the master's degree. Due account will be taken of relevant graduate level courses passed at any recognized university or at McGill.

The candidate is required to pass, with a grade of B- or better, all those courses that have been designated by the department as forming a part of the program, including additional requirements.

Students taking courses at another university must obtain a minimum grade of B- (65%) if the course is to be credited toward their McGill degree. In the cases where only a letter grade is used, a B- is the minimum passing grade and no equivalent percentage will be considered. In the cases where only a percentage grade is used, 65% is the minimum passing grade.

As a rule, no more than one-third of the formal coursework (excluding thesis, project, stage, or internship) of a McGill master's degree can be credited with courses from another university or degree (for example, courses taken before admission to the McGill degree, or courses taken through the IUT agreement during the McGill degree, if permitted).

Normally, if courses completed elsewhere or at McGill prior to admission to the McGill master's degree were not used to complete a degree, they could be credited toward the McGill degree, keeping in mind the one-third rule as described above.

**All** language requirements must be fulfilled and the grades reported **before** submission of the thesis to GPS (Thesis section).

Students must contact their departments to make arrangements to take the Language Reading Proficiency Examinations. Students may, however, demonstrate competence by a pass standing in two undergraduate language courses taken at McGill (see departmental regulations).

Candidates are advised to discharge their language requirements as early in their program as possible.

Students expecting to enrol in Professional Corporations in the province of Quebec are advised to become fluent in both spoken and written French.

French language courses are av

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## **8 Postdoctoral Research**

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

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### **8.1 Postdocs**

Postdocs are recent graduates with a Ph.D. or equivalent (i.e., Medical Specialist Diploma) engaged by a member of the University's academic staff, including Adjunct Professors, to assist him/her in research.

Postdocs must be appointed by their department and registered with Enrolment Services in order to have access to University facilities (libraryUniver

iv. Postdocs with full responsibility for teaching a course should be compensated over and above their fellowship at the standard rate paid to lecturers by their department. This applies to all postdocs, except those for whom teaching is part of the aw



vii. Some examples of the responsibilities of the University are:

- to register Postdocs;
- to provide an appeal mechanism in cases of conflict;
- to provide documented policies and procedures to Postdocs;
- to provide Postdocs with the necessary information on McGill University student services.

*Approved by Senate, April 2000; revised May 2014*

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### **8.3 Vacation Policy for Graduate Students and Postdocs**

Graduate students and Postdocs should normally be entitled to vacation leave equivalent to university holidays and an additional total of fifteen (15) working days in the year. Funded students and Postdocs with fellowships and research grant stipends taking additional vacation leave may have their funding reduced accordingly.

*Council of FGSR April 23, 1999*

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**General Conditions**

- The maximum duration is three years;
- the individual must be engaged in full-time research;
- the individual must provide copies of official transcripts/diploma;
- the individual must have the approv

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## **11.1 Agricultural Economics**

### **11.1.1 Location**

Department of Agricultural Economics

<b>Canadian</b>	<b>International</b>	<b>Special/Exchange/Visiting</b>
Fall: May 31	Fall: March 15	Fall: Same as Canadian/International
Winter: N/A	Winter: N/A	Winter: N/A
Summer: N/A	Summer: N/A	Summer: N/A

Admission to graduate studies is competitive; accordingly, late and/or incomplete applications are considered only as time and space permit.

*section 11.2.5: Master of Science (M.Sc.); Animal Science (Thesis) (45 credits)*

letters of reference. Graduates of this program are well prepared for careers in the animal industry, the pharmaceutical sector, and many varied fields in biotechnology.

*section 11.2.6: Master of Science, Applied (M.Sc.A.); Animal Science (Non-Thesis) (45 credits)*

This non-thesis degree is oriented to animal scientists already working in industry or government, to undergraduate students inspired by concepts in sustainable and integrated animal agriculture, to project leaders interested in animal resource management, and to veterinarians. The program provides graduate training in applied areas of animal production with a view toward integrating technology and management in animal production with allied areas

- The GRE – not required, but highly recommended.

### **11.2.3.3 Application Deadlines**

The applications deadlines listed here are set by the Department of Animal Science and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at

**Affiliate Members**

Hernan Baldassarre, René Lacroix

**11.2.5 Master of Science (M.Sc.); Animal Science (Thesis) (45 credits)****Thesis Courses (36 credits)**

ANSC 680	(9)	M.Sc. Thesis 1
ANSC 681	(9)	M.Sc. Thesis 2
ANSC 682	(9)	M.Sc. Thesis 3
ANSC 683	(9)	M.Sc. Thesis 4

**Required Courses (9 credits)**

6 credits of coursework at the 500 level or higher approved by the student's advisory committee, and three 1-credit seminars.

ANSC 695	(1)	MSc General Topic Seminar
ANSC 696	(1)	MSc Research Proposal Seminar
ANSC 697	(1)	MSc Research Results Seminar

Depending on the needs and competencies of the student, additional coursework may be assigned by the supervisory committee.

**11.2.6 Master of Science, Applied (M.Sc.A.); Animal Science (Non-Thesis) (45 credits)**

The program aims to provide graduate training in applied areas of animal production with a view toward integrating technology and management in animal production with allied areas of agricultural resource utilization.

**Research Project (15 credits)**

ANSC 643	(3)	Project 1
ANSC 644	(3)	Project 2
ANSC 645	(3)	Project 3
ANSC 646	(3)	Project 4
ANSC 647	(3)	Project 5

**Complementary Courses (30 credits)**

15-30 credits from the following:

AEMA 610	(3)	Statistical Methods 2
ANSC 504	(3)	Population Genetics
ANSC 530	(3)	Experimental Techniques in Nutrition
ANSC 551	(3)	Carbohydrate and Lipid Metabolism
ANSC 552	(3)	Protein Metabolism and Nutrition
ANSC 560	(3)	Biology of Lactation
ANSC 565	(3)	Applied Information Systems
ANSC 600	(3)	Advanced Eukaryotic Cells and Viruses
ANSC 604	(3)	Advanced Animal Biotechnology
ANSC 605	(3)	Estimation: Genetic Parameters
ANSC 606	(3)	Selection Index and Animal Improvement

ANSC 622	(3)	Selected Topics in Molecular Biology
ANSC 635	(3)	Vitamins and Minerals in Nutrition
ANSC 636	(3)	Analysis - Animal Breeding Research Data
ANSC 691	(3)	Special Topic: Animal Sciences
ANSC 692	(3)	Topic in Animal Sciences 1

0-15 credits selected from 500- and 600-level courses from across the Faculty (with the possibility of up to 9 credits from outside the Faculty if deemed appropriate by the supervisor).

### 11.2.7 Doctor of Philosophy (Ph.D.); Animal Science

Since the Ph.D. is primarily a research degree, the amount of coursework required will depend on the background of the individual student, and must be approved by the student's advisory committee.

#### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### Required Courses

ANSC 701	(0)	Doctoral Comprehensive Examination
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Two seminar courses at the 500, 600, or 700 level.

### 11.2.8 Doctor of Philosophy (Ph.D.); Animal Science — Bioinformatics

#### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### Required Courses (5 credits)

ANSC 701	(0)	Doctoral Comprehensive Examination
ANSC 797	(1)	Animal Science Seminar 3
ANSC 798	(1)	Animal Science Seminar 4
COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar

#### Complementary Courses (6 credits)

Tw



Additional courses at the 500, 600, or 700 level may be required at the discretion of the candidate's supervisory committee.

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**11.3    Bioresource Engineering****11.3.1    Location**

#### ***section 11.3.8: Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) (45 credits)***

The non-thesis option is aimed at individuals already employed in industry or seeking to improve their skills in specific areas (soil and water, structures and environment, waste management, environment protection, post-harvest technology, food process engineering, environmental engineering) in order to attain a higher level of engineering qualification. Candidates must be qualified to be members of a Canadian professional engineering association such as the *Ordre des ingénieurs du Québec* (OIQ) and must maintain contact with their academic adviser in the Department of Bioresource Engineering before registration to clarify objectives, investigate project possibilities, and plan a program of study.

#### ***section 11.3.9: Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) — Environment (45 credits)***

The non-thesis Environment option is aimed at individuals already employed in industry or seeking to improve their skills in specific areas with the coordination of the McGill School of Environment.

#### ***section 11.3.10: Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) — Environmental Engineering (45 credits)***

The Environmental Engineering program emphasizes interdisciplinary fundamental knowledge, practical perspective, and awareness of environmental issues through a wide range of technical and non-technical courses offered by collaborating departments and faculties at the University.

The primary objective of the program is to train environmental professionals at the advanced level. The program is thus designed for individuals with a university undergraduate degree in engineering. Through this program, students will master specialized skills in their home disciplines and acquire a broader perspective and awareness of environmental issues.

#### ***section 11.3.11: Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) — Integrated Food and Bioprocessing (45 credits)***

This graduate program will provide students with the tools to understand how food and agricultural production interact to better manage agricultural, food, and biomass systems for the adequate supply of wholesome food, feed, fiber, biofuel, and any other bio-based material. This course-based program will present students with the skills needed to assess existing production, delivery, and quality management systems; introduce improvements; and communicate effectively with policy makers and with colleagues in multi-disciplinary teams.

The goals of this program are to provide up-to-date world class knowledge on techniques for adequate process design and management of biomass production strategies for the delivery of quality food, natural fiber, biochemicals, biomaterials, and biofuels, in a sustainable and environment-friendly way that benefits all. Training activities will include laboratory research and/or industrial/government internships.

#### ***section 11.3.12: Doctor of Philosophy (Ph.D.); Bioresource Engineering***

This is a research-based degree and is offered in the following areas: plant and animal environments; ecological engineering (ecosystem modelling, design, management and remediation); water resources management (hydrology, irrigation, drainage, water quality); agricultural machinery, mechatronics and robotics; food engineering and bio-processing; post-harvest technology; waste management and protection of the environment; bio-energy; and artificial intelligence.

#### ***section 11.3.13: Doctor of Philosophy (Ph.D.); Bioresource Engineering — Environment***

The Ph.D. Bioresource Engineering: Environment – MSE Option is coordinated through the McGill School of Environment (MSE). This option is intended for students who want to take an interdisciplinary approach in their graduate research on environmental issues. Students will learn how to transfer knowledge into action and develop an appreciation for the roles of science, politics, economics, and ethics with regard to the environment.

#### ***section 11.3.14: Graduate Certificate (Gr. Cert.); Certificate Bioresource Engineering — Integrated Water Resources Management (15 credits)***

*This program is currently not offered.*

### **11.3.3 Bioresource Engineering Admission Requirements and Application Procedures**

#### **11.3.3.1 Admission Requirements**

Candidates for M.Sc. and Ph.D. degrees and Graduate Certificates should indicate in some detail their fields of special interest when applying for admission. An equivalent cumulative grade point average of 3.0/4.0 (second class–upper division) or 3.2/4.0 during the last two years of full-time university study is required at the bachelor's level. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program. Experience after the undergraduate degree is an additional asset.

#### **Qualifying Students**

Some applicants whose academic degrees and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a Qualifying program if they have met the Graduate and Postdoctoral Studies minimum CGPA of 3.0/4.0. The course(s) to be taken in a Qualifying program will be prescribed by the academic unit concerned. Qualifying students are re

in graduate studies, **but not as candidates for a degree**. Only one Qualifying year is permitted. **Successful completion of a Qualifying program does not guarantee admission to a degree program.**

#### **Financial Aid**

**Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.** Normally, a student will not be accepted unless adequate financial support can be provided by the student and/or the student's supervisor. Academic units cannot guarantee financial support via teaching assistantships or other funds.

#### **11.3.3.2 Application Procedures**

McGill's online application form for graduate program candidates is available at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply).

See [University Regulations and Resources](#) > Graduate > Graduate Admissions and Application Procedures > : [Application Procedures](#) for detailed application procedures.

##### **11.3.3.2.1 Additional Requirements**

The items and clarifications below are additional requirements set by this department:

- Acceptance to all programs depends on a staff member agreeing to serve as the student's supervisor and the student obtaining financial support.
- The GRE – not required, but highly recommended.

#### **11.3.3.3 Application Deadlines**



BREE 651	(1)	Departmental Seminar M.Sc. 1
BREE 652	(1)	Departmental Seminar M.Sc. 2
BREE 699	(3)	Scientific Publication

**Complementary Courses (9 credits)**

500-, 600-, or 700-level courses in bioresource engineering and other fields to be determined in consultation with the Research Director.

**11.3.6 Master of Science (M.Sc.); Bioresource Engineering (Thesis) — Environment (46 credits)****Thesis Courses (32 credits)**

BREE 691	(4)	M.Sc. Thesis 1
BREE 692	(4)	M.Sc. Thesis 2
BREE 693	(4)	M.Sc. Thesis 3
BREE 694	(4)	M.Sc. Thesis 4
BREE 695	(4)	M.Sc. Thesis 5
BREE 696	(4)	M.Sc. Thesis 6
BREE 697	(4)	M.Sc. Thesis 7
BREE 698	(4)	M.Sc. Thesis 8

**Required Courses (11 credits)**

BREE 651	(1)	Departmental Seminar M.Sc. 1
BREE 652	(1)	Departmental Seminar M.Sc. 2
BREE 699	(3)	Scientific Publication
ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3

**Complementary Courses (3 credits)**

Chosen from the following:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

or another 500-, 600-, or 700-level course recommended by the Advisory Committee and approved by the Environment Option Committee.

**11.3.7 Master of Science (M.Sc.); Bioresource Engineering (Non-Thesis) — Integrated Water Resources Management (45 credits)****Research Project (6 credits)**

BREE 631	(6)	Integrated Water Resources Management Project
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(1) Environmental Seminar 1

### **Water Pollution Engineering Course**

4 credits from the following:

CIVE 651	(4)	Theory: Water / Wastewater Treatment
CIVE 652	(4)	Biological Treatment: Wastewaters
CIVE 660	(4)	Chemical and Physical Treatment of Waters

### **Air Pollution Engineering Course**

3 credits from the following:

CHEE 592	(3)	Industrial Air Pollution Control
MECH 534	(3)	Air Pollution Engineering

or an approved 500-, 600-, or 700-level alternative course.

### **Environmental Impact Course**

3 credits from the following:

GEOG 501	(3)	Modelling Environmental Systems
GEOG 551	(3)	Environmental Decisions

or an approved 500-, 600-, or 700-level alternative course.

### **Environmental Policy Course**

3 credits from the following:

URBP 506	(3)	Environmental Policy and Planning
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or an approved 500-, 600-, or 700-level alternative course.

Further complementary courses (balance of coursework to meet the 45-credit program requirement):

Remaining Engineering or Non-Engineering courses from an approved list of courses, at the 500, 600, or 700 level, from the Faculty of Engineering, Faculty of Agricultural and Environmental Sciences, Faculty of Law, Faculty of Religious Studies, Desautels Faculty of Management, and Departments of Atmospheric and Oceanic Sciences, Biology, Chemistry, Earth and Planetary Sciences, Economics, Epidemiology and Biostatistics, Geography, Occupational Health, Political Science, Sociology, and the McGill School of Environment.

## **11.3.11 Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) — Integrated Food and Bioprocessing (45 credits)**

### **Required Courses (6 credits)**

BREE 600	(1)	Project/Internship Proposal
BREE 651	(1)	Departmental Seminar M.Sc. 1
BREE 652	(1)	Departmental Seminar M.Sc. 2
BREE 699	(3)	Scientific Publication

### **Complementary Courses (39 credits)**

Minimum of 3 credits of graduate-level Statistics in any department

Minimum of 9 credits from courses selected from the following:

BREE 518	(3)	Ecological 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
BREE 603	(3)	Advanced Properties: Food and Plant Materials

Minimum of 12 credits selected from the following:

BREE 601	(6)	Integrated Food and Bioprocessing Internship 1
BREE 602	(6)	Integrated Food and Bioprocessing Internship 2
BREE 671	(6)	Project 1
BREE 672	(6)	Project 2

Minimum of 3 credits selected from the following:

AGEC 630	(3)	Food and Agricultural Policy
AGEC 633	(3)	Environmental and Natural Resource Economics
AGEC 642	(3)	Economics of Agricultural Development
AGRI 510	(3)	Professional Practice

Minimum of 3 credits selected from the following:

BTEC 502	(3)	Biotechnology Ethics and Society
FDSC 519	(3)	Advanced Food Processing
FDSC 535	(3)	Food Biotechnology
FDSC 538	(3)	Food Science in Perspective
GEOG 515	(3)	Contemporary Dilemmas of Development
NUTR 501	(3)	Nutrition in Developing Countries

9 credits of any relevant graduate-level course chosen in consultation with the Program Director.

### 11.3.12 Doctor of Philosophy (Ph.D.); Bioresource Engineering

Candidates for the Ph.D. degree will normally register for the M.Sc. degree first. In cases where the research work is proceeding very satisfactorily, or where the equivalent of the M.Sc. degree has been completed previously, candidates may be permitted to proceed directly to the Ph.D. degree.

#### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### Required Courses

BREE 701	(0)	Ph.D. Comprehensive Examination
BREE 751	(0)	Departmental Seminar Ph.D. 1
BREE 752	(0)	Departmental Seminar Ph.D. 2
BREE 753	(0)	Departmental Seminar Ph.D. 3

BREE 754 (0) Departmental Seminar Ph.D. 4

### Complementary Courses

Courses of study selected for a Ph.D. program will depend on the existing academic qualifications of the candidate, and on those needed for effective pursuit of research in the chosen field. Candidates are encouraged to take an additional course of study of their own choice in some field of the humanities, sciences, or engineering not directly related to their research. The program will be established by consultation of the candidate with a committee that will include the Research Director and at least one other professor.

### 11.3.13 Doctor of Philosophy (Ph.D.); Bioresource Engineering — Environment

#### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### Required Courses

Note: BREE 701, the comprehensive component, must be taken either late in the first, or early in the second, registration year to qualify to proceed to the completion of the Ph.D. degree.

BREE 701	(0)	Ph.D. Comprehensive Examination
BREE 751	(0)	Departmental Seminar Ph.D. 1
BREE 752	(0)	Departmental Seminar Ph.D. 2
BREE 753	(0)	Departmental Seminar Ph.D. 3
BREE 754	(0)	Departmental Seminar Ph.D. 4
ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3

#### Complementary Courses

One course chosen from the following:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

or another course at the 500, 600, or 700 level recommended by the Advisory Committee and approved by the Environment Option Committee.

### 11.3.14 Graduate Certificate (Gr. Cert.); Certificate Bioresource Engineering — Integrated Water Resources Management (15 credits)

\*\* This program is currently not offered. \*\*

#### Required Courses (9 credits)

BREE 503	(3)	Water: Society, Law and Policy
NRSC 514	(3)	Freshwater Ecosystems

PARA 515 (3) Water, Health and Sanitation

### Complementary Courses (6 credits)

3 credits from the following:

BREE 533 (3) Water Quality Management  
 CIVE 550 (3) Water Resources Management

and 3 credits from the list available in the Department chosen in consultation with the Academic Adviser.

## 11.4 Biotechnology

### 11.4.1 Location

Institute of Parasitology  
 Macdonald Campus  
 21,111 Lakeshore Road  
 Sainte-Anne-de-Bellevue QC H9X 3V9  
 Canada  
 Telephone: 514-398-7838  
 Email: [gradstudies.macdonald@mcgill.ca](mailto:gradstudies.macdonald@mcgill.ca)  
 Website: [www.mcgill.ca/biotechgradprog](http://www.mcgill.ca/biotechgradprog)

### 11.4.2 About Biotechnology

A non-thesis M.Sc.(Applied) degree and a Graduate Certificate in Biotechnology are offered.

The non-thesis program in Biotechnology offers a course-based curriculum with practical training in laboratory courses and internships offered through the Institute of Parasitology. The Institute is housed on Macdonald Campus of McGill University in beautiful Sainte-Anne-de-Bellevue about 30 kilometers from the Montreal main campus downtown.

Graduates typically enter the biotechnology sector in research, management, or sales, or accept government positions.

#### Biotechnology Programs

##### *section 11.4.5: Master of Science, Applied (M.Sc.A.); Biotechnology (Non-Thesis) (45 credits)*

Candidates must possess a bachelor's degree in the biological/molecular sciences or an equivalent program. This applied master's program is unique in Quebec. It aims to prepare students for entry into the biotechnology and pharmaceutical industry or to pursue further graduate studies in biomedicine, agriculture, or the environment. Students can choose from a wide range of complementary courses given throughout the McGill campuses to "design" their own program toward a future career choice. The program provides in-house training in molecular biology with a strong focus on the molecular/biochemical sciences. Concurrently, it provides teaching in management and gives students the opportunity to look at the business aspect of biotechnology.

A research internship of four to eight months is carried out in an active laboratory, and students learn to present and write research results. Graduates will find jobs ranging from positions as research assistants and/or technicians in biomedical or pharmaceutical laboratories to managerial or supervisory positions. They may also pursue a career in the business of biotechnology including patent and intellectual property management.

##### *section 11.4.6: Graduate Certificate (Gr. Cert.); Biotechnology (16 credits)*

Candidates must possess a bachelor's degree in the biological/molecular sciences or an equivalent program. This is a short, intense program for students wishing to deepen their understanding of biotechnology and gain hands-on experience via an intensive laboratory course using the latest molecular biology techniques. Students can choose from a wide range of complementary courses given throughout the McGill campuses to "design" their own program toward a future career choice. Graduates will find employment in research or industrial laboratories as assistants and/or technicians.

## 11.4.3 Biotechnology Admission Requirements and Application Procedures

### 11.4.3.1 Admission Requirements

Candidates for the Graduate Certificate and the M.Sc.(Applied) in Biotechnology must possess a bachelor's degree in biological sciences or equivalent with a minimum cumulative grade point average of 3.0/4.0 or 3.2/4.0 GPA in the last two full-time years of university study for the Graduate Certificate, and a minimum of 3.2/4.0 CGPA for the M.Sc.(A.), as well as all prerequisites or equivalents. Applicants are required to have sufficient background in biochemistry, cellular biology, and molecular biology, preferably at an advanced level for the Master's Applied.

#### Financial Support

**Financial support for Biotechnology programs is very limited.** Students secure funding from available sources, or must be self-sufficient. International students are strongly encouraged to secure funding from their home country or international agencies. More information is found at [www.mcgill.ca/biotechgradprog/admissions/tuition](http://www.mcgill.ca/biotechgradprog/admissions/tuition).

### 11.4.3.2 Application Procedures

McGill's online application form for graduate program candidates is available at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply).

See [University Regulations and Resources](#) > Graduate > Graduate Admissions and Application Procedures > : [Application Procedures](#) for detailed application procedures.

#### 11.4.3.2.1 Additional Requirements

The items and clarifications below are additional requirements set by this department:

- An [English Proficiency test](#) is required for most international applicants.
- The GRE – not required, but recommended.
- Other Supporting Documents – Other documents may be required for the admission process. Please consult the Biotechnology website at [www.mcgill.ca/biotechgradprog/admissions](http://www.mcgill.ca/biotechgradprog/admissions) for full details of the admission process.

### 11.4.3.3 Application Deadlines

The application deadlines listed here are set by the Institute of Parasitology and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at [www.mcgill.ca/gps/contact/graduate-program](http://www.mcgill.ca/gps/contact/graduate-program).

Canadian	International	Special/Exchange/Visiting
Fall: May 31	Fall: March 15	Fall: N/A
Winter: N/A	Winter: N/A	Winter: N/A
Summer: N/A	Summer: N/A	Summer: N/A

Admission to graduate studies is competitive; accordingly, late and/or incomplete applications are considered only as time and space permit.

International applicants are advised to apply well in advance of these dates because immigration procedures may be lengthy.

## 11.4.4 Biotechnology Faculty

Biotechnology programs are offered through the Institute of Parasitology. For a complete faculty listing, please refer to [section 11.8.4: Parasitology Faculty](#).

## 11.4.5 Master of Science, Applied (M.Sc.A.); Biotechnology (Non-Thesis) (45 credits)

### Research Project (16 credits)

BTEC 622	(2)	Biotechnology Research Project 1
BTEC 623	(6)	Biotechnology Research Project 2
BTEC 624	(6)	Biotechnology Research Project 3
BTEC 625	(2)	Biotechnology Research Project 4

### Required Courses (17 credits)

BIOT 505	(3)	Selected Topics in Biotechnology
BTEC 501	(3)	Bioinformatics

BTEC 619	(4)	Biotechnology Laboratory 2
BTEC 620	(4)	Biotechnology Laboratory 1
BTEC 621	(3)	Biotechnology Management

**Complementary Courses (12 credits)**

3 credits in Ethics at the 500 level or higher, selected in consultation with the academic adviser.

9 credits at the 500 level or higher, selected within the Faculties of Agricultural and Environmental Sciences, Medicine, Science, or Management in consultation with the academic adviser of the program in line with the interests of the student.

**11.4.6 Graduate Certificate (Gr. Cert.); Biotechnology (16 credits)****Required Courses (10 credits)**

BIOT 505	(3)	Selected Topics in Biotechnology
BTEC 620	(4)	Biotechnology Laboratory 1
BTEC 621	(3)	Biotechnology Management

**Complimentary Courses (6 credits)**

Two courses chosen from the following:

**General Topics**

ANSC 622	(3)	Selected Topics in Molecular Biology
BINF 511	(3)	Bioinformatics for Genomics
BIOL 524	(3)	Topics in Molecular Biology
BIOL 568	(3)	Topics on the Human Genome
BTEC 501	(3)	Bioinformatics
BTEC 502	(3)	Biotechnology Ethics and Society
BTEC 535	(3)	Functional Genomics in Model Organisms
BTEC 555	(3)	Structural Bioinformatics
BTEC 691	(3)	Biotechnology Practicum
EXMD 511	(3)	Joint Venturing with Industry
EXMD 602	(3)	Techniques in Molecular Genetics

**Health**

EXMD 610	(3)	Molecular Methods in Medical Research
PARA 635	(3)	Cell Biology and Infection
PHGY 518	(3)	Artificial Cells

**Environment and Food**

BREE 530	(3)	Fermentation Engineering
FDSC 535	(3)	Food Biotechnology









## **Associate Members**

*Medicine:* Louis Beaumier, Stéphanie Chevalier, L. John Hoffer, Larry Lands, Errol B. Marliss, José Morais, Jean-François Yale

*Natural Resource Sciences*

NUTR 612

(8)

Graduate Professional Practice 2 Management

NUTR 613

(14)

Graduate Professional Practice 3 Clinical Nutrition

Graduate Professional Practice 4 Community Nutrition

NUTR 657	(3)	M.Sc. (Applied) Practicum 2
NUTR 658	(3)	M.Sc. (Applied) Practicum 3
NUTR 659	(3)	M.Sc. (Applied) Practicum 4

**Required Courses (6 credits)**

NUTR 651	(3)	M.Sc. (Applied) Nutrition 1
NUTR 660	(1)	M.Sc. (Applied) Nutrition 2
NUTR 695	(1)	Human Nutrition Seminar 1
NUTR 696	(1)	Human Nutrition Seminar 2

**Complementary Courses (18 credits)**

3 credits in statistics at the 500 level or higher

The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### Required Courses

NUTR 701	(0)	Doctoral Comprehensive Examination
NUTR 797	(1)	Human Nutrition Seminar 3
NUTR 798	(1)	Human Nutrition Seminar 4

#### 11.5.10 Graduate Diploma (Gr. Dip.); Registered Dietitian Credentialing (30 credits)

\*\* This program is currently not offered. \*\*

The Graduate Diploma is open to students who have completed a graduate degree with the School of Dietetics and Human Nutrition including NUTR 513 Credentialing in Dietetics.

#### Required Courses (30 credits)

NUTR 612	(8)	Graduate Professional Practice 2 Management
NUTR 613	(14)	Graduate Professional Practice 3 Clinical Nutrition
NUTR 614	(8)	Graduate Professional Practice 4 Community Nutrition

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## 11.6 Food Science and Agricultural Chemistry

### 11.6.1 Location

Department of Food Science and Agricultural Chemistry  
Macdonald-Stewart Building, Room MS1-034  
Macdonald Campus of McGill University  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue QC H9X 3V9  
Canada  
Telephone: 514-398-7838  
Email: [gradstudies.macdonald@mcgill.ca](mailto:gradstudies.macdonald@mcgill.ca)  
Website: [www.mcgill.ca/foodscience](http://www.mcgill.ca/foodscience)

### 11.6.2 About Food Science and Agricultural Chemistry

The Department of Food Science and Agricultural Chemistry offers M.Sc. (thesis and non-thesis) and Ph.D. programs. These programs provide training in evolving interdisciplinary areas of:

- food quality;
- food safety;
- food chemistry;
- food biotechnology;
- functional ingredients;
- applied infrared spectroscopy;
- food processing;
- thermal generation of aromas and toxicants;
- marine biochemistry;
- food toxicology.

The Department has key infrastructure with all major equipment necessary for conducting research in all these areas. Our graduate program provides strong mentoring/advisory support while maintaining high flexibility for individual research projects.

***section 11.6.6: Master of Science (M.Sc.); Food Science and Agricultural Chemistry (Non-Thesis) (45 credits)***

The program offers advanced food science courses in a broad range of areas. It is suitable for students with an undergraduate degree in food science or a closely related discipline. Entry is possible from other disciplines; however, students will be expected to complete a Qualifying term or year to pick up relevant courses to orient themselves to food science. Subsequent career paths include work within the food industry and government agencies.

***section 11.6.7: Master of Science (M.Sc.); Food Science and Agricultural Chemistry — Food Safety (Non-Thesis) (45 credits)***

This 45-credit program is offered to candidates who seek further specialization in the area of food safety but do not wish to pursue independent research. These credits are obtained through a combination of graduate-level courses. The residence time for the M.Sc. (Non-Thesis) degree is three academic terms.

***section 11.6.5: Master of Science (M.Sc.); Food Science and Agricultural Chemistry (Thesis) (45 credits)***

This program is a research-based degree in various areas related to food science for candidates entering the M.Sc. program without restrictions (i.e., not requiring a Qualifying term/year). Entry into the M.Sc. (Thesis) program also hinges on the availability of supervisory staff and financing. Therefore, it is advisable that the applicant for the M.Sc. (Thesis) degree select the M.Sc. (Non-Thesis) as a second choice in the application form, to ensure admission to the Food Science graduate program. Subsequent career paths include work within the food industry, government agencies, and in research.

***section 11.6.8: Doctor of Philosophy (Ph.D.); Food Science and Agricultural Chemistry***

A Ph.D. in food science is suitable for students with an M.Sc. degree in food science or related areas who wish to become independent researchers and/or leaders in the field of food science. Candidates with a B.Sc. degree applying for the Ph.D. need to register first for the M.Sc. degree. In cases where the candidates are performing well during their first year, the

### 11.6.3.3 Application Deadlines

The application deadlines listed here are set by the Department of Food Science and Agricultural Chemistry and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at [www.mcgill.ca/gps/contact/graduate-program](http://www.mcgill.ca/gps/contact/graduate-program).

Canadian	International	Special/Exchange/Visiting
Fall: March 31	Fall: March 15	Fall: Same as Canadian/International
Winter: Sept. 15	Winter: Aug. 31	Winter: Same as Canadian/International
Summer: N/A	Summer: N/A	Summer: N/A

Admission to graduate studies is competitive; accordingly, late and/or incomplete applications are considered only as time and space permit.

International applicants are advised to apply well in adv

FDSC 690	(8)	M.Sc. Literature Review
FDSC 691	(7)	M.Sc. Research Protocol
FDSC 692	(15)	M.Sc. Thesis

**Required Courses (6 credits)**

FDSC 695	(3)	M.Sc. Graduate Seminar 1
FDSC 696	(3)	M.Sc. Graduate Seminar 2

**Complementary Courses (9 credits)**

At least 9 credits, normally from 500- or 600-level departmental courses.

**11.6.6 Master of Science (M.Sc.); Food Science and Agricultural Chemistry (Non-Thesis) (45 credits)**

This 45-credit program is offered to candidates who seek further training in Food Science, but do not wish to pursue independent research. These credits are obtained through a combination of graduate courses.

The residence time for a M.Sc. degree (Non-Thesis) is three academic terms.

**PROGRAM REQUIREMENTS****Research Project (12 credits)**

FDSC 697	(6)	M.Sc. Project Part 1
FDSC 698	(6)	M.Sc. Project Part 2

**Complementary Courses (18 credits)**

3 credits chosen from the following:

FDSC 695	(3)	M.Sc. Graduate Seminar 1
FDSC 696	(3)	M.Sc. Graduate Seminar 2

15 credits chosen from the following:

AGRI 510	(3)	Professional Practice
FDSC 515	(3)	Enzymology
FDSC 516	(3)	Flavour Chemistry
FDSC 519	(3)	Advanced Food Processing
FDSC 520	(3)	Biophysical Chemistry of Food
FDSC 535	(3)	Food Biotechnology
FDSC 536	(3)	Food Traceability
FDSC 537	(3)	Nutraceutical Chemistry
FDSC 538	(3)	Food Science in Perspective
FDSC 540	(3)	Sensory Evaluation of Foods
FDSC 545	(3)	Advances in Food Microbiology
FDSC 634	(3)	Food Toxins & Toxicants
FDSC 651	(3)	Principles of Food Analysis 2
FDSC 652	(3)	Separation Techniques in Food Analysis 2

**Elective Courses (15 credits)**

At the 500 level or higher, and chosen in consultation with the academic adviser.

### **11.6.7 Master of Science (M.Sc.); Food Science and Agricultural Chemistry — Food Safety (Non-Thesis) (45 credits)**

The program is intended to train graduate students as specialists in food safety with the expectation that graduates will be well prepared academically to take on the challenging food safety events and issues that emerge both in Canada and globally. The program will cover food safety through the entire food supply chain from food production through processing/manufacturing to the food consumer; the courses which make up the program reflect the food safety considerations at the different stages of the farm to table food supply chain.

#### **Required Courses (12 credits)**

FDSC 545	(3)	Advances in Food Microbiology
FDSC 624	(3)	Current Food Safety Issues
FDSC 626	(3)	Food Safety Risk Assessment
FDSC 634	(3)	Food Toxins & Toxicants

#### **Research Pr**



### Required Courses (9 credits)

Note: Candidates should be prepared to take the Comprehensive Preliminary Examination before the end of the second year of the program.

FDSC 700	(0)	Comprehensive Preliminary Examination
FDSC 725	(3)	Advanced Topics in Food Science
FDSC 797	(3)	Ph.D. Graduate Seminar 1
FDSC 798	(3)	Ph.D. Graduate Seminar 2

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## 11.7 Natural Resource Sciences

### 11.7.1 Location

Department of Natural Resource Sciences  
McGill University, Macdonald Campus  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue QC H9X 3V9  
Canada  
Telephone: 514-398-7838  
Email: [gradstudies.macdonald@mcgill.ca](mailto:gradstudies.macdonald@mcgill.ca)  
Website: [www.mcgill.ca/nrs](http://www.mcgill.ca/nrs)

### 11.7.2 About Natural Resource Sciences





#### **11.7.3.2.1 Additional Requirements**

The items and clarifications below are additional requirements set by this department:

- Acceptance to all programs normally depends on a staff member agreeing to serve as the student'

**Associate Professors**

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

Gordon Hickey; B.Sc.(Melb.), Ph.D.(Br. Col.), EMPA(ANZSOG, Monash) – *Sustainable Natural Resource Management*

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

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

Paul J. Thomassin; B.Sc.(McG.), M.S., Ph.D.(Hawaii Pac.) – *Agricultural and Environmental Economics*

Terry A. Wheeler; B.Sc.(Nfld.), M.Sc., Ph.D.(Guelph) – *Entomology*

**Assistant Professors**

Asim Biswas; B.Sc.(BCKV), M.Sc.(UAS Bangalore), Ph.D.(Sask.) – *Soil Physics*

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

Sebastien Faucher; B.Sc., Ph.D.(Montr.) – *Microbiology*

Jessica Head; B.Sc.(McG.), Ph.D.(Ott.) – *Ecotoxicology*

Nicolas Kosoy; B.Sc.(Univ. Simon Bolivar), M.Sc.(Univ. of Kent, Univ. Autonoma de Barcelona), Ph.D.(Univ. Autonoma de Barcelona) (*joint appt. with McGill School of Environment*) – *Ecological Economics*

Christopher Solomon; B.Sc.(Cornell), Ph.D.(Wisc.) – *Wildlife Biology*

**Associate Members**

David Green (*Redpath Museum*)

Marilyn Scott (*Institute of Parasitology*)

**Adjunct Professors**

Doug Crump

Kimberly Fernie

Charles W. Greer

Suren Kulshreshtha

**Affiliate Member**

Geoffrey Sunahara

**11.7.5 Master of Science (M.Sc.); Agricultural Economics (Thesis) (46 credits)**

Students may specialize, by way of their research program, in agri-business, development, finance, marketing and trade, policy, and resource and ecological economics.

**Thesis Courses (27 credits)**

AGEC 691	(6)	M.Sc. Thesis 1
AGEC 692	(3)	M.Sc. Thesis 2
AGEC 693	(6)	M.Sc. Thesis 3
AGEC 694	(6)	M.Sc. Thesis 4
AGEC 695	(6)	M.Sc. Thesis 5

**Required Course**

(1 credit)

AGEC 690	(1)	Seminar
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**Complementary Courses (18 credits)**

6 credits, two theory courses chosen from:

AGEC 633	(3)	Environmental and Natural Resource Economics
ECON 610	(3)	Microeconomic Theory 1
ECON 611	(3)	Microeconomic Theory 2
ECON 620	(3)	Macroeconomic Theory 1
ECON 621	(3)	Macroeconomic Theory 2

3 credits, one quantitative methods course chosen from:

AEMA 610	(3)	Statistical Methods 2
ECON 525	(3)	Project Analysis
ECON 662	(6)	Econometrics
ECON 665	(3)	Quantitative Methods
MGSC 679	(3)	Applied Deterministic Optimization

9 credits, three 3-credit courses at the 500, 600, or 700 level, at least one of which must be in Agricultural Economics, chosen in consultation with the Agricultural Economics Adviser.

#### **11.7.6 Master of Science (M.Sc.); Entomology (Thesis) (45 credits)**

##### **Thesis Courses (36 credits)**

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

##### **Required Courses (3 credits)**

NRSC 643	(1)	Graduate Seminar 1
NRSC 644	(1)	Graduate Seminar 2
NRSC 651	(1)	Graduate Seminar 3

##### **Complementary Courses (6 credits)**

Two 3-credit courses at the 500, 600, or 700 level; normally one of these will be a course in statistics.

#### **11.7.7 Master of Science (M.Sc.); Entomology (Thesis) — Environment (46 credits)**

##### **Thesis Courses (36 credits)**

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

##### **Required Courses (7 credits)**

Foundations of Environmental Polic

ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
NRSC 651	(1)	Graduate Seminar 3

**Complementary Courses (3 credits)**

One of the following courses:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

or another 500-, 600-, or 700-level course recommended by the Advisory Committee and approved by the Environment Option Committee.

**11.7.8 Master of Science (M.Sc.); Entomology (Thesis) — Neotropical Environment (48 credits)****Thesis Courses (36 credits)**

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

**Required Courses (9 credits)**

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy
NRSC 643	(1)	Graduate Seminar 1
NRSC 644	(1)	Graduate Seminar 2
NRSC 651	(1)	Graduate Seminar 3

Note: Participation in the MSE-Panama Symposium presentation in Montreal is also required.

**Elective Courses (3 credits)**

3 credits, at the 500 level or higher, on environmental issues to be chosen in consultation with and approved by the student's supervisor AND the Neotropical Environment Options Director.

**11.7.9 Master of Science (M.Sc.); Microbiology (Thesis) (45 credits)****Thesis Courses (36 credits)**

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

**Required Courses (3 credits)**

NRSC 643	(1)	Graduate Seminar 1
NRSC 644	(1)	Graduate Seminar 2
NRSC 651	(1)	Graduate Seminar 3

**Complementary Courses (6 credits)**

Two 3-credit 500-, 600-, or 700-level courses; normally one of these will be a course in statistics.

**11.7.10 Master of Science (M.Sc.); Microbiology (Thesis) — Environment (46 credits)****Thesis Courses (36 credits)**

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

**Required Courses (7 credits)**

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
NRSC 651	(1)	Graduate Seminar 3

**Complementary Course (3 credits)**

One of the following courses:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

or another 500-, 600-, or 700-level course recommended by the Advisory Committee and approved by the Environment Option Committee.

**11.7.11 Master of Science (M.Sc.); Renewable Resources (Thesis) (45 credits)**

Includes Micrometeorology, Forest Science, Soil Science and Wildlife Biology as areas of research.

**Thesis Courses (36 credits)**

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

**Required Courses (3 credits)**

NRSC 643	(1)	Graduate Seminar 1
NRSC 644	(1)	Graduate Seminar 2
NRSC 651	(1)	Graduate Seminar 3

**Complementary Courses (6 credits)**

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**11.7.12 Master of Science (M.Sc.); Renewable Resources (Thesis) — Environment (46 credits)****Thesis Courses (33 credits)**

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 694	(9)	M.Sc. Thesis Research 4

**Required Courses (7 credits)**

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
NRSC 651	(1)	Graduate Seminar 3

**Complementary Courses (6 credits)**

3 credits, one of the following courses:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

or another 500-, 600-, or 700-level course recommended by the Advisory Committee and approved by the Environment Option Committee.

3 credits of statistics at the 500, 600, or 700 level.

**11.7.13 Master of Science (M.Sc.); Renewable Resources (Thesis) — Neotropical Environment (48 credits)****Thesis Courses (36 credits)**

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

**Required Courses (9 credits)**

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy
NRSC 643	(1)	Graduate Seminar 1
NRSC 644	(1)	Graduate Seminar 2
NRSC 651	(1)	Graduate Seminar 3

Note: Participation in the MSE-Panama Symposium presentation in Montreal is also required.

**Elective Courses (3 credits)**



Course requirements are specified by the staff in the discipline, but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

### 11.7.16 Doctor of Philosophy (Ph.D.); Entomology — Environment

#### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### Required Courses

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
NRSC 701	(0)	Ph.D. Comprehensive Examination
NRSC 754	(0)	Graduate Seminar 7

#### Coursework

Course requirements are specified by the staff in the discipline, but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

#### Complementary Courses

One course chosen from the following:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

or another 500-, 600-, or 700-level course recommended by the Advisory Committee and approved by the Environment Option Committee.

### 11.7.17 Doctor of Philosophy (Ph.D.); Entomology — Neotropical Environment

#### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### Required Courses

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy
NRSC 701	(0)	Ph.D. Comprehensive Examination
NRSC 751	(0)	Graduate Seminar 4
NRSC 752	(0)	Graduate Seminar 5
NRSC 753	(0)	Graduate Seminar 6
NRSC 754	(0)	Graduate Seminar 7

Note: Participation in the MSE-Panama Symposium presentation in Montreal is also required.

### **Elective Courses**

3 credits, at the 500 level or higher, on environmental issues to be chosen in consultation with and approved by the student's supervisor AND the Neotropical Environment Options Director.

### **11.7.18 Doctor of Philosophy (Ph.D.); Microbiology**

Includes Micrometeorology, Forest Science, Soil Science, and Wildlife Biology.

#### **Thesis**

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### **Required Courses**

NRSC 701	(0)	Ph.D. Comprehensive Examination
NRSC 751	(0)	Graduate Seminar 4
NRSC 752	(0)	Graduate Seminar 5
NRSC 753	(0)	Graduate Seminar 6
NRSC 754	(0)	Graduate Seminar 7

#### **Coursework**

Course requirements are specified by the staff in the discipline, but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

### **11.7.19 Doctor of Philosophy (Ph.D.); Microbiology — Bioinformatics**

#### **Thesis**

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous

COMP 618	(3)	Bioinformatics: Functional Genomics
PHGY 603	(3)	Systems Biology and Biophysics

Additional courses at the 500, 600, or 700 level may be required at the discretion of the candidate's supervisory committee.

### 11.7.20 Doctor of Philosophy (Ph.D.); Microbiology — Environment

#### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### Required Courses

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
NRSC 701	(0)	Ph.D. Comprehensive Examination
NRSC 754	(0)	Graduate Seminar 7

#### Coursework

Course requirements are specified by the staff in the discipline, but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

#### Complementary Courses

One course chosen from the following:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

or another 500-, 600-, or 700-level course recommended by the Advisory Committee and approved by the Environment Option Committee.

### 11.7.21 Doctor of Philosophy (Ph.D.); Renewable Resources

Includes Micrometeorology, Forest Science/meteorology

NRSC 751	(0)	Graduate Seminar 4
NRSC 752	(0)	Graduate Seminar 5
NRSC 753	(0)	Graduate Seminar 6
NRSC 754	(0)	Graduate Seminar 7

### Coursework

Course requirements are specified by the staff in the discipline, but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

## 11.7.22 Doctor of Philosophy (Ph.D.); Renewable Resources — Environment

### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

### Required Courses

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
NRSC 701	(0)	Ph.D. Comprehensive Examination
NRSC 754	(0)	Graduate Seminar 7

### Coursework

Course requirements are specified by the staff in the discipline but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

### Complementary Courses

One course chose from the following:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

or other graduate course recommended by the Advisory Committee and approved by the Environment Option Committee.

## 11.7.23 Doctor of Philosophy (Ph.D.); Renewable Resources — Neotropical Environment

### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

### Required Courses



inter-university Quebec *Centre for Host-Parasite Interactions* and is affiliated with the *J.D. MacLean Centre for Tropical Diseases* at the McGill University



### 11.8.3.3 Application Deadlines

The application deadlines listed here are set by the Institute of Parasitology and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at [www.mcgill.ca/gps/contact/graduate-program](http://www.mcgill.ca/gps/contact/graduate-program).

Canadian	International	Special/Exchange/Visiting
Fall: May 31	Fall: March 15	Fall: Same as Canadian/International
Winter: Oct. 15	Winter: Aug. 31	Winter: Same as Canadian/International
Summer: N/A	Summer: N/A	Summer: N/A

Admission to graduate studies is competitive; accordingly, late and/or incomplete applications are considered only as time and space permit.

International applicants are advised to apply well in advance of these dates because immigration procedures may be lengthy.

### 11.8.4 Parasitology Faculty

#### Director

Timothy G. Geary

#### Professors

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

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

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

#### Associate Professors

Robin N. Beech; B.Sc.(Nott.), Ph.D.(Edin.)

Elias Georges; B.Sc., Ph.D.(McG.)

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

Paula Ribeiro; B.Sc., Ph.D.(York)

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

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

#### Assistant Professors

Jerry Aldridge; B.Sc.(Lenoir-Rhyne), Ph.D.(Wake Forest)

Jianguo Xia; B.Sc.(Peking), M.Sc., Ph.D.(Alta.)

#### Associate Members

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

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

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

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

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

#### Adjunct Professors

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

John P. Dalton; B.Sc., Ph.D.(Dublin)

Sean Forrester; B.Sc.(Cape Breton), M.Sc.(Lake.), Ph.D.(McG.)

Raymond Hui; B.Sc., M.Sc., Ph.D.(Tor.)

Traian Sulea; M.Sc.(Polytechnic, Timi oara), Ph.D.(West, Timi oara)

### 11.8.5 Master of Science (M.Sc.); Parasitology (Thesis) (46 credits)

#### Thesis Courses (32 credits)

PARA 687	(10)	Thesis Research 1
PARA 688	(10)	Thesis Research 2
PARA 689	(12)	Thesis Research 3

#### Required Courses (14 credits)

PARA 600	(4)	Thesis Proposal for M.Sc
PARA 606	(2)	Parasitology Seminar
PARA 607	(2)	Parasitology Research Seminar
PARA 635	(3)	Cell Biology and Infection
PARA 655	(3)	Host-Parasite Interactions

Other course work in related subjects may be required, depending upon the candidate's background and research orientation.

### 11.8.6 Doctor of Philosophy (Ph.D.); Parasitology

#### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### Required Courses (10 credits)

PARA 635	(3)	Cell Biology and Infection
PARA 655	(3)	Host-Parasite Interactions
PARA 700	(0)	Thesis Proposal for Ph.D
PARA 710	(2)	Parasitology Ph.D. Seminar 1
PARA 711	(2)	Parasitology Ph.D. Seminar 2

\* Note: In the first year of the doctoral program, the candidates must successfully complete a written thesis proposal and make an oral presentation on their proposed research to fulfil PARA 700, the comprehensive component.

Depending upon the candidate's background, other course work may be required.

### 11.8.7 Doctor of Philosophy (Ph.D.); Parasitology — Bioinformatics

#### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, org

PARA 700	(0)	Thesis Proposal for Ph.D
PARA 710	(2)	Parasitology Ph.D. Seminar 1
PARA 711	(2)	Parasitology Ph.D. Seminar 2

**Complementary Courses (6 credits)**

6 credits chosen from the following:

BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics
PHGY 603	(3)	Systems Biology and Biophysics

Additional courses at the 500, 600, or 700 level may be required at the discretion of the candidate's supervisory committee.

**11.8.8 Doctor of Philosophy (Ph.D.); Parasitology — Environment****Thesis**

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

**Required Courses (14 credits)**

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
PARA 700	(0)	Thesis Proposal for Ph.D
PARA 710	(2)	Parasitology Ph.D. Seminar 1
PARA 711	(2)	Parasitology Ph.D. Seminar 2

**Complementary Courses (6 credits)**

One of the following courses:

PARA 635	(3)	Cell Biology and Infection
PARA 655	(3)	Host-Parasite Interactions

One course chosen from the following:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

Or another graduate course recommended by the Advisory Committee and approved by the Environment Option Committee.

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## 11.9 Plant Science

### 11.9.1 Location

Department of Plant Science  
Macdonald Campus  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue QC H9X 3V9  
Canada  
Telephone: 514-398-7838  
Email: [gradstudies.macdonald@mcgill.ca](mailto:gradstudies.macdonald@mcgill.ca)  
Website: [www.mcgill.ca/plant](http://www.mcgill.ca/plant)

### 11.9.2 About Plant Science

The Department offers an M.Sc. and Ph.D. in Plant Science with options in Bioinformatics, Environment, or Neotropical Environment, and provides for study in all fields of plant science. Research facilities—both field and laboratory—are available for investigations in plant breeding, crop physiology, crop management, crop quality, plant ecology, the epidemiology and biology of plant diseases, epigenetics, biosystematics, recombinant DNA technology, mycology, weed biology, tissue culture, plant biochemistry, and bioinformatics. Facilities include:

- Horticultural Research Centre;
- Emile A. Lods Agronomy Research Centre;
- greenhouses;
- growth cabinets;
- McGill Univ

***section 11.9.8: Master of Science (M.Sc.); Plant Science (Thesis) — Neotropical Environment (48 credits)***

career paths are varied, but include work with government agencies, the private sector, or further graduate studies in a related field. This option has an added emphasis on neotropical environments, including additional courses and seminars. Part of the program takes place in Panama.

***section 11.9.9: Master of Science, Applied (M.Sc.A.); Plant Science (Non-Thesis) (45 credits)***

This M.Sc. in Plant Science requires about 18 months or four to five terms for completion. Overall, the program consists of graduate-level courses, seminars, and a research project. The courses and the research project are chosen and defined with the help of an advisory committee. Subsequent career paths are varied, but include work with government agencies, the private sector, or further graduate studies in a related field.

***section 11.9.10: Doctor of Philosophy (Ph.D.); Plant Science***

This Ph.D. in Plant Science requires approximately three years for completion. Overall, the program consists of seminars and a research project leading to a thesis. Students must also complete a comprehensive examination within their first year of study. The research project is defined with the help of an advisory committee. Subsequent career paths are varied, but include work with government agencies, universities, or the private sector.

***section 11.9.11: Doctor of Philosophy (Ph.D.); Plant Science — Bioinformatics***

This Ph.D. in Plant Science requires approximately three years for completion. Overall, the program consists of seminars and a research project leading to a thesis. Students must also complete a comprehensive examination within their first year of study. The research project is defined with the help of an advisory committee. Subsequent career paths are varied, but include work with government agencies, universities, or the private sector. This Bioinformatics option has an added emphasis on bioinformatics, including additional courses and seminars. The goal of this option is to train students to become researchers in the interdisciplinary field of bioinformatics, which lies at the intersection of biological/medical sciences and mathematics/computer science/engineering.

***section 11.9.12: Doctor of Philosophy (Ph.D.); Plant Science — Environment***

This Ph.D. in Plant Science requires approximately three years for completion. Overall, the program consists of seminars and a research project leading to a thesis. Students must also complete a comprehensive examination within their first year of study. The research project is defined with the help of an advisory committee. Subsequent career paths are varied, but include work with government agencies, universities, or the private sector. This Environment graduate option has an added emphasis on environmental sciences, including additional courses and seminars. It is aimed at students who wish to take an interdisciplinary approach in their graduate research on environmental issues and who wish to benefit from interactions with students from a wide range of disciplines.

***section 11.9.13: Doctor of Philosophy (Ph.D.); Plant Science — Neotropical Environment***

This Ph.D. in Plant Science requires approximately three years for completion. Overall, the program consists of seminars and a research project leading to a thesis. Students must also complete a comprehensive examination within their first year of study. The research project is defined with the help of an advisory committee. Subsequent career paths are varied, but include work with government agencies, universities, or the private sector. This option has an added emphasis on neotropical environments, including additional courses and seminars. Part of the program takes place in Panama.

***section 11.9.14: Graduate Certificate (Gr. Cert.); Bioinformatics (15 credits)***

The Graduate Certificate in Bioinformatics is a new cross-disciplinary program that teaches students the foundations of bioinformatics thinking, methodology, and applications through hands-on experience with computers and bioinformatics tools. The program introduces students to many areas of application such as medicine, agriculture, and chemistry. Required courses include basic UNIX skills, genomics data, common bioinformatics software, relational databases, and web resources. The Certificate is completed in one term (Winter term **only**) after which graduates may go on to pursue successful careers in the biomedical, biotechnology, and biosciences fields.

**11.9.3 Plant Science Admission Requirements and Application Procedures****11.9.3.1 Admission Requirements****General**

The minimum cumulative grade point average (CGPA) is 3.0/4.0 (second class–upper division) or a GPA of 3.2/4.0 during the last two years of full-time university study. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program.

**Ph.D.**

Ph.D. candidates are required to have an M.Sc. degree in an area related to the chosen field of specialization for the Ph.D. program. Outstanding M.Sc. students may be permitted to transfer to the second year of the Ph.D. program following one year of study.

**Qualifying Students**

Some applicants whose academic degrees and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a Qualifying program if they have met the Graduate and Postdoctoral Studies minimum CGPA of 3.0/4.0. The course(s) to be taken in a Qualifying program will be prescribed by the academic unit concerned. Qualifying students are registered in graduate studies, but not as candidates for a degree. Only one Qualifying year is permitted. Successful completion of a qualifying program does not guarantee admission to a degree program.

#### **Financial Aid**

**Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.** Normally, a student will not be accepted unless adequate financial support can be provided by the student and/or the student's supervisor. Academic units cannot guarantee financial support via teaching assistantships or other funds.

#### **11.9.3.2 Application Procedures**

McGill's online application form for graduate program candidates is available at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply).

See [University Regulations and Resources](#) > Graduate > Graduate Admissions and Application Procedures

**Associate Professors**

Ajjamada C. Kushalappa; B.Sc., M.Sc.(B'Lore), Ph.D.(Flor.)

Philippe Seguin; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(Minn.)

Jaswinder Singh; B.Sc.(Agr.), M.Sc.(Punjab), Ph.D.(Syd.)

Martina V. Stromvik; B.A., M.Sc.(Stockholm), Ph.D.(Ill.)

**Assistant Professors**

Valérie Gravel; B.Sc.(Agr.), M.Sc., Ph.D.(Laval)

Olivia Wilkins; B.Sc.(Manit.), Ph.D.(Tor.)

**Faculty Lecturers**

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

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

**Associate Members**

Gregory Brown (*Department of Biology*)

Timothy A. Johns (*School of Dietetics and Human Nutrition*)

**Adjunct Professors**

Annick Bertrand

Bao-Luo Ma

**11.9.5 Master of Science (M.Sc.); Plant Science (Thesis) (45 credits)****Thesis Courses (39 credits)**

PLNT 664	(12)	M.Sc. Thesis 1
PLNT 665	(12)	M.Sc. Thesis 2
PLNT 666	(15)	M.Sc. Thesis 3

**Required Invitational Seminar**

PLNT 690	(0)	Research Horizons in Plant Science 1
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**Complementary Courses (6 credits)**

Two graduate-level courses

Additional courses may be required at the discretion of the candidate's supervisory committee.

**11.9.6 Master of Science (M.Sc.); Plant Science (Thesis) — Bioinformatics (48 credits)****Thesis Courses (39 credits)**

PLNT 664	(12)	M.Sc. Thesis 1
PLNT 665	(12)	M.Sc. Thesis 2
PLNT 666	(15)	M.Sc. Thesis 3

**Required Invitational Seminar**

PLNT 690	(0)	Research Horizons in Plant Science 1
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**Required Courses (3 credits)**

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar
PLNT 691	(0)	Research Horizons in Plant Science 2

**Complementary Courses (6 credits)**

Chosen from the following:

BINF 511	(3)	Bioinformatics for Genomics
BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics
PHGY 603	(3)	Systems Biology and Biophysics

Additional courses at the 500 or 600 level may be required at the discretion of the candidate's advisory committee.

**11.9.7 Master of Science (M.Sc.); Plant Science (Thesis) — Environment (48 credits)**

**Thesis Courses (39 credits)**

PLNT 664	(12)	M.Sc. Thesis 1
PLNT 665	(12)	M.Sc. Thesis 2
PLNT 666	(15)	M.Sc. Thesis 3

**Required Invitational Seminar**

PLNT 690	(0)	Research Horizons in Plant Science 1
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**Required Courses (6 credits)**

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3

**Complementary Courses (3 credits)**

Chosen from one of the following courses:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4



or other graduate course recommended by the Advisory Committee and approved by the Environment Option Committee.

Additional courses may be required at the discretion of the candidate's Supervisory Committee.

### 11.9.8 Master of Science (M.Sc.); Plant Science (Thesis) — Neotropical Environment (48 credits)

Candidates must participate in the STRI seminar series when in residence in Panama, and in the MSE-Panama Symposium Presentation in Montreal.

#### Thesis Courses (39 credits)

PLNT 664	(12)	M.Sc. Thesis 1
PLNT 665	(12)	M.Sc. Thesis 2
PLNT 666	(15)	M.Sc. Thesis 3

#### Required Invitational Seminar

PLNT 690	(0)	Research Horizons in Plant Science 1
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#### Required Courses (6 credits)

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy

#### Elective Courses (3 credits)

3 credits at the 500 level or higher, on environmental issues to be chosen in consultation with and approved by the student's supervisor AND the Neotropical Environment Options Director.

Additional courses may be required at the discretion of the candidate's supervisory committee.

### 11.9.9 Master of Science, Applied (M.Sc.A.); Plant Science (Non-Thesis) (45 credits)

N.B. this program is under revision. Please contact Ms. Carolyn Bowes for information.

### 11.9.10 Doctor of Philosophy (Ph.D.); Plant Science

Students who have taken their M.Sc. degree at McGill University will be required to spend one term in study at another research institution.

#### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

#### Required Invitational Seminar

PLNT 690	(0)	Research Horizons in Plant Science 1
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#### Required Courses

\* Must be taken within one year of registering

PLNT 701	(0)	Doctoral Comprehensive Examination
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### Complementary Courses

Any courses at the 500 or 600 level deemed necessary for the chosen area of specialization.

#### 11.9.11 Doctor of Philosophy (Ph.D.); Plant Science — Bioinformatics

##### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

##### Required Invitational Seminar

PLNT 690	(0)	Research Horizons in Plant Science 1
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##### Required Courses (3 credits)

\* Must be taken within one year of registering.

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar
PLNT 701*	(0)	Doctoral Comprehensive Examination

##### Complementary Courses (6 credits)

Two courses to be chosen from the following:

BINF 511	(3)	Bioinformatics for Genomics
BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics
PHGY 603	(3)	Systems Biology and Biophysics

Additional courses at the 500 or 600 level may be required at the discretion of the candidate's advisory committee.

#### 11.9.12 Doctor of Philosophy (Ph.D.); Plant Science — Environment

##### Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

##### Required Invitational Seminar

PLNT 690	(0)	Research Horizons in Plant Science 1
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##### Required Courses (6 credits)

\* Must be taken within the first year of registering

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1

ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
PLNT 701*	(0)	Doctoral Comprehensive Examination

### **Coursework**

Course requirements are specified by the staff in the discipline, but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

### **Complementary Courses (3 credits)**

One course chosen from the following:

ENVR 519	(3)	Global Environmental Politics
	(3)(3)	Environmental Measurement and Modelling

**11.9.14 Graduate Certificate (Gr. Cert.); Bioinformatics (15 credits)**

**Required Courses (9 credits)**

BINF 511	(3)	Bioinformatics for Genomics
BINF 660	(3)	Advances in Bioinformatics
BTEC 555	(3)	Structural Bioinformatics

**Complementary Courses (6 credits)**

6 credits from the following:

ANSC 565	(3)	Applied Information Systems
BMDE 652	(3)	Bioinformatics: Proteomics
COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar
COMP 616N1	(1.5)	Bioinformatics Seminar
COMP 616N2	(1.5)	Bioinformatics Seminar
COMP 618	(3)	Bioinformatics: Functional Genomics
GLIS 673	(3)	Bioinformatics Resources
HGEN 663	(3)	Beyond the Human Genome