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

1. McGill University reserves the right to mak

Publication Information

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Not all courses are offered every year and changes can be made after publication. Always check the Minerva Class Schedule link at https://horizon.mcgill.ca/pban1/bwckschd.p_disp_dyn_sched for the most up-to-date information on whether a course is offered.

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, and for recommending to Senate those who may receive the degrees, diplomas, and certificates.

3 Important Dates 2015–2016

For all dates relating to the academic year consult www.mcgill.ca/importantdates

4 Graduate Studies at a Glance

Please refer to the eCalendar > University Regulations and Resources > Graduate > : Graduate Studies at a Glance for a list of all graduate departments and degrees currently being offered.

5 Program Requirements

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); 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 various departmental sections of the Graduate and Postdoctoral Studies Calendar.

The minimum credit requirement for a 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 to their McGill degree. In the cases where only a letter grade is used, a B- is the minimum passing grade and the letter grade 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 another degree, they could be credited toward the McGill degree, keeping in mind the one-third rule as described abo

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 available at the French Language Centre. The teaching is intensive and class sizes are kept small. While undergraduate students are given preference, graduate students who are certain to devote sufficient time to the work may enrol.

Thesis – Doctoral

The thesis for the Ph.D. degree must display original scholarship, expressed in good literate style and must be a distinct contribution to knowledge. **Formal notice of a thesis title and names of examiners must be submitted to the Thesis section of GPS on the** Nomination of Examiners and Thesis Submission **form, available at** www.mcgill.ca/gps/thesis/guidelines/initial-submission, **in accordance with the dates on** www.mcgill.ca/importantdates, **at the same time as the thesis is submitted**. The list of examiners must be approved by the Department Chair, the supervisor and the student. The Thesis section of GPS should be notified of any subsequent change of title as early as possible. Guidelines and deadlines available at www.mcgill.ca/gps/thesis/guidelines

Special regulations for the Ph.D. degree in particular departments are stated in the entries of those departments.

Thesis Oral Examination – Doctoral

After the thesis has been received and approved, a final oral examination is held on the subject of the thesis and subjects intimately related to it. This is conducted in the presence of a Committee of at least five members presided over by a Pro-Dean nominated by Graduate and Postdoctoral Studies. The Chair of the candidate's department and the Thesis Supervisor are regularly invited to be members of the Committee; at least one member of the Committee is appointed from outside the candidate's department. Guidelines available at www.mcgill.ca/gps/thesis/guidelines

5.3 Ad Personam Programs (Thesis Option Only)

In very rare circumstances, an applicant who wishes to begin a Master's (thesis option only) or Ph.D. studies of an interdisciplinary nature involving joint supervision by two departments, each of which is authorized by the Government of Quebec to offer its own graduate programs, may be admitted to an Ad Personam program. For more information, see www.mcgill.ca/gradapplicants/programs and contact the relevant department.

5.4 Coursework for Graduate Programs, Diplomas, and Certificates

Upper-level undergraduate courses (excluding 500-level) may not be considered for degrees, diplomas, and certificates unless they are already listed as required courses in the approved program description. If an upper-level undergraduate course (excluding 500 level) is taken by a graduate student, it must come as a recommendation from the Graduate Program Director in the department. The recommendation must state if the undergraduate course is an additional requirement for the program (must obtain B- or better) or if the course is to be in the program (will be flagged as such on the record and fees will be charged). See document at www.mcgill.ca/gps/students/registration#courses-reg.

English and French language courses offered by the French Language Centre (Faculty of Arts) or the School of Continuing Studies may not be taken for coursework credits toward a graduate program.

All substitutions for coursework in graduate programs, diplomas, and certificates must be approved by GPS.

Courses taken at other institutions to be part of the requirements of a program of study must be approved by GPS before registration. Double counting is not permitted.

6 Graduate Admissions and Application Procedures

Please refer to the eCalendar, University Regulations and Resources > Graduate > : Graduate Admissions and Application Procedures for information on:

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iv. Postdocs with full responsibility for teaching a course should be compensated 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 their a

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

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

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 approval of a McGill professor to supervise the research and of the Unit;
- the individual must have adequate proficiency in English, but is not required to provide official proof of English competency to Enrolment Services;
- the individual must comply with regulations and procedures governing research ethics and safety and obtain the necessary training;
- the individual will be provided access to McGill libraries, email, and required training in research ethics and safety. Any other University services must be purchased (e.g., access to athletic facilities);
- the individual must arrange for basic health insurance coverage prior to arrival at McGill and may be required to provide proof of coverage.

9 Graduate Studies Guidelines and Policies

Refer to the eCalendar under University Regulations and Resources > Graduate > : Guidelines and Policies for information on the following:

- Guidelines and Regulations for Academic Units on Graduate Student Advising and Supervision
- Policy on Graduate Student Research Progress Tracking
- Ph.D. Comprehensives Policy
- Graduate Studies Reread Policy
- Failure Policy
- Guideline on Hours of Work

Information on Research Policies and Guidelines, Patents,

11.1 Agricultural Economics

11.1.1 Location

Department of Agricultural Economics
Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue QC H9X 3V9
Canada

Telephone: 514-398-7838
Email: gradstudies.macdonald@mcgill.ca
Website: agrecon.mcgill.ca

11.1.2 About Agricultural Economics

The goal of graduate training in Agricultural Economics is to provide students with the applied concepts and tools to identify, define, and analyze economic problems affecting the performance of the agri-food sector and the environment. Attention is given to:

- the development of analytical skills in the broad areas of agricultural, environmental, and ecological economics;
- development;
- resource allocation in production and marketing in agriculture.

The program prepares graduates for rewarding careers in research, analysis, and decision-making in academia, private and NGO sectors, and government. For more information on the **M.Sc. in Agricultural Economics**, please refer to section 11.7 Natural Resource Sciences. Further details can also be found at agrecon.mcgill.ca/grad.htm.

11.1.3 Agricultural Economics Admission Requirements and Application Procedures

11.1.3.1 Admission Requirements

To be considered eligible for direct admission to the M.Sc. program, the applicant must hold an undergraduate degree with a Cumulative Grade Point Average (CGPA) of **at least** 3.0 out of a possible 4.0 (second class upper division or equivalent) or a CGPA of 3.2/4.0 for the last two full-time academic years.

The ideal preparation is an undergraduate degree in Agricultural Economics or Economics, including undergraduate courses in intermediate economic theory (micro and macro), calculus, algebra, statistics, and econometrics. Candidates considered to have insufficient preparation in economics will be asked to take up to two additional undergraduate courses as part of their M.Sc. program.

When an applicant does not have sufficient background in economics for admission to the M.Sc., they may be admitted to a Qualifying program of one year of undergraduate courses. The CGPA requirement is the same as for the M.Sc.

Details on the M.Sc. are available from section 11.7 Natural Resource Sciences > section 11.7.5 Master of Science (M.Sc.) Agricultural Economics (Thesis) (46 credits). Further details can also be found at http://agrecon.mcgill.ca/grad.htm.

11.1.3.2 Application Procedures

McGill's online application form for graduate program candidates is available at www.mcgill.ca/gradapplicants/apply

See: Application Procedures for detailed application procedures.

11.1.3.2.1 Additional Requirements

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

- Curriculum Vitae
- Research Proposal ± not required, but highly recommended
- Letters of Reference (2) **must** be printed on the letterhead of the referee's university or organization, and uploaded to the McGill application system
- The GRE ± not required, but highly recommended

11.1.3.3 Application Deadlines

The application deadlines listed here are set by the Department of Agricultural Economics 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.

Canadian	International	Special/Exchange/Visiting
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, and 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.

11.1.4 Agricultural Economics Faculty

Program Director
P.J. Thomassin

Associate Professors
J.C. Henning; B.Sc., Ph.D.(Guelph)
P.J. Thomassin; B.Sc.(Agr.)(McG.), M.S., Ph.D.(Hawaii Pac.)

Assistant Professor
N. Kosoy; B.Sc.(Univ. Simon Bolivar), M.Sc.(Kent), M.Sc., Ph.D.(Univ Autonoma de Barcelona)

11.2 Animal Science

11.2.1 Location

Department of Animal Science
Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue QC H9X 3V9
Canada

Telephone: 514-398-7838
Email: gradstudies.macdonald@mcgill.ca
Website: www

section 11.2.5 Master of Science (M.Sc.), Animal Science (Thesis) (45 credits)

Two one-semester courses and three seminar courses at the postgraduate level complement an area of research (resulting in a thesis) under the supervision of one of our staff members, many of whom are leaders in their respective fields. Entrance to this program is highly competitive, requiring an excellent B.Sc. and 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

- 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 is 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 www.mcgill.ca/gps/contact/graduate-program.

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 ®eld 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 that the research advances knowledge in the ®eld. Finally, the thesis must be written in compliance with norms for academic and scholarly discussion and for publication in the public domain.

Required Courses

ANSC 701	(0)	Doctoral Comprehensive Examination

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 ®eld 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 that the research advances knowledge in the ®eld. Finally, the thesis must be written in compliance with norms for academic and scholarly discussion 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.

11.3 Bioresource Engineering

11.3.1 Location

Department of Bioresource Engineering
Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue QC H9X 3V9
Canada

Telephone: 514-398-7838
Email: gradstudies.macdonald@mcgill.ca
Website: www.mcgill.ca/bioeng

11.3.2 About Bioresource Engineering

The Department offers M.Sc. and Ph.D. research programs in various areas of bioresource engineering including:

- 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;
- artificial intelligence.

The Department has well equipped laboratories for conducting research in all these areas.

The interdisciplinary nature of bioresource engineering often requires candidates for higher degrees to work in association with, or attend courses given by, a number of other departments at both the McGill University Macdonald campus and the downtown campus.

section 11.3.5 Master of Science (M.Sc.); Bioresource Engineering (Thesis) (46 credits)

This option for the M.Sc. degree is oriented toward individuals who intend to develop a career in bioresource engineering research. The research areas include: 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 11.3.6 Master of Science (M.Sc.); Bioresource Engineering (Thesis) Ð Environment (46 credits)

The Environmental 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 as they relate to the environment.

section 11.3.7 Master of Science (M.Sc.); Bioresource Engineering (Thesis) Ð Neotropical Environment (46 credits)

This program is currently not offered.

section 11.3.8 Master of Science (M.Sc.); Bioresource Engineering (Non-Thesis) Ð Integrated Water Resources Management (45 credits)

Integrated Water Resource Management is a one-year program providing an essential approach for sustainable management of our natural water resources. The 13-credit internship is a central feature of this master's program. The degree gives students the unique opportunity to study the biophysical, environmental, legal, institutional, and socio-economic aspects of water use and management, in an integrated context. The degree is directed at practising professionals who wish to upgrade and/or focus their skill set to address water management issues.

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 honours 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 grades and standing entitle them to serious consideration for admission to graduate studies may be considered inadequately prepared in the subject selected may be admitted to a Qualifying program if they meet 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 considered 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.

See: 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

The application deadlines listed here are set by the Bioresource Engineering Department 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.

Canadian	International	Special/Exchange/Visiting
Fall: May 31	Fall: Mar. 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, and 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.

11.3.4 Bioresource Engineering Faculty

Chair
Valérie Orsat

Graduate Program Director
G.S.Vijaya Raghavan

Associate Graduate Program Director
Valérie Orsat

E le9tusPr

Emeritus Professors

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

Professors

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

Michael O. Ngadi; B.Eng.(Agr.Eng.), M.A.Sc., Ph.D.(Dalet.Tech.)

Shiv O. Prasher; B.Tech., M.Tech.(Punj.), Ph.D.(B.C.Col.), LL.D.(Dal.) (James McGill Professor)

G.S.Vijaya Raghavan; B.Eng.(B©lore), M.Sc.(Guelph), Ph.D.(Colo. St.), D.Sc.(U.A.S.(T.N.), D.Sc.(U.A.S Dharwad) (James McGill Professor)

Associate Professors

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

Jan Adamowski; B.Eng.(RMC), M.Phil.(Camb.), M.B.A.(WUT, LBS, HEC Montr., NHH), Ph.D.(Warsaw)

Grant Clark; B.Sc.(Alta.), M.Sc., Ph.D.(McG.)

Mark Lefsrud; B.Sc.(Sask.), M.Sc.(Rutg.), Ph.D.(T.)

Val rie Orsat; B.Sc., M.Sc., Ph.D.(McG.)

Assistant Professors

Marie-Jos Tm (Jan)Tj 1 0 0 1 82.897 574.08 T 490.48 Tm (Maries572NHH), Ph.D.(W)Tc.(Alta.), M.Sc., Ph.D.ociate Pr

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 (5 credits)

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
	(3)	Civilization and Environment

Elective Courses (12 credits)

12 credits, at the 500 level or higher, of any relevant course(s) chosen in consultation with the Program Director

11.3.9 Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) (45 credits)

The non-thesis option is aimed toward 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 enter the engineering profession at a higher level.

Candidates must meet the qualifications of a professional engineer either before or during the M.Sc.A. program.

Each candidate for this option is expected to establish and maintain contact with his/her academic adviser in the Department of Bioresource Engineering some time before registration in order to clarify objectives, investigate project possibilities and plan a program of study.

Research Project (12 credits)

BREE 671	(6)	Project 1
BREE 672	(6)	Project 2

Required Courses (2 credits)

BREE 651	(1)	Departmental Seminar M.Sc. 1
BREE 652	(1)	Departmental Seminar M.Sc. 2

Complementary Courses (31 credits)

31 credits of 500-, 600-, or 700-level courses in bioresource engineering and other fields* to be determined in consultation with the Project Director.

* Note: 12 of the 31 credits are expected to be from collaborating departments, e.g., food process engineering: 12 credits divided between Food Science and Chemical Engineering.

11.3.10 Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) — Environment (45 credits)

Candidates must meet the qualifications of a professional engineer either before or during the M.Sc.A. program.

Research Project (12 credits)

BREE 671	(6)	Project 1
BREE 672	(6)	Project 2

Required Courses (8 credits)

BREE 651	(1)	Departmental Seminar M.Sc. 1
BREE 652	(1)	Departmental Seminar M.Sc. 2
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 (25 credits)

3 credits from the following courses below:

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

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

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

Further complementary courses (balance of courses 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.

11.3.12 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)	Bio-Treatment of Wastes
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 of 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

11.3.13 Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) — Neotropical Environment (45 credits)

** This program is currently not offered. **

Research Project (12 credits)

BREE 671	(6)	Project 1
BREE 672	(6)	Project 2

Required Courses (8 credits)

BIOL 640	(3)	Tropical Biology and Conservation
BREE 651	(1)	Departmental Seminar M.Sc. 1
BREE 652	(1)	Departmental Seminar M.Sc. 2
ENVR 610	(3)	Foundations of Environmental Policy

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

Complementary Courses (25 credits)

3 credits (one elective course), 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

22 additional credits of 500-g addTI17 E Tm-r (v)Tj 1 0 0 1 474.674.121268.603 116.344 Tm (vironmion74.8d8.603 116.34e chosen sin consultation with

11.3.14 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 existing academic qualifications of the candidate, and on those needed for the pursuit of research in the chosen field. Candidates are encouraged to take 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.

11.3.15 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.

11.3.16 Doctor of Philosophy (Ph.D.); Bioresource Engineering — Neotropical Environment

** This program is currently not offered. **

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 student's research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly discussion and for publication in the public domain.

Required Courses

BIOL 640	(3)	Tropical Biology and Conservation
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

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

Elective Course (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

11.3.17 Graduate Certificate in 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 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
Website: 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 is 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 employment in related 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 offered 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 industrial 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 in 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 hands-on experience via an intensive laboratory course using the latest molecular biology techniques. Students can choose from a wide range of complementary courses offered 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 must secure funding from governmental agencies or 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.

11.4.3.2 Application Procedures

McGill's online application form for graduate program candidates is available at www.mcgill.ca/gradapplicants/apply.

See: Application Procedures for detailed application procedures.

11.4.3.2.1 Additional Requirements

The items and clari®cations below are additional requirements set by this department:

- An English Pro®ciency test is required for most international applicants.
- The GRE ± not required, but highly recommended.
- Other Supporting Documents ± Other documents may be required for the admission process. Please consult the Biotechnology website at www.mcgill.ca/biotech/gradprog/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-progr

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

11.5 Dietetics and Human Nutrition

11.5.1 Location

School of Dietetics and Human Nutrition
Macdonald-Stewart Building
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
Website: www.mcgill.ca/nutrition

11.5.2 About Dietetics and Human Nutrition

In the School of Dietetics and Human Nutrition, cutting-edge nutrition research is conducted by its 10 tenure-track professors and 4 full-time faculty lecturers in all areas recommended by North American Nutrition Societies. These include molecular and cellular nutrition, clinical, community, and international nutrition. Domains emphasized by School researchers include:

- nutritional biochemistry and metabolism;
- embryonic and fetal origins of health and disease;
- studies optimizing health in at-risk populations including Aboriginal populations, mothers and children, and the elderly;
- the development of novel nutritional and/or nutraceutical approaches for treatment during surgery and recovery from disease.

Research is conducted in our on-site research laboratories, the Centre for Indigenous Peoples' Nutrition and Environment (CINE), the McGill Institute for Global Food Security, the Mary Emily Clinical Nutrition Research Unit (MECNRU), and the MUHC Teaching Hospitals. Students can conduct research or participate in clinical rotations in Ghana and field sites in Asia, Africa, Latin America, and the Caribbean.

section 11.5.5 Master of Science (M.Sc.); Human Nutrition (Thesis) (45 credits)

A master's degree in Human Nutrition offers adv

1. The project option;
2. The practicum option, which is reserved for those who have completed a dietetics internship and six months of work experience and wish to further develop their skills in a particular area of practice through an unpaid internship;
3. The dietetics credentialing option, for those who wish to follow a program combining courses and internship, leading to licensure as a dietitian.

Ph.D.

Applicants must be graduates of a university of recognized reputation and hold a B.Sc. and M.Sc. degree or equivalent to a McGill degree in a subject closely related to the one selected for graduate work. Applicants must have at least a cumulative grade point average (CGPA) in McGill University's credit equivalency of 3.2/4.0 (second class upper division) during their bachelor's and master's degree programs. Exceptional students may apply to transfer to the Ph.D. program after one year of study in the M.Sc. (Thesis) program.

Qualifying Students

Some applicants whose academic grades and standing entitle them to serious consideration for admission to graduate studies may be considered inadequately prepared in the subject selected may be admitted to a Qualifying program if they meet the School's minimum CGPA of 3.2 out of 4.0. The courses to be taken in a Qualifying program will be prescribed by the academic unit. Qualifying students are registered in graduate studies **but not as candidates for a degree**. Only one Qualifying year (two terms) is permitted. **Successful completion of a Qualifying program does not guarantee admission to a degree program. Students must re-apply for admission to a degree program.**

Financial Aid

Financial support is highly competitive. Teaching assistantships, scholarships, and stipends from research grants may be available; however, the School cannot guarantee financial support.

11.5.3.2 Application Procedures

McGill's online application form for graduate program candidates is available at www.mcgill.ca/gradapplicants/apply

See: Application Procedures

Professors

Linda J. Wykes; B.Sc., M.Sc., Ph.D.(U.T.)

Associate Professors

Niladri Basu; B.Sc.(Qu.), M.Sc.(B.C.Col.), Ph.D.(McG.) (Canada Research Chair) (joint appt. with Natural Resource Sciences) (Assoc. Member of Epidemiology and Biostatistics, Faculty of Medicine)

Katherine Gray-Donald; B.Sc., Ph.D.(McG.), R.D. (Assoc. Member of Epidemiology and Biostatistics, Faculty of Medicine)

Kristine G. Koski; B.S., M.S.(Wash.), Ph.D.(Calif.), R.D.

Stan Kubow; B.Sc.(McG.), M.Sc.(U.T.), Ph.D.(Guelph)

Grace S. Marquis; B.A.(Ind.), M.Sc.(Mich. St.), Ph.D.(Cornell) (Canada Research Chair)

Hugo Melgar-Quiñonez; M.Sc.(SPHM), M.D.(USA), D.Sc.(Friedrich Schiller Univ.)

Louise Thibault; B.Sc., M.Sc., Ph.D.(Laval), Dt. P.

Hope Weiler; B.A.Sc.(Guelph), Ph.D.(McM.), R.D. (Canada Research Chair)

Faculty Lecturers

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

Sandy Phillips; B.Sc., M.Sc.(A.)(McG.), Dt. P. (University Coordinator, Professional Practice (Sta

NUTR 695	(1)	Human Nutrition Seminar 1
NUTR 696	(1)	Human Nutrition Seminar 2

Complementary Courses (12 credits)

3 credits in graduate-level statistics

3 credits in graduate-level research methods

3-6 credits in graduate-level courses (chosen in consultation with supervisory committee)

0-3 credits:

NUTR 513	(3)	Credentialing in Dietetics

11.5.6 Master of Science, Applied (M.Sc.A.); Human Nutrition (Non-Thesis) — Dietetics Credentialing (83 credits)

This program is open to students with a B.Sc. in nutrition or an allied health profession, including biochemistry, chemistry, physiology, or other related field, who would like to become a member of the Ordre professional des diététistes du Québec. Students may be required to complete a qualifying year (a variable number of required undergraduate credits), before taking the required M.Sc.A. applied professional course, complementary courses, and elective courses (46 credits), followed by a Stage (Internship) component, which includes a practice based project (37 credits). On completion, students will meet OPDQ credits and professional practice requirements for licensure as a registered dietitian. A basic level or professional French competency will be required to complete the professional practice Stage component. The entrance requirement of a CGPA of 3.5 must be maintained throughout the program.

Required Courses (71 credits)

EDPC 501	(3)	Helping Relationships
NUTR 501	(3)	Nutrition in Developing Countries
NUTR 503	(3)	Bioenergetics and the Lifespan
NUTR 513	(3)	Credentialing in Dietetics
NUTR 515	(1)	Dietetics French Examination
NUTR 545	(5)	Clinical Nutrition 2
NUTR 602	(3)	Nutritional - Status Assessment
NUTR 606	(3)	Human Nutrition Research Methods
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
NUTR 626	(3)	Professional Dietetics Writing
NUTR 627	(1)	Professional Dietetics Presentation
NUTR 628	(1)	Dietetics Comprehensive Examination
NUTR 629	(6)	Professional Dietetics Project
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 (9 credits)

3 credits of statistics from the 5.062 Tm (el or pr w.3rition 1)Tj 1 0 0 1u1253 118.63 Tmtri125.52s52 230.303 Tm (NUTR 628)Tj 1 0 0 r (el or 0 324.6230

PSYC 650	(3)	Advanced Statistics 1

3 credits from the following:

ANSC 551	(3)	Carbohydrate and Lipid Metabolism
ANSC 552	(3)	Protein Metabolism and Nutrition
ANSC 560	(3)	Biology of Lactation
EDKP 654	(3)	Sport Psychology
EDPC 504	(3)	Practicum: Interviewing Skills
EDPE 502	(3)	Theories of Human Development
FDSC 537	(3)	Nutraceutical Chemistry
FDSC 538	(3)	Food Science in Perspective
FDSC 545	(3)	Advances in Food Microbiology
NUTR 502	(3)	Independent Study 2
NUTR 512	(3)	Herbs, Foods and Phytochemicals
NUTR 551	(3)	Analysis of Nutrition Data
NUTR 608	(3)	Special Topics 1
NUTR 610	(3)	Maternal and Child Nutrition
NUTR 641	(3)	Advanced Global Food Security

Elective Courses (3 credits)

11.5.8 Master of Science, Applied (M.Sc.A.); Human Nutrition (Non-Thesis) — Project (45 credits)

Research Project (12 credits)

NUTR 652	(3)	M.Sc. (Applied) Project 1
NUTR 653	(3)	M.Sc. (Applied) Project 2
NUTR 654	(3)	M.Sc. (Applied) Project 3
NUTR 655	(3)	M.Sc. (Applied) Project 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 of 500-level or higher Statistics.

3 credits in research methods at the 500 level or higher

12 credits of course work, at the 500 level or higher, in Nutrition, Animal Science, or Food Science chosen in consultation with the student's supervisor

Elective Courses (9 credits)

9 credits of 500-level or higher courses in consultation with the student's academic adviser or supervisor

11.5.9 Doctor of Philosophy (Ph.D.); Human Nutrition

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 that the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly discussion 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 in 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

11.6.3 Food Science and Agricultural Chemistry Admission Requirements and Application Procedures

11.6.3.1 Admission Requirements

Applicants to the M.Sc. programs must be graduates of a university of recognized reputation and hold a B.Sc. in Food Science or a related discipline such as Chemistry, Biochemistry or Microbiology with a minimum cumulative grade point average (CGPA) of 3.0/4.0 (second class ± upper division) and 3.2/4.0 during the last two years of full-time university study. Applicants to the Ph.D. program must hold an M.Sc. degree in Food Science or related areas with a minimum CGPA of 3.4 in their M.Sc. and 3.2 for the last two years of their B.Sc. degree. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program.

Qualifying Students

Some applicants whose academic grades and standing entitle them to serious consideration for admission to graduate studies may be considered inadequately prepared in the subject selected may be admitted to a Qualifying program if they meet 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. While the Department cannot guarantee financial support, students can apply for teaching assistantships and other scholarships.

11.6.3.2 Application Procedures

McGill's online application form for graduate program candidates is available at www.mcgill.ca/gradapplicants/apply.

See: Application Procedures for detailed application procedures.

11.6.3.2.1 Additional Requirements

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

- Final acceptance to the M.Sc. and Ph.D. programs depends on a faculty member agreeing to serve as the student's supervisor. A supervisor is not required for acceptance to the M.Sc. Non-Thesis program.
- The GRE ± not required, but highly recommended.

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 Applicant p.52 Tm. and Tm. 76194.481 Tm Ie Airements weo

Professors

Varoujan A. Yaylayan; B.Sc.(Beirut), M.Sc., Ph.D.(Alta.)

Associate Professors

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

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

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

Selim Kermasha; B.Sc.(Baghdad), C.E.S, D.E.A, D.Sc.(Nancy I)

Assistant Professors

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

Martin Chénier; B.Sc.(Laval), M.Sc.(IAF), Ph.D.(McG.)

Professor Post-Retirement

Frederik R. van de Voort; B.Sc., M.Sc., Ph.D.(BCol.)

Emeritus Professor

William D. Marshall; B.Sc.(New Br.), Ph.D.(McM.)

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

For candidates entering the M.Sc. program without restrictions, i.e., those not requiring a qualifying term, the M.Sc. degree consists of 45 graduate credits.

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 intention 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 Project (12 credits)

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

Complementary Courses (15 credits)

3 credits chosen from the following:

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

12 credits chosen from the following:

AGRI 510	(3)	Professional Practice
BREE 535	(3)	Food Safety Engineering
FDSC 525	(3)	Food Quality Assurance
FDSC 536	(3)	Food Traceability
FDSC 555	(3)	Comparative Food Law
NUTR 512	(3)	Herbs, Foods and Phytochemicals: Principles of

11.7.2 About Natural Resource Sciences

The Department of Natural Resource Sciences offers programs leading to **M.Sc.** and **Ph.D.** degrees in:

- Agricultural Economics
- Entomology (includes Environment and Neotropical En

section 11.7.12 Master of Science (M.Sc.); Renewable Resources (Thesis) Ð Environment (46 credits)

Please contact the Department for more information about this program.

section 11.7.13 Master of Science (M.Sc.); Renewable Resources (Thesis) Ð Neotropical Environment (48 credits)

Please contact the Department for more information about this program.

section 11.7.14 Master of Science (M.Sc.); Renewable Resources (Non-Thesis) Ð Environmental Assessment (45 credits)

This program is currently not offered.

Ph.D. Degrees in Entomology, Microbiology, or Renewable Resources (Includes Micrometeorology, Forest Science, Soil Science, and Wildlife Biology)

section 11.7.15 Doctor of Philosophy (Ph.D.); Entomology

Graduate students in the entomology program work within, and often across, multiple disciplines of basic and applied environmental sciences. Specialties within the program include terrestrial arthropod ecology, physiology, zoogeography, diversity, and systematics. Our students typically have exceptionally strong backgrounds in one or more of these specialties and an interest in research that addresses both theory and applied management of ecosystems. After completing their degrees they go on to careers in academia, environmental policy, government agencies, industry, and other fields.

section 11.7.16 Doctor of Philosophy (Ph.D.); Entomology Ð Environment

Please contact the Department for more information about this program.

section 11.7.17 Doctor of Philosophy (Ph.D.); Entomology Ð Neotropical Environment

Please contact the Department for more information about this program.

section 11.7.18 Doctor of Philosophy (Ph.D.); Microbiology

Graduate students in the microbiology program work within, and often across, multiple disciplines of basic and applied environmental sciences. Specialties within the program range from the study of microbial diversity in extreme environments, either natural or man-induced, to the role of microbes in managed ecosystems, such as in agriculture and forests. Our students typically have exceptionally strong backgrounds in one or more of these specialties and an interest in research that advances our fundamental knowledge about microorganisms and leads to improved efficiencies of our managed ecosystems. After completing their degrees they go on to careers in academia, environmental policy, government agencies, industry, and other fields.

section 11.7.19 Doctor of Philosophy (Ph.D.); Microbiology Ð Bioinformatics

Please contact the Department for more information about this program.

section 11.7.20 Doctor of Philosophy (Ph.D.); Microbiology Ð Environment

Please contact the Department for more information about this program.

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

Graduate students in the renewable resources program work within, and often across, multiple disciplines of basic and applied environmental sciences. Specialties within the program include environmental and ecological economics, environmental health and toxicology, forest ecology, fish and fisheries biology, landscape ecology, limnology, micrometeorology, soil science, and wildlife biology. They typically have exceptionally strong backgrounds in one or more of these specialties and an interest in research that addresses both theory and applied management of natural resources. After completing their degrees they go on to careers in academia, environmental policy, government agencies, industry, and other fields.

section 11.7.22 Doctor of Philosophy (Ph.D.); Renewable Resources Ð Environment

Please contact the Department for more information about this program.

section 11.7.23 Doctor of Philosophy (Ph.D.); Renewable Resources Ð Neotropical Environment

Please contact the Department for more information about this program.

11.7.3 Natural Resource Science Admission Requirements and Application Procedures

11.7.3.1 Admission Requirements

M.Sc. Thesis (Agricultural Economics)

Direct admission to the M.Sc. requires the completion of a B.Sc. in Agricultural Economics or a closely related area, with the 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. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program.

The ideal preparation includes courses in agricultural economics, economic theory (intermediate micro and macro), calculus, linear algebra, and statistics. Students with de®ciencies in these areas will be required to take additional courses as part of their graduate program.

M.Sc. Thesis (Entomology, Microbiology, Renewable Resources)

Candidates are required to have a bachelor©s degree with 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. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program.

M.Sc. in Renewable Resources (Non-Thesis) – Environmental Assessment Option

Applications are not being accepted for the current academic year; the program is currently under review.

Ph.D. Thesis (Entomology, Microbiology, Renewable Resources)

Candidates, normally, are required to hold an M.Sc. degree and will be judged primarily on their ability to conduct an original and independent research study.

Qualifying Students

Some applicants whose academic grades and standing entitle them to serious consideration for admission to graduate studies may be considered inadequately prepared in the subject selected may be admitted to a Qualifying program and, if they meet 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 admitted 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 ®nancial support can be provided by the student and/or the student's supervisor. Academic units cannot guarantee ®nancial support via teaching assistantships or other funds.

11.7.3.2 Application Procedures

McGill's online application form for graduate program candidates is available at www.mcgill.ca/gradapplicants/apply.

See: Application Procedures for detailed application procedures.

11.7.3.2.1 Additional Requirements

The items and clari®cations below are additional requirements set by this department:

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

11.7.3.3 Application Deadlines

The application deadlines listed here are set by the Department of Natural Resource Sciences and may change 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.

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, and 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 of any length.

11.7.4 Natural Resource Sciences Faculty

Chair

James W. Fyles

Graduate Program Director

Beno t C t

Program Director - Agricultural Economics

John C. Henning (on leave)

Paul J. Thomassin (Acting)

Emeritus Professors

David M. Bird; B.Sc.(Guelph), M.Sc., Ph.D.(McG.) ± Wildlife Biology

William H. Hendershot; B.Sc.(T.), M.Sc.(McG.), Ph.D.(Br.Col.) ± Soil Science

Edmund S. Idziak; B.Sc.(Agr.), M.Sc.(McG.), D.Sc.(Delft) ± Microbiology

Angus F. MacKenzie; B.S.A., M.Sc.(Sask.), Ph.D.(Cornell) ± Soil Science

Peter H. Schuepp; Dipl.Sc.Nat.(Z.), Ph.D.(Tor.) ± Agricultural Physics

Robin K. Stewart; B.Sc.(Agr.), Ph.D.(Glas.) ± Entomology

Professors

Peter Brown; B.A.(Haver.), M.A., Ph.D.(Col.) (joint appt. with Geography and McGill School of Environment) ± Environmental Policy and Ethics

James W. Fyles; B.Sc., M.Sc.(U. Vic., BC), Ph.D.(Alta.) (Tomlinson Chair in Forest Ecology) ± Forest Resources

Associate Professors

Assistant Professors

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.(SUNY) – Wildlife Biology

Associate Members

Colin A. Chapman (Anthropology)

Lauren J. Chapman (Biology)

Martin Chénier (Food Science and Agricultural Chemistry)

David Green (Redpath Museum)

Marilyn Scott (Institute of Parasitology)

Donald L. Smith (Plant Science)

Ismael Vaccaro (Anthropology, McGill School of Environment)

Adjunct Professors

Guy Boivin

Kimberly Fernie

Charles W. Greer

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 agribusiness, 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

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)

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 (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 125.711 144.354 Tm (y Coe Seminar 2)Tj 1 0 0 1 165M(T)Tj 1 Tm (y Coe Seminar

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)

Two 3-credit courses at the 500-level or higher recommended by the supervisory committee; one of which must be in quantitative methods/techniques.

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

advanced environmental science scholars planning for careers in the public and private sector agencies, which guide environmental impact assessment, integrated assessment, and sustainable development in Canada and internationally. McGill©s non-thesis master in Environmental Assessment is offered in conjunction with a Memorandum of Understanding (MOU) with the United Nations Environment Program (UNEP - 2003), which designates the Faculty of Agricultural and Environmental Sciences as a UNEP Collaborating Centre on Environmental Assessment. An important component of the MOU is that the Faculty advance teaching and training through the development of course offerings that enable students to prepare for contributing to sustainable development by utilizing the excellent materials provided by UNEP and other national and international agencies.

Research Project (9 credits)

NRSC 616	(9)	Environmental Assessment Project Paper

Required Internship (15 credits)

NRSC 615	(15)	Environmental Assessment Internship

Required Courses (15 credits)

NRSC 610	(3)	Advanced Environmental Assessment
NRSC 611	(3)	Environmental Assessment Knowledge Base
NRSC 612	(3)	Environmental Assessment and Sustainable Development
NRSC 613	(3)	Strategic and Sectoral Environmental Assessment
NRSC 614	(3)	Meeting Environmental Assessment Regulations

Complementary Courses (6 credits)

500- or 600-level relevant courses to be chosen in consultation with the Supervisor and Program Director

11.7.15 Doctor of Philosophy (Ph.D.); Entomology

Includes Micrometeorology, Forest Science, Soil Science, and

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 institute 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

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 that the candidate has advanced knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly discussion 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 individual 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 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 that the candidate has advanced knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly discussion and for publication in the public domain.

Required Courses

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar
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

Complementary Courses

6 credits from the following courses:

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.

11.7.20 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 that 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 faculty of 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, 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 that research advances knowledge in

Coursework

Course requirements are specified by the student's 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 student's 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 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

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
	(0)	Graduate Seminar 6

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

A research project is undertaken in an area of parasitology under the direction of a supervisor, and a thesis is produced. Coursework is minimal. Graduates have gone on to medical school, to teaching positions, or found employment in scientific fields.

section 11.8.6 Master of Science (M.Sc.); Parasitology (Thesis) – Bioinformatics (47 credits)

This program is currently not offered.

section 11.8.7 Master of Science (M.Sc.); Parasitology (Thesis) – Environment (46 credits)

This program is currently not offered.

section 11.8.8 Doctor of Philosophy (Ph.D.); Parasitology

An advanced, original research project is undertaken in an area of parasitology supervised by faculty staff. Coursework is minimal. Graduates are well suited for teaching positions in academia or scientific careers in academia, private industry, or government.

section 11.8.9 Doctor of Philosophy (Ph.D.); Parasitology – Bioinformatics

An advanced, original research project in an area of parasitology is undertaken, supervised by faculty staff, and a thesis is produced. Additional coursework in the field of bioinformatics is required for this option. Graduates are well suited for a teaching or research position, especially where there is particular emphasis on the science of bioinformatics.

section 11.8.10 Doctor of Philosophy (Ph.D.); Parasitology – Environment

An advanced, original research project in an area of parasitology is undertaken, supervised by faculty staff, and a thesis is produced. There is additional coursework on environmental topics for this option. Graduates are prepared for careers in academia, industry, government, especially where the focus is on environmental protection or management of valuable natural resources, such as w

11.8.3 Parasitology Admission Requirements and Application Procedures

11.8.3.1 Admission Requirements

Candidates for either the M.Sc. or the Ph.D. thesis research should possess a bachelor's degree in the biological or medical sciences with a minimum cumulative grade point average of 3.2/4.0 (second class–upper division). High grades are expected in courses considered by the academic unit to be preparatory to the graduate program. Previous experience in parasitology is not essential.

Qualifying Students

Some applicants whose academic grades and standing entitle them to serious consideration for admission to graduate studies may be considered inadequately prepared in the subject selected, may be admitted to a Qualifying program if they meet 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 enrolled 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 gi

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

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11.8.7 Master of Science (M.Sc.); Parasitology (Thesis) — Environment (46 credits)

This program is currently not offered.

Thesis Courses (26 credits)

PARA 687	(10)	Thesis Research 1
PARA 688	(10)	Thesis Research 2
PARA 691	(6)	Thesis Research 5

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 600	(4)	Thesis Proposal for M.Sc
PARA 606	(2)	Parasitology Seminar
PARA 607	(2)	Parasitology Research Seminar

Complementary Courses (6 credits)

3 credits from one of the following:

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

3 credits from one of 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.

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

11.8.8 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 ®eld 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 that research advances knowledge in the ®eld. Finally, the thesis must be written in compliance with norms for academic and scholarly discussion 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

Complementary Courses (6 credits)

One of the following courses:

section 11.9.13 Doctor of Philosophy (Ph.D.); Plant Science Ð Neotropical Environment

This Ph.D. in Plant Science requires approximately three years for completion. The program consists of seminars and a research project leading to a thesis. Students must also complete a comprehensive examination within their ®rst year of study. The research project is de®ned 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 Certi®cate in Bioinformatics (15 credits)

The Graduate Certi®cate in Bioinformatics is a 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 the environment. Required courses are drawn from [illegible] and include [illegible] databases, CGP web resources. The Certi®cate is completed in one term (4 months) after which graduates may go on to pursue successful careers in the biomedical, biotechnology and biosciences ®elds.

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 ®eld 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 without the one year of study

Qualifying Students

Some applicants whose academic grades and standing entitle them to serious consideration for admission to graduate studies, b

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

11.9.4 Plant Science Faculty

Chair

Pierre Dutilleul (Interim)

Emeritus Professor

D.J. Buszard; B.Sc.(Bath), Ph.D.(Lond.)

Professors

Pierre Dutilleul; L.Sc., D.Sc.(Louvain)

Donald L. Smith; B.Sc., M.Sc.(Acad.), Ph.D.(Guelph)

Alan K. Watson; B.Sc.(Agr), M.Sc.(Br. Col.), Ph.D.(Sask.)

Associate Professors

Jacqueline C. Bede; B.Sc.(Calg.), M.Sc., Ph.D.(T

Sylvie de Blois; B.Sc.(Agr)(McG.), M.Sc., Ph.D.(Mont.)

Danielle J. Donnelly; B.Sc.(Agr)(McG.), M.Sc.(Br. Col.), Ph.D.(S. Fraser)

Suha Jabaji; B.Sc.(Beirut), M.Sc.(Guelph), Ph.D.(

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.)

Marcia J. Waterway; B.A.(Grand Rapids), M.S.(M.

Assistant Professors

Jean-Benoit Charron; B.Sc.(Mont.), M.Sc., Ph.D.(UQAM)

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

Faculty Lecturers

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

Serge Lussier; B.Sc.(Agr)(McG.)

David Wees; B.Sc.(Agr

Required Invitational Seminar

PLNT 690	(0)	Research Horizons in Plant Science 1

Complementary Courses (6 credits)

Two graduate-level courses

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

Master of Science (M.Sc.); Plant Science (Thesis) — Bioinfe lantm7.88 80.407 599.15ormm(cTm(48es (6 creditsnfe lan430 1 0.407 59

Complementar

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

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 Bess 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 kno

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

Doctor of Philosophy (Ph.D.); Plant Science — Envir

Required Invitational Seminar

PLNT 690	(0)	Research Horizons in Plant Science 1

Required Courses (6 credits)

* Must be taken within one year of registering.

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy
PLNT 701*	(0)	Doctoral Comprehensive Examination

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

11.9.14 Graduate Certificate in 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