Faculty of Agricultural and Environmental Sciences, including School of Dietetics and Human Nutrition (Graduate) Programs, Courses and University Regulations 2012-2013
McGill University reserves the right to make changes to the information contained in this online publication - including correcting errors, altering fees, schedules of admission, and credit requirements, and revising or cancelling particular courses or programs - without prior notice.

In the interpretation of academic regulations, the Senate is the final authority.

Students are responsible for informing themselves of the University's procedures, policies and regulations, and the specific requirements associated with the degree, diploma, or certificate sought.

All students registered at McGill University are considered to have agreed to act in accordance with the University procedures, policies and regulations.

Although advice is readily available on request, the responsibility of selecting the appropriate courses for graduation must ultimately rest with the student.

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

The academic publication year begins at the start of the Fall semester and extends through to the end of the Winter semester of any given year. Students who begin study at any point within this period are governed by the regulations in the publication which came into effect at the start of the Fall semester.

Notwithstanding any other provision of the publication, it is expressly understood by all students that McGill University accepts no responsibility to provide any course of instruction, program or class, residential or other services including the normal range of academic, residential and/or other services in circumstances of utility interruptions, fire, flood, strikes, work stoppages, labour disputes, war, insurrection, the operation of law or acts of God or any other cause (whether similar or dissimilar to those enumerated) which reasonably prevent their provision.

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1 Dean's Welcome

To Graduate Students and Postdoctoral Fellows:

I am extremely pleased to welcome you to McGill University. Our world-class scholarly community includes over 250 doctoral and master's degree programs, and is recognized for excellence across the full range of academic disciplines and professions. Graduate and Postdoctoral Studies (GPS) collaborates with the Faculties and other administrative and academic units to provide strategic leadership and vision for graduate teaching and research across the University. GPS also oversees the admission and registration of graduate students, disbursing graduate fellowships, supporting postdoctoral fellows, and facilitating the graduation process, including the examination of theses. GPS has partnered with Enrolment Services to offer streamlined services in a one-stop location at Service Point.

McGill is a student-centred research institution that places singular importance upon the quality of graduate education and postdoctoral training. As Associate Provost (Graduate Education), as well as Dean of Graduate and Postdoctoral Studies, I work closely with the faculties, central administration, graduate students, professors, researchers, and postdoctoral fellows to provide a supportive, stimulating, and enriching academic environment for all graduate students and postdoctoral fellows.

McGill is ranked as one of Canada's most intensive research universities and among the world's top 25. We recognize that these successes come not only from our outstanding faculty members, but also from the quality of our graduate students and postdoctoral fellows—a community into which we are very happy to welcome you.

I invite you to join us in advancing this heritage of excellence at McGill.

Martin Kreiswirth, Ph.D.
Associate Provost (Graduate Education)
Dean, Graduate and Postdoctoral Studies

2 Graduate and Postdoctoral Studies

2.1 Administrative Officers

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<td>Martin Kreiswirth; B.A.(Hamilton), M.A.(Chic.), Ph.D.(Tor.)</td>
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<tr>
<td>Shari Baum; B.A.(C'nell), M.Sc.(Vermont), Ph.D.(Brown)</td>
<td>Associate Dean (Graduate and Postdoctoral Studies)</td>
</tr>
<tr>
<td>Laura Nilson; B.A.(Colgate), Ph.D.(Yale)</td>
<td>Associate Dean (Graduate and Postdoctoral Studies)</td>
</tr>
<tr>
<td>Lisa deMena Travis; B.A.(Yale), Ph.D.(MIT)</td>
<td>Associate Dean (Graduate and Postdoctoral Studies)</td>
</tr>
<tr>
<td>Charlotte E. Légaré; B.Sc.(Montr.), M.Sc.(Sher.), M.B.A.(McG.)</td>
<td>Senior Adviser to the Associate Provost / Dean (Graduate and Postdoctoral Studies) (on leave)</td>
</tr>
<tr>
<td>Lissa B. Matyas; B.F.A., M.Sc.(C'dia)</td>
<td>Director (Graduate and Postdoctoral Studies)</td>
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2.2 Location

James Administration Building, Room 400
845 Sherbrooke Street West
Montreal, QC H3A 0G4

Telephone: 514-398-3990
Fax: 514-398-6283
Email: servicepoint@mcgill.ca
Website: www.mcgill.ca/gps
Note: For inquiries regarding specific graduate programs, please contact the appropriate department.

2.3 General Statement Concerning Higher Degrees

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

3 Important Dates 2012–2013

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

4 Graduate Studies at a Glance

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<tr>
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<td>: English</td>
<td>M.A., Ph.D.</td>
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<tr>
<td>: French Language and Literature</td>
<td>M.A., Ph.D.</td>
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<tr>
<td>: Geography</td>
<td>M.A., Ph.D.</td>
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<tr>
<td>: History and Classical Studies</td>
<td>M.A., Ph.D.</td>
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<tr>
<td>: Institute for the Study of International Development</td>
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<tr>
<td>: Islamic Studies</td>
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<tr>
<td>Faculty of Arts</td>
<td>Degrees Available</td>
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<td>M.A.</td>
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<td>: Languages, Literatures, and Cultures</td>
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<td>: Linguistics</td>
<td>M.A., Ph.D.</td>
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<tr>
<td>: Mathematics and Statistics</td>
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<tr>
<td>: Philosophy</td>
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<tr>
<td>: Political Science</td>
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<td>: Psychology</td>
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<tr>
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<tr>
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<td>: Social Work</td>
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<tr>
<td>: Dentistry</td>
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<th>Desautels Faculty of Management</th>
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<th>Faculty of Education</th>
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<td>M.L.I.S., Ph.D., Graduate Certificate, Graduate Diploma</td>
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<td>: Integrated Studies in Education</td>
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<td>: Kinesiology and Physical Education</td>
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<td>: Chemical Engineering</td>
<td>M.Eng., Ph.D.</td>
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<tr>
<td>: Civil Engineering and Applied Mechanics</td>
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<tr>
<td>: Electrical and Computer Engineering</td>
<td>M.Eng., Ph.D.</td>
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<td>: Mechanical Engineering</td>
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<tr>
<td>: Biochemistry</td>
<td>M.Sc., Ph.D.</td>
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<td>: Bioethics</td>
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<td>M.Eng., Ph.D.</td>
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<tr>
<td>Faculty of Medicine</td>
<td>Degrees Available</td>
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<tr>
<td>: Communication Sciences and Disorders</td>
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<tr>
<td>: Epidemiology and Biostatistics</td>
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<td>: Human Genetics</td>
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<tr>
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<tr>
<td>: Otolaryngology – Head and Neck Surgery</td>
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<tr>
<td>: Pathology</td>
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<tr>
<td>: Pharmacology and Therapeutics</td>
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<td>: Physiology</td>
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<td>: Surgery, Experimental (Division of Surgical Research)</td>
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<th>School of Physical and Occupational Therapy</th>
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<td>: Chemistry</td>
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<tr>
<td>: Physics</td>
<td>M.Sc., Ph.D.</td>
</tr>
<tr>
<td>: Psychology</td>
<td>M.Sc., Ph.D.</td>
</tr>
</tbody>
</table>

### 4.2 Master's Degrees and Prerequisites

The following list shows all of the master's degrees available at McGill, along with their prerequisites. See section 4.3: Master's Degree Programs and Specializations for more information on specific programs and options.
<table>
<thead>
<tr>
<th>Degree</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Arts</td>
<td>Bachelor of Arts in the subject selected for graduate work. See appropriate unit.</td>
</tr>
<tr>
<td>Master of Architecture</td>
<td>Professional degree – McGill B.Sc.(Arch.) degree, or equivalent. Post-professional degree – an M.Arch. (professional degree) or equivalent professional degree.</td>
</tr>
<tr>
<td>Master of Business Administration</td>
<td>An undergraduate degree from an approved university. See : M.B.A. Program.</td>
</tr>
<tr>
<td>Master of Business Administration with integrated Bachelor of Civil Law / Bachelor of Laws</td>
<td>See : M.B.A. Program.</td>
</tr>
<tr>
<td>Master of Business Administration with Doctor of Medicine / Master of Surgery</td>
<td>See : M.B.A. Program.</td>
</tr>
<tr>
<td>Master of Education</td>
<td>Bachelor's degree with specialization related to the subject chosen for graduate work, plus a Permanent Quebec Teaching Diploma or its equivalent for some of the above degrees. See appropriate department.</td>
</tr>
<tr>
<td>Master of Engineering</td>
<td>Bachelor of Engineering or equivalent, with specialization appropriate for the subject selected for graduate study. See appropriate department.</td>
</tr>
<tr>
<td>Master of Laws</td>
<td>An acceptable degree in Law or equivalent qualifications. See : Law Admission Requirements and Application Procedures.</td>
</tr>
<tr>
<td>Master of Library and Information Studies</td>
<td>At least a bachelor's degree from a recognized university. See : Information Studies Admission Requirements and Application Procedures.</td>
</tr>
<tr>
<td>Master of Management</td>
<td>See : Master of Management Programs Admission Requirements and Application Procedures.</td>
</tr>
<tr>
<td>Master of Manufacturing Management</td>
<td>See : Master of Management Programs Admission Requirements and Application Procedures.</td>
</tr>
<tr>
<td>Master of Music</td>
<td>Bachelor of Music or Bachelor of Arts with concentration in the area selected for graduate study. Applicants to the Performance program are required to pass auditions in their specialty. See : Schulich School of Music.</td>
</tr>
<tr>
<td>Master of Sacred Theology</td>
<td>B.A. with specialization in religious studies or theology. See : Religious Studies Admission Requirements and Application Procedures.</td>
</tr>
<tr>
<td>Master of Science</td>
<td>Bachelor of Science in the subject selected for graduate work. See appropriate unit.</td>
</tr>
<tr>
<td>Master of Science, Applied</td>
<td>A bachelor's degree in the subject selected for graduate work. See appropriate unit.</td>
</tr>
<tr>
<td>Master of Social Work with Bachelor of Civil Law and Bachelor of Laws</td>
<td>See : Social Work Admission Requirements and Application Procedures.</td>
</tr>
<tr>
<td>Master of Urban Planning</td>
<td>Bachelor's degree in any one of the following: Anthropology, Architecture, Economics, Civil Engineering, Geography, Law, Management, Political Science, Social Work, Sociology, or Urban Planning, with adequate knowledge of quantitative techniques. See : Urban Planning Admission Requirements and Application Procedures.</td>
</tr>
</tbody>
</table>

### 4.3 Master's Degree Programs and Specializations

The following list shows all of the programs and options available for each degree at McGill.

**Master of Architecture (M.Arch.)**
Options
Thesis/Non-Thesis
Design Studio, Design Studio – Directed Research

Architectural History and Theory, Cultural Mediations and Technology, Urban Design and Housing

Master of Arts (M.A.)

Programs leading to the degree of Master of Arts are offered in the following areas:

<table>
<thead>
<tr>
<th>Program Areas</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art History</td>
<td>Non-Thesis</td>
<td>Gender and Women's Studies (Non-Thesis)</td>
</tr>
<tr>
<td>Classics</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Counselling Psychology</td>
<td>Non-Thesis (Professional Internship), Non-Thesis (Project)</td>
<td>N/A</td>
</tr>
<tr>
<td>East Asian Studies</td>
<td>Thesis (Ad Hoc)</td>
<td>N/A</td>
</tr>
<tr>
<td>Educational Psychology</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Education and Society</td>
<td>Thesis, Non-Thesis</td>
<td>Gender and Women's Studies (Thesis)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender and Women's Studies, Jewish Education (Non-Thesis)</td>
</tr>
<tr>
<td>Educational Leadership</td>
<td>Thesis, Non-Thesis</td>
<td>Gender and Women's Studies (Thesis)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender and Women's Studies (Non-Thesis)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>French</td>
<td>Thesis, Non-Thesis</td>
<td>Gender and Women's Studies (Thesis)</td>
</tr>
<tr>
<td>Geography</td>
<td>Thesis</td>
<td>Development Studies, Environment, Gender and Women's Studies, Neotropical Environment, Social Statistics (Thesis)</td>
</tr>
<tr>
<td>German</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Hispanic Studies</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>History</td>
<td>Thesis, Non-Thesis</td>
<td>Development Studies, European Studies, Gender and Women's Studies (Thesis)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Development Studies, European Studies, Gender and Women's Studies (Non-Thesis)</td>
</tr>
<tr>
<td>History of Medicine</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Islamic Studies</td>
<td>Thesis</td>
<td>Gender and Women's Studies (Thesis)</td>
</tr>
<tr>
<td>Italian</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Jewish Studies</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Kinesiology and Physical Education</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Linguistics</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Mathematics and Statistics</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Medical Anthropology</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Music – Music Education</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Music – Music Technology</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Philosophy</td>
<td>Thesis</td>
<td>Bioethics</td>
</tr>
</tbody>
</table>
### Program Areas

<table>
<thead>
<tr>
<th>Program Areas</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Development Studies, European Studies, Gender and Women's Studies, Social Statistics (Non-Thesis)</td>
</tr>
<tr>
<td>Psychology</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Russian</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Sociology</td>
<td>Thesis, Non-Thesis</td>
<td>Development Studies, Environment, Gender and Women's Studies, Medical Sociology, Neotropical Environment (Thesis)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Development Studies, Gender and Women's Studies, Medical Sociology, Social Statistics (Non-Thesis)</td>
</tr>
<tr>
<td>Teaching and Learning</td>
<td>Non-Thesis</td>
<td>English or French Second Language, English Language Arts, Mathematics, Science and Technology, Social Sciences</td>
</tr>
</tbody>
</table>

### Master of Business Administration and Management Degrees (M.B.A., M.M., M.M.M.)

A program leading to the degree of Master of Business Administration (M.B.A.) is offered in the following concentrations:

<table>
<thead>
<tr>
<th>Program</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.B.A.</td>
<td>Non-Thesis</td>
<td>Finance, General Management, Global Strategy and Leadership, Marketing, Technology and Innovation (Non-Thesis)</td>
</tr>
<tr>
<td>M.D./M.B.A.</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>E.M.B.A.</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>M.M.M.</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>M.M./IMPM</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>M.M./IMPMHL</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Master of Education (M.Ed.)

<table>
<thead>
<tr>
<th>Program</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Psychology</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Master of Engineering (M.Eng.)

<table>
<thead>
<tr>
<th>Program</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Engineering</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>Thesis, Non-Thesis</td>
<td>Bioinformatics (Thesis)</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>Non-Thesis</td>
<td>Environmental Engineering (Non-Thesis)</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>Thesis, Non-Thesis</td>
<td>Environmental Engineering (Non-Thesis)</td>
</tr>
</tbody>
</table>

### Master of Laws (LL.M.)
### Master of Library and Information Studies (M.L.I.S.)
The Graduate School of Library and Information Studies offers a postgraduate professional program in librarianship. Two years of full-time study or the equivalent are required.

<table>
<thead>
<tr>
<th>Program</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Studies</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Master of Music (M.Mus.)

<table>
<thead>
<tr>
<th>Program</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music – Composition</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Performance</td>
<td>Thesis</td>
<td>Vocal Pedagogy, Jazz Performance, Early Music, Orchestral Instruments and Guitar, Collaborative Piano, Piano, Opera and Voice, Organ and Church Music, Conducting</td>
</tr>
<tr>
<td>Sound Recording</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Master of Sacred Theology (S.T.M.)
A program leading to the degree of Sanctae Theologiae Magister (S.T.M.) is given in the Faculty of Religious Studies. This degree is primarily for those who intend to enter the ministry of the Christian Church or another religious institution, or to proceed to teaching in schools. A Master of Arts program (thesis and non-thesis) is also available.

<table>
<thead>
<tr>
<th>Program</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religious Studies</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Master of Science (M.Sc.)

<table>
<thead>
<tr>
<th>Program Areas</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Animal Science</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Atmospheric and Oceanic Science</td>
<td>Thesis</td>
<td>Environment (Thesis)</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>Thesis</td>
<td>Bioinformatics, Chemical Biology (Thesis)</td>
</tr>
<tr>
<td>Biology</td>
<td>Thesis</td>
<td>Bioinformatics, Environment, Neotropical Environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Integrated Water Resource Management (Non-Thesis)</td>
</tr>
<tr>
<td>Biostatistics</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Cell Biology</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Thesis</td>
<td>Chemical Biology</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Communication Sciences and Disorders</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Earth and Planetary Sciences</td>
<td>Thesis</td>
<td>Environment</td>
</tr>
<tr>
<td>Entomology</td>
<td>Thesis</td>
<td>Environment, Neotropical Environment</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Experimental Medicine</td>
<td>Thesis</td>
<td>Bioethics, Environment, Family Medicine</td>
</tr>
<tr>
<td>Experimental Surgery</td>
<td>Thesis</td>
<td>Surgical Research</td>
</tr>
</tbody>
</table>

---

2012-2013, Faculty of Agricultural and Environmental Sciences, including School of Dietetics and Human Nutrition (Graduate), McGill University (Published July 24, 2012)
<table>
<thead>
<tr>
<th>Program Areas</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Science and Agricultural Chemistry</td>
<td>Thesis, Non-Thesis</td>
<td>Food Safety (Non-Thesis)</td>
</tr>
<tr>
<td>Genetic Counselling</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Geography</td>
<td>Thesis</td>
<td>Environment, Neotropical Environment</td>
</tr>
<tr>
<td>Human Genetics</td>
<td>Thesis</td>
<td>Bioethics, Bioinformatics</td>
</tr>
<tr>
<td>Human Nutrition</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Kinesiology and Physical Education</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Medical Radiation Physics</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Microbiology</td>
<td>Thesis</td>
<td>Environment</td>
</tr>
<tr>
<td>Microbiology and Immunology</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Mining and Materials Engineering</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Otolaryngology</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Parasitology</td>
<td>Thesis</td>
<td>Bioinformatics, Environment</td>
</tr>
<tr>
<td>Pathology</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>Thesis</td>
<td>Chemical Biology</td>
</tr>
<tr>
<td>Physics</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Physiology</td>
<td>Thesis</td>
<td>Bioinformatics</td>
</tr>
<tr>
<td>Plant Science</td>
<td>Thesis</td>
<td>Bioinformatics, Environment, Neotropical Environment</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Psychology</td>
<td>Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Public Health</td>
<td>Non-Thesis</td>
<td>Environment</td>
</tr>
<tr>
<td>Rehabilitation Sciences</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Master of Science, Applied (M.Sc.A.)**

This degree was designed to provide postgraduate training of a professional and vocational character, with less emphasis on theoretical knowledge and research than in Master of Science programs, but with no lower standards either for admission or completion of requirements. Two years of full-time study or equivalent are normally required with an emphasis on coursework.

<table>
<thead>
<tr>
<th>Program</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Bioresource Engineering</td>
<td>Non-Thesis</td>
<td>Environment, Environmental Engineering, Neotropical Environment</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Communication Sciences and Disorders</td>
<td>Non-Thesis</td>
<td>Speech-Language Pathology</td>
</tr>
<tr>
<td>Human Nutrition</td>
<td>Non-Thesis (Project), Non-Thesis (Practicum)</td>
<td>N/A</td>
</tr>
<tr>
<td>Nursing</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Occupational Health</td>
<td>Non-Thesis (Resident), Non-Thesis (Distance)</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Master of Social Work (M.S.W.)

The M.S.W. degree represents a second level of professional study in which students build competence in a chosen field of practice.

<table>
<thead>
<tr>
<th>Program</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Work</td>
<td>Thesis, Non-Thesis</td>
<td>N/A</td>
</tr>
<tr>
<td>Joint Master of Social Work with B.C.L. and L.L.B.</td>
<td>Non-Thesis</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Master of Urban Planning

The program requires a minimum of two years residence and a three-month internship with a member of a recognized planning association.

<table>
<thead>
<tr>
<th>Program</th>
<th>Thesis/Non-Thesis</th>
<th>Options</th>
</tr>
</thead>
</table>

4.4 Doctoral Degrees

The following section lists the doctoral degrees available at McGill, along with their prerequisites. See section 4.4.1: Doctoral Degree Programs and Specializations for specific programs and options for doctoral degrees.

<table>
<thead>
<tr>
<th>Degree</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor of Music (D.Mus.)</td>
<td>M.A. in Composition (D.Mus. in Composition) or a master’s degree in Performance, and professional and teaching experience (D.Mus. in Performance). See Music.</td>
</tr>
<tr>
<td>Doctor of Philosophy (Ph.D.)</td>
<td>An undergraduate degree relevant to the subject chosen for graduate work. Some departments require all Ph.D. candidates to hold a master's degree in the same subject. Departments may recommend that candidates of undoubted promise should be allowed to proceed directly to the Ph.D. degree without being required to submit a master's thesis.</td>
</tr>
</tbody>
</table>

4.4.1 Doctoral Degree Programs and Specializations

Doctor of Civil Law (D.C.L.)

Doctoral programs are offered in Air and Space Law and Law (Comparative Law). Both are predominantly research degrees awarded on the basis of a thesis that represents an original contribution to the development of legal science.

<table>
<thead>
<tr>
<th>Program</th>
<th>Options</th>
<th>Offered by Faculty/School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law</td>
<td>Air and Space Law, Comparative Law</td>
<td>Faculty of Law</td>
</tr>
</tbody>
</table>

Doctor of Music (D.Mus.)

The Doctor of Music degree is offered in Composition. The Doctoral thesis consists of a musical composition of major dimensions together with a written analysis of the work. The composition is presented by the candidate in concert. The regulations set forth for the Ph.D. generally apply also to the D.Mus.

The Doctor of Music degree is also offered in Performance. It is offered to professional musicians who wish to teach at the university level and to develop a specialization in a particular repertoire, approach, or discipline (musicology, music theory, music education and pedagogy, or music technology).

<table>
<thead>
<tr>
<th>Program</th>
<th>Options</th>
<th>Offered by Faculty/School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music</td>
<td>Composition, Performance Studies</td>
<td>Schulich School of Music</td>
</tr>
</tbody>
</table>

Doctor of Philosophy Degrees
Programs leading to the degree of Doctor of Philosophy are offered in the following areas:

<table>
<thead>
<tr>
<th>Program</th>
<th>Options</th>
<th>Offered by Faculty/School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science</td>
<td>Bioinformatics</td>
<td>Faculty of Agricultural and Environmental Sciences</td>
</tr>
<tr>
<td>Anthropology</td>
<td>Neotropical Environment</td>
<td>Faculty of Arts</td>
</tr>
<tr>
<td>Architecture</td>
<td>N/A</td>
<td>Faculty of Engineering</td>
</tr>
<tr>
<td>Art History</td>
<td>Gender and Women's Studies</td>
<td>Faculty of Arts</td>
</tr>
<tr>
<td>Atmospheric and Oceanic Sciences</td>
<td>N/A</td>
<td>Faculty of Science</td>
</tr>
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<td>Biochemistry</td>
<td>Bioinformatics, Chemical Biology</td>
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</tr>
<tr>
<td>Biology</td>
<td>Bioinformatics, Developmental Biology,</td>
<td>Faculty of Science</td>
</tr>
<tr>
<td></td>
<td>Environment, Neotropical Environment</td>
<td></td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>Bioinformatics</td>
<td>Faculty of Medicine</td>
</tr>
<tr>
<td>Bioresource Engineering</td>
<td>Environment, Neotropical Environment</td>
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<td>Biostatistics</td>
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<tr>
<td>Cell Biology</td>
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<tr>
<td>Chemical Engineering</td>
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<td>Classics</td>
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<td>Communication Sciences and</td>
<td>Language Acquisition</td>
<td>Faculty of Medicine</td>
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<td>Disorders</td>
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<td>Communication Studies</td>
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<tr>
<td>Computer Science</td>
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</tr>
<tr>
<td>Counselling Psychology</td>
<td>N/A</td>
<td>Faculty of Education</td>
</tr>
<tr>
<td>Earth and Planetary Sciences</td>
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<td>Economics</td>
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<td>Educational Psychology</td>
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<td>Educational Studies</td>
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<td></td>
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<td>Electrical Engineering</td>
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<tr>
<td>English</td>
<td>N/A</td>
<td>Faculty of Arts</td>
</tr>
<tr>
<td>Entomology</td>
<td>Environment, Neotropical Environment</td>
<td>Faculty of Agricultural and Environmental Sciences</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>N/A</td>
<td>Faculty of Medicine</td>
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<tr>
<td>Experimental Medicine</td>
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<td>Experimental Surgery (Surgical</td>
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<td>Research)</td>
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<td>Food Science and Agricultural</td>
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<td>French Language and Literature</td>
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<td>Geography</td>
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<td>Neotropical Environment</td>
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<td>German</td>
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<td>Hispanic Studies</td>
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<td>History</td>
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<tr>
<td>Human Genetics</td>
<td>Bioinformatics</td>
<td>Faculty of Medicine</td>
</tr>
<tr>
<td>Human Nutrition</td>
<td>N/A</td>
<td>Faculty of Agricultural and Environmental Sciences</td>
</tr>
<tr>
<td>Information Studies</td>
<td>N/A</td>
<td>Faculty of Education</td>
</tr>
<tr>
<td>Program</td>
<td>Options</td>
<td>Offered by Faculty/School</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Islamic Studies</td>
<td>Gender and Women's Studies</td>
<td>Faculty of Arts</td>
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<td>Linguistics</td>
<td>Language Acquisition</td>
<td>Faculty of Arts</td>
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<tr>
<td>Management</td>
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<td>Desautels Faculty of Management</td>
</tr>
<tr>
<td>Mathematics and Statistics</td>
<td>Bioinformatics</td>
<td>Faculty of Arts, Faculty of Science</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>N/A</td>
<td>Faculty of Engineering</td>
</tr>
<tr>
<td>Microbiology</td>
<td>N/A</td>
<td>Faculty of Engineering</td>
</tr>
<tr>
<td>Microbiology and Immunology</td>
<td>Bioinformatics, Environment</td>
<td>Faculty of Medicine</td>
</tr>
<tr>
<td>Mining and Materials Engineering</td>
<td>N/A</td>
<td>Faculty of Engineering</td>
</tr>
<tr>
<td>Music</td>
<td>(Composition, Music Education, Musicology, Music Technology, Sound Recording, Theory), Gender and Women's Studies</td>
<td>Schulich School of Music</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>N/A</td>
<td>Faculty of Medicine</td>
</tr>
<tr>
<td>Nursing</td>
<td>Psychosocial Oncology</td>
<td>School of Nursing</td>
</tr>
<tr>
<td>Occupational Health</td>
<td>N/A</td>
<td>Faculty of Medicine</td>
</tr>
<tr>
<td>Parasitology</td>
<td>Bioinformatics, Environment</td>
<td>Faculty of Agricultural and Environmental Sciences</td>
</tr>
<tr>
<td>Pathology</td>
<td>N/A</td>
<td>Faculty of Medicine</td>
</tr>
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<td>Pharmacology</td>
<td>Chemical Biology</td>
<td>Faculty of Medicine</td>
</tr>
<tr>
<td>Philosophy</td>
<td>Environment, Gender and Women's Studies</td>
<td>Faculty of Arts</td>
</tr>
<tr>
<td>Physics</td>
<td>N/A</td>
<td>Faculty of Science</td>
</tr>
<tr>
<td>Physiology</td>
<td>Bioinformatics</td>
<td>Faculty of Medicine</td>
</tr>
<tr>
<td>Plant Science</td>
<td>Bioinformatics, Environment, Neotropical Environment</td>
<td>Faculty of Agricultural and Environmental Sciences</td>
</tr>
<tr>
<td>Political Science</td>
<td>Gender and Women's Studies</td>
<td>Faculty of Arts</td>
</tr>
<tr>
<td>Psychology</td>
<td>Language Acquisition, Psychosocial Oncology</td>
<td>Faculty of Arts, Faculty of Science</td>
</tr>
<tr>
<td>Rehabilitation Science</td>
<td>N/A</td>
<td>School of Physical and Occupational Therapy</td>
</tr>
<tr>
<td>Religious Studies</td>
<td>Gender and Women's Studies</td>
<td>Faculty of Religious Studies</td>
</tr>
<tr>
<td>Renewable Resources</td>
<td>Environment, Neotropical Environment</td>
<td>Faculty of Agricultural and Environmental Sciences</td>
</tr>
<tr>
<td>Russian</td>
<td>N/A</td>
<td>Faculty of Arts</td>
</tr>
<tr>
<td>School/Applied Child Psychology</td>
<td>N/A</td>
<td>Faculty of Education</td>
</tr>
<tr>
<td>Social Work</td>
<td>N/A</td>
<td>Faculty of Arts</td>
</tr>
<tr>
<td>Sociology</td>
<td>Environment, Gender and Women's Studies</td>
<td>Faculty of Arts</td>
</tr>
</tbody>
</table>

**Joint Doctor of Philosophy Degrees**

The following joint Ph.D. programs are offered:

- Nursing (McGill / Université de Montréal)
- Management (McGill / Concordia / H.E.C. / UQAM)
- Social Work (McGill / Université de Montréal)

**Ad Hoc Doctor of Philosophy Degrees (Ph.D. (Ad Hoc))**

Several departments offer the possibility of directly entering a Ph.D. program on an *ad hoc* basis, or, with the permission of the supervisor and the approval of the Graduate Program Director, exceptional students may transfer from the master's program to the *ad hoc* Ph.D. program.

<table>
<thead>
<tr>
<th>Program</th>
<th>Options</th>
<th>Offered by Faculty/School</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Asian Studies</td>
<td>N/A</td>
<td>Faculty of Arts</td>
</tr>
<tr>
<td>Italian Studies</td>
<td>N/A</td>
<td>Faculty of Arts</td>
</tr>
<tr>
<td>Kinesiology and Physical Education</td>
<td>N/A</td>
<td>Faculty of Education</td>
</tr>
</tbody>
</table>

2012-2013, Faculty of Agricultural and Environmental Sciences, including School of Dietetics and Human Nutrition (Graduate), McGill University (Published July 24, 2012)
## 4.5 Postdoctoral Research

See section 8: Postdoctoral Research for information about postdoctoral research at McGill University.

## 4.6 Graduate Diplomas and Graduate Certificates

The graduate diplomas and graduate certificates listed below are programs of study under the academic supervision of Graduate and Postdoctoral Studies. The prerequisite for a diploma or certificate is an undergraduate degree in the same discipline.

### Graduate Diplomas are offered in:

<table>
<thead>
<tr>
<th>Program</th>
<th>Options</th>
<th>Offered by Faculty/School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatry</td>
<td>N/A</td>
<td>Faculty of Medicine</td>
</tr>
<tr>
<td>Urban Planning</td>
<td>N/A</td>
<td>Faculty of Engineering</td>
</tr>
</tbody>
</table>

See section 8: Postdoctoral Research for information about postdoctoral research at McGill University.

### Graduate Certificates are offered in:

<table>
<thead>
<tr>
<th>Program</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Research</td>
<td></td>
</tr>
<tr>
<td>Epidemiology</td>
<td></td>
</tr>
<tr>
<td>Library and Information Studies</td>
<td></td>
</tr>
<tr>
<td>Mining Engineering</td>
<td></td>
</tr>
<tr>
<td>Neonatal Nurse Practitioner</td>
<td></td>
</tr>
<tr>
<td>Primary Care Nurse Practitioner</td>
<td></td>
</tr>
</tbody>
</table>

These diploma programs consist of at least two terms of full-time study or the equivalent.

### Graduate Certificates are offered in:

<table>
<thead>
<tr>
<th>Program</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessing Driving Capabilities</td>
<td></td>
</tr>
<tr>
<td>Air and Space Law</td>
<td></td>
</tr>
<tr>
<td>Bioinformatics</td>
<td></td>
</tr>
<tr>
<td>Bioresource Engineering (Integrated Water Resources Management)</td>
<td></td>
</tr>
<tr>
<td>Biotechnology</td>
<td></td>
</tr>
<tr>
<td>Chronic Pain Management</td>
<td></td>
</tr>
<tr>
<td>Comparative Law</td>
<td></td>
</tr>
</tbody>
</table>

All graduate regulations apply to graduate diploma and graduate certificate candidates.

**Note:** The School of Continuing Studies offers graduate diplomas and graduate certificates that are not under the academic supervision of Graduate and Postdoctoral Studies. To see a list of the programs offered refer to the School of Continuing Studies Programs, Courses and University Regulations publication available at [www.mcgill.ca/study](http://www.mcgill.ca/study).

## 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.L.I.S., M.Mus. in Sound Recording; M.U.P.; M.A. (60 credits – Counselling Psychology – thesis; 78 credits – Educational Psychology); M.A. Teaching and Learning – Non-Thesis; M.Sc.A. in Communication Sciences and Disorders; S.T.M., Religious Studies.

• The residence requirement for the master's program in Education (M.Ed.); Library and Information Studies (M.L.I.S.); Management (M.B.A.); Religious Studies (S.T.M.); M.A. Counselling Psychology – Non-Thesis; M.A. Teaching and Learning – Non-Thesis; M.Sc. in Public Health – Non-Thesis; M.Sc.A. Nursing; M.Sc.A. Occupational Therapy; M.Sc.A. Physical Therapy; and students in part-time programs is determined on a per course basis. Residence requirements are fulfilled when students complete all course requirements in their respective programs.

• For master's programs structured as Course, Project or Non-Thesis options where the program is pursued on a part-time basis, residence requirements are normally fulfilled when students complete all course requirements in their respective programs (minimum 45 credits or a minimum of three full-time terms) and pay the fees accordingly.

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

Coursework – Master's Degrees

Program requirements are outlined in the relevant departmental sections of the Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication, available at www.mcgill.ca/study.

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 courses passed at any recognized university.

As a rule, no more than one-third of the McGill program formal coursework (not thesis, project, stage, or internship) can be credited with courses from another university.

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

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

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

If courses were not used for a degree, they could be credited toward a McGill degree, keeping in mind that a maximum of one-third of the coursework (not thesis, project, stage, internship, and practicum) can be credited. If an exemption is granted, it must be replaced by another graduate course at McGill toward the degree. No double counting is ever allowed. This regulation also applies to doctoral programs.

Research and Thesis – Master's Degrees

All candidates for a research degree must present a thesis based on their own research. The total number of credits allotted to the thesis in any master's program must not be less than 24. The title of the thesis and names of examiners must be forwarded on a Nomination of Examiners form, in accordance with the dates on www.mcgill.ca/importantdates, through the chair of the department concerned at the same time as the thesis is submitted to Graduate and Postdoctoral Studies. A thesis for the master's degree, while not necessarily requiring an exhaustive review of work in the particular field of study, or a great deal of original scholarship, must show familiarity with previous work in the field and must demonstrate the ability to carry out research and to organize results, all of which must be presented in good literate style. The thesis will not normally exceed 100 pages; in some disciplines, shorter texts are preferred. Guidelines and deadlines are available at www.mcgill.ca/gradstudents/thesis/guidelines.

Language Requirements – Master's Degrees

Most master's degree programs do not include language requirements, but candidates who intend to proceed to a doctoral degree should take note of any language requirements and are strongly advised to take the examinations in at least one language while working for the master's degree.

5.2 Doctoral Degrees

Residence Requirements – Doctoral

Refers to the numbers 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.

Candidates entering Ph.D. 1 must follow a program of at least three years' residency at the University; this is a minimum requirement, and there is no guarantee that the work of the degree can be completed in this time, but students are expected to complete within the maximum specified period. Only exceptional candidates holding a bachelor's degree will be considered for direct admission to Ph.D. 1 level.

It is required that candidates spend the greater part of each summer working on their theses, and those who do not do so are unlikely to complete a satisfactory thesis in the prescribed minimum time (see section 8.3: Vacation Policy for Graduate Students and Postdocs).

A student who has obtained a master's degree at McGill University or at an approved institution, in a relevant subject and is proceeding to a Ph.D. degree will, on the recommendation of the department, be admitted to Ph.D. 2; in this case, the residency requirement for the program is two years.

In the doctoral program, students must be registered on a full-time basis for one more year after completion of the residency (i.e., Ph.D. 4 year) before continuing as Additional Session students until completion of the program.
Note: The master’s degree must have been awarded before initial registration in the doctoral program; otherwise, the admission level will be at Ph.D. 1 and residency will be extended to three years. Once the level of admission is approved, it will not be changed after obtaining the master’s degree if the date falls after registration in the program. If a previous awarded degree is a condition of admission, it must be fulfilled before registration in another program.

As a rule, no more than one-third of the McGill program formal coursework can be credited with courses from another university.

**Comprehensive Examinations – Doctoral**

A comprehensive examination or its equivalent is usually held near the end of Ph.D. 2. The results of this examination determine whether or not students will be permitted to continue in their programs. The methods adopted for examination and evaluation and the areas to be examined are specified by departmental regulations approved by the Dean of Graduate and Postdoctoral Studies. It is the responsibility of students to inform themselves of these details at the commencement of their programs. For more information, see *Programs, Courses and University Regulations > University Regulations and Resources > Graduate > Guidelines and Policies > Ph.D. Comprehensives Policy*.

**Language Requirements – Doctoral**

Most graduate departments in the Faculties of Agricultural and Environmental Sciences, Education, Engineering, Management, Medicine, and Science do not require a language examination. Students should inquire in their departments if there are any such requirements or whether any other requirements have been substituted for those relating to languages.

Graduate departments in the Faculties of Arts, Music, and Religious Studies usually require proficiency in one or two languages other than English. In all cases, students should consult departmental regulations concerning language requirements.

Language requirements for the Ph.D. degree are met through demonstrated reading knowledge. The usual languages are French, German, or Russian, but in particular instances another language may be necessary.

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.

Courses in French language are available at the English and French Language Centre. The teaching is intensive and class sizes are kept small. While undergraduate students are given preference, graduate students who are certain they can 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 form 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 are available at www.mcgill.ca/gps/students/thesis/guidelines.

Seven copies of the thesis must be provided by the candidate. Of these, two copies will be retained by the University and five copies returned to the candidate. Some departments may require one or more additional copies. The final corrected copy is submitted electronically.

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 are available at www.mcgill.ca/gps/students/thesis/guidelines.

### 5.3 Ad Personam Programs (Thesis Option Only)

In very rare circumstances, an applicant who wishes to engage in 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 Ministère de l'Éducation, du Loisir et du Sport (MELS) to offer its own graduate programs, may be admitted to an Ad Personam program. For more information, see www.mcgill.ca/gps/policies/adpersonam 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 extra to the program (will be flagged as such on the record and fees will be charged). See document at www.mcgill.ca/gps/staff/registration.
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 studies must be approved by GPS before registration. Double counting is not permitted.

### 6 General Admission for Graduate Studies

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

Email: servicepoint@mcgill.ca

**Deadline:** Admission to graduate studies operates on a rolling basis; complete applications and their supporting documentation must reach departmental offices on or before the Date for Guaranteed Consideration specified by the department. To be considered for entrance fellowships, where available, applicants must verify the deadlines with individual departments. Meeting minimum admission standards does not guarantee admission.

#### 6.1 Application for Admission

Application information and the online application form are available at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply). Applicants (with some exceptions) are required to ask two instructors familiar with their work to send letters of recommendation. All applicants must themselves send, or ask the appropriate university authorities to send, two official or certified copies of their complete academic record from each university-level institution attended to date. McGill graduates do not need to submit McGill transcripts. Letters of recommendation and official transcripts must be sent directly to the department concerned. Please note that all documents submitted to McGill University in support of an application to be admitted, including, but not limited to transcripts, diplomas, letters of reference, and test scores, become the property of McGill University and will not be returned to the applicant or issuing institution under any circumstance.

A non-refundable fee of $100 in Canadian funds must accompany each application; otherwise, it cannot be submitted. This sum must be paid by credit card and is non-refundable when submitting the online application form. Candidates for Special, Visiting, and Qualifying status must apply and pay the application fee every year (i.e., every Fall term).

It is recommended that applicants submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Transcripts written in a language other than English or French must be accompanied by a translation prepared by a licensed translator. An explanation of the grading system used by the applicant’s university is essential. The applicant should also indicate the major subject area in which further study is desired.

Completed applications, with supporting documents, must reach departmental offices according to individual department dates for Guaranteed Consideration. Applicants should contact the department concerned, or see: [www.mcgill.ca/gradapplicants/programs](http://www.mcgill.ca/gradapplicants/programs). International students are advised to apply well in advance of the Date for Guaranteed Consideration as immigration procedures may be lengthy. Applications received after the prescribed dates for Guaranteed Consideration may or may not be considered, at the discretion of the department. Candidates will be notified of acceptance or refusal by Enrolment Services.

Admission to graduate programs at McGill is highly competitive and the final decision rests with the Graduate Admissions Committee. Admission decisions are not subject to appeal or reconsideration.

#### 6.2 Admission Requirements (minimum requirements to be considered for admission)

**Note:** The following admission requirements are the minimum standard for applicants to McGill’s Graduate and Postdoctoral Studies programs. Some graduate units may require additional qualifications or a higher minimum CGPA; prospective students are strongly urged to consult the unit concerned regarding specific requirements set for their program of interest.

Applicants should be graduates of a university of recognized reputation and hold a bachelor’s degree or its equivalent, as determined by McGill, in a subject closely related to the one selected for graduate work.

The applicant must present evidence of academic achievement: a minimum standing equivalent to a cumulative grade point average (CGPA) of 3.0 out of a possible 4.0 or a CGPA of 3.2/4.0 for the last two full-time academic years. High grades are expected in courses considered by the department to be preparatory to the graduate program. Some departments impose additional or higher requirements.

See [www.mcgill.ca/gradapplicants/apply/prepare/requirements/international-degree-equivalency](http://www.mcgill.ca/gradapplicants/apply/prepare/requirements/international-degree-equivalency) for information on grade equivalencies and degree requirements from countries in Europe and around the world.

Admission to graduate programs at McGill is highly competitive and the final decision rests with the Graduate Admissions Committee. Admission decisions are not subject to appeal or reconsideration.
6.3 Admission Tests

Graduate Record Examination (GRE)

The Graduate Record Examination (GRE) (Educational Testing Service, Princeton, NJ 08540) consists of a relatively advanced test in the candidates’ specialty, and a general test of their attainments in several basic fields of knowledge for which no special preparation is required or recommended. It is offered at many centres, including Montreal, several times a year; the entire examination takes about eight hours, and there is a registration fee. Refer to www.ets.org/gre for further information. Only some departments require applicants to write the GRE examination, but all applicants who have written either the general aptitude or the advanced test are advised to submit the scores along with their other admission material.

This credential is of special importance in the case of applicants whose education has been interrupted, or has not led directly toward graduate study in the subject selected. In such cases the department has the right to insist on a report from the Graduate Record Examination or some similar test. High Standing in this examination will not by itself guarantee admission. The Miller Analogies Test may be used similarly. Some departments of the Faculty of Education also require the taking of various tests.

Graduate Management Admissions Test (GMAT)

Applicants to graduate programs in Management must submit scores from the Graduate Management Admissions Test (GMAT). The test is a standardized assessment offered by the Graduate Management Admission Council to help business schools assess candidates for admission. For further information, see www.mba.com/the-gmat.

6.4 Competency in English

Applicants to graduate studies must demonstrate an adequate level of proficiency in English prior to admission, regardless of citizenship status or country of origin.

Normally, applicants meeting any one of the following conditions are NOT required to submit proof of proficiency in English:

1. Mother tongue (language first learned and still used on a daily basis) is English.
2. Has obtained (or is about to obtain) an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction.
3. Has obtained (or is about to obtain) an undergraduate or graduate degree from a recognized institution in Canada or the United States of America (anglophone or francophone).
4. Has lived and attended university, or been employed, for at least four consecutive years, in a country where English is the acknowledged primary language.

Applicants who do not meet any of the above-listed conditions must demonstrate proficiency in English using one of the following options:

1. TOEFL (Test of English as a Foreign Language): minimum acceptable scores are:

<table>
<thead>
<tr>
<th>Competency in English</th>
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</thead>
<tbody>
<tr>
<td>iBT (Internet-based test)</td>
</tr>
<tr>
<td>PBT (paper-based test)</td>
</tr>
<tr>
<td>CBT (computer-based test)*</td>
</tr>
</tbody>
</table>

N.B. an institutional version of the TOEFL is not acceptable.

2. IELTS (International English Language Testing System): a band score of 6.5 or greater.
3. MELAB (Michigan English Language Assessment Battery): a grade of 85% or higher.
4. University of Cambridge ESOL Certificate in Advanced English (CAE): a grade of “B” (Good) or higher.
5. University of Cambridge ESOL Certificate of Proficiency in English (CPE): a grade of “C” (Pass) or higher.

In each case, applicants must ensure that official test results are sent to McGill directly by the testing service. Applications cannot be considered if test results are not available. These scores are general minima; some departments may set higher requirements.

Revised – July 2008
6.5 Admission to a Qualifying Program

Some applicants whose academic degrees and Standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a Qualifying Program for a master's. The undergraduate-level courses to be taken in a Qualifying Program will be prescribed by the department concerned.

Qualifying students are registered in graduate studies, but not as candidates for a degree. Only one Qualifying year (i.e., two full-time terms) is permitted. In all cases, after the completion of a Qualifying year or term, an applicant interested in commencing a degree program must apply for admission by the Dates for Guaranteed Consideration. Successful completion of the work in the Qualifying Program (B- in all courses) does not automatically entitle the student to proceed toward a degree. Qualifying year students must apply for admission to the program for which they seek qualification.

In cases where a department recommends a change of registration from Qualifying Program (Fall) to Master's Degree First Year (Winter), students must apply to the degree program by the Winter departmental Dates for Guaranteed Consideration. A Qualifying year applicant admitted to a Winter term as a first term of studies must apply for admission for a Fall term as his/her second term of studies.

Students who are ineligible for a Qualifying Program may apply to the appropriate undergraduate faculty for admission as regular or Special Students, and seek admission to graduate studies at a later date. The normal admission requirements must be met and the usual procedures followed.

6.6 Admission to a Second Degree Program

A candidate with a given higher degree may apply for admission to a second degree program at the same level but in a different subject. The normal admission requirements must be met and all the usual procedures followed.

6.7 Admission to Two Degree Programs

Students may, with special permission granted by Graduate and Postdoctoral Studies, be admitted to two degree programs or to two departments or faculties. Students are never permitted to pursue two full-time degree programs concurrently.

6.8 Admission to an Ad Personam Joint Program

Ad Personam joint graduate programs are restricted to Master's thesis option and Ph.D. programs. Approval for the joint program must be obtained from Graduate and Postdoctoral Studies. The request shall be signed by the Chairs of both departments involved and shall explicitly list the conditions imposed. The student shall undertake research under the joint supervision of both departments.

This program is described in more detail at www.mcgill.ca/gps/policies/adpersonam.

6.9 Reinstatement and Admission of Former Students

Students who have not been registered for a period of less than two years and who have not officially withdrawn from the University by submitting a signed Withdrawal Form to Service Point are eligible to be considered for reinstatement into their program. The student's department must recommend, in writing, that the student be reinstated, stipulating any conditions for reinstatement that it deems appropriate. The final decision rests with GPS. Normally, the departmental recommendation is approved. If the student's department chooses not to recommend reinstatement, the student may appeal to the Associate Dean (Graduate and Postdoctoral Studies). The decision of the Associate Dean (Graduate and Postdoctoral Studies) shall be final and not subject to further appeal.

Reinstatement fees will be charged in addition to the fees due for the academic session into which the student has been reinstated. The amount of the reinstatement fees is the tuition portion of fees owed for all unregistered terms, up to a maximum of two years just prior to the term of reinstatement.

If an individual has not registered for a period of more than two years, their student file will be closed. These individuals and those who have formally withdrawn may be considered for admission. Applicants’ admission applications will be considered as part of the current admission cycle, in competition with other people applying during that cycle and in accordance with current graduate admission procedures and policies.

Procedure: Requirements for completion of the program will be evaluated. Some of these requirements may need to be redone or new ones may be added. Applicants must inquire about the fees that will be charged.

6.10  **Deferral of Admission**

Under exceptional circumstances, an admission for a particular semester can be considered for a deferral. This can be considered only if the student has not registered. If the student has already registered, no deferral can be granted. The student must withdraw from the University and apply for admission to a later term.

7  **Fellowships, Awards, and Assistantships**

Graduate and Postdoctoral Studies  
(Fellowships and Awards Section)  
James Administration Building, Room 400  
845 Sherbrooke Street West  
Montreal, QC H3A 0G4  
Telephone: 514-398-3990  
Fax: 514-398-2626  
Website: www.mcgill.ca/gps/students/fellowships

The Fellowships and Awards section of Graduate and Postdoctoral Studies provides processing services for many sources of support for Canadian and non-Canadian students, both new to McGill and continuing. Further information on these and other sources of funding can be found in various publications on the Fellowships and Awards web pages. The *Graduate Fellowships and Awards Calendar* lists all internal awards as well as numerous external awards. Entrance Fellowships are awarded on the basis of the application for admission, upon nomination by academic departments. Most internal fellowships are awarded in this manner—please contact the proposed academic department directly for further information.

Research assistantships, teaching assistantships, and stipends from professors’ research grants are handled by individual academic departments at McGill. Fellowships, assistantships, and stipends are used to make funding packages for graduate students. All assistantship and stipend inquiries should be directed to departments.

A small number of citizens from countries whose governments have entered into agreements on tuition fees with Quebec may be exempted from the supplemental tuition fees normally required of international students. All French citizens and a limited number of citizens of countries in the list, which can be found at www.mels.gouv.qc.ca/sections/publications/index.asp?page=fiche&id=1039, are eligible for such exemptions. For more information and the necessary application materials, see this MELS website: www.mels.gouv.qc.ca/international/index_en.asp?page=progExemp. The list of organizations where students should apply can be accessed from this website.

Differential Fee Waivers (DFWs) for international students provide eligible non-Canadian graduate students with waivers of the international tuition fee supplement. There are no application forms for differential fee waivers, since these are awarded on the basis of departmental nominations made to the Fellowships and Awards section. Eligible students should contact their McGill department.

8  **Postdoctoral Research**

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

8.1  **Postdocs**

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

Postdocs must be appointed by their department and registered with Enrolment Services in order to have access to University facilities (library, computer, etc.).

8.2  **Guidelines and Policy for Academic Units on Postdoctoral Education**

The general guidelines listed below are meant to encourage units to examine their policies and procedures to support postdoctoral education. Every unit hosting Postdocs should have explicitly stated policies and procedures for the provision of postdoctoral education as well as established means for informing
Postdocs of policies, procedures, and privileges (e.g., orientation sessions, handbooks, etc.), as well as mechanisms for addressing complaints. Academic units should ensure that their policies, procedures and privileges are consistent with these guidelines and the Charter of Students’ Rights. For their part, Postdocs are responsible for informing themselves of policies, procedures, and privileges.

1. Definition and Status

i. Postdoctoral status will be recognized by the University in accordance with Quebec provincial regulations. Persons may only be registered with postdoctoral status for a period of up to five years from the date they were awarded a Ph.D. or equivalent degree. Time allocated to parental or health leave is added to this period of time. Leaves for other reasons, including vacation leave, do not extend the term. Postdocs must do research under the supervision of a McGill professor, including Adjunct Professors, who is a member of McGill’s academic staff qualified in the discipline in which training is being provided and with the abilities to fulfill responsibilities as a supervisor of the research and as a mentor for career development. They are expected to be engaged primarily in research with minimal teaching or other responsibilities.

2. Registration

i. Postdocs must be registered annually with the University through Enrollment Services. Initial registration will require an original or notarized copy of the Ph.D. diploma. Registration will be limited to persons who fulfill the definition above and for whom there is an assurance of appropriate funding and where the unit can provide assurance of the necessary resources to permit postdoctoral education.

ii. Upon registration, the Postdoc will be eligible for a University identity card issued by Enrollment Services.

3. Appointment, Pay, Agreement of Conditions

i. Appointments may not exceed your registration eligibility status.

ii. In order to be registered as a Postdoc, you must be assured of financial support other than from personal means during your stay at McGill University, equivalent to the minimal stipend requirement set by the University in accordance with guidelines issued by federal and provincial research granting agencies. There are no provisions for paid parental leave unless this is stipulated in the regulations of a funding agency outside the University.

iii. At the outset of a postdoctoral appointment, a written Letter of Agreement for Postdoctoral Education should be drawn up and signed by the Postdoc, the supervisor, and the department head or delegate (see template Letter of Agreement on the web at www.mcgill.ca/gps/postdocs and supporting document—Commitments for Postdoctoral Scholars and Supervisors at www.mcgill.ca/files/gps/Commitments_of_Postdoctoral_Scholars_and_Supervisors_July_09.pdf). This should stipulate, for example, the purpose of the postdoctoral appointment (research training and the advancement of knowledge), the duration of the fellowship/support, the modality of pay, the work space, travel funds, and expectations and compensation for teaching and student research supervision. Leaves from postdoctoral education must comply with the Graduate and Postdoctoral Studies Policies for Vacation, Parental/Familial, and Health Leave (see section 8.3: Vacation Policy for Graduate Students and Postdocs and Programs, Courses and University Regulations > University Regulations and Resources > Graduate > : Health and Parental/Familial Leave of Absence Policy). Any breach of these conditions may result in grievance procedures or the termination of the postdoctoral appointment.

iv. Postdocs with full responsibility for teaching a course should be compensated over and above their fellowship at the standard rate paid to lecturers by their department.

v. The amount of research, teaching, or other tasks that Postdocs engage in over and above postdoctoral activities should conform to the regulations for Postdocs specified by the Canadian research council of their discipline. This applies to all Postdocs, including those whose funding does not come from the Canadian research councils.

4. Privileges

i. Postdocs have the same pertinent rights as the ones granted to McGill students in the Handbook on Student Rights and Responsibilities (“Green Book”), available at www.mcgill.ca/secretariat/policies/students.

ii. Postdocs have full graduate student borrowing privileges in McGill libraries through their identity card.

iii. As a rule, Postdocs who are Canadian citizens or who have Permanent Resident status may take courses for credit. Admission to such courses should be sought by submitting application documents directly to the appropriate program by the Postdoc. They must be admitted by the department offering the courses as Special Students. These Postdocs may only be enrolled as part-time students in non-degree granting programs. They will be charged fees for these courses.

iv. Postdocs may be listed in the McGill directory. The Computing Centre will grant Postdocs email privileges on the same basis as graduate students upon presentation of a valid identity card.

v. The Department of Athletics will grant Postdocs access to sports facilities upon presentation of their identity card. A fee will be charged on an annual or term basis.

vi. Postdocs are mandatory members of the Post-Graduate Students’ Society (PGSS) and an annual association fee is automatically charged. PGSS fees are mandatory. Postdocs are permitted membership in the Faculty Club; an annual fee will be charged for this membership.

vii. Postdocs are encouraged to participate in Professional Development Workshops provided by Graduate and Postdoctoral Studies and Teaching and Learning services. These sessions are usually free of charge.

viii. Postdocs have access to the services provided by the Ombudsperson.

ix. Postdocs may enrol as part-time students in the second language written and spoken English/French courses offered by the School of Continuing Studies/French Language Centre. Postdocs will be charged tuition for these courses. International Postdocs may be required to obtain a CAQ and a Study Permit.

x. Access to student services and athletic services are available to the Postdoc on an opt-in basis. Fees are applicable.

5. Responsibilities


i. Postdocs are subject to the responsibilities outlined in the *Handbook on Student Rights and Responsibilities* ("Green Book"), available at www.mcgill.ca/secretariat/policies/students.

ii. Each academic unit hosting Postdocs should clearly identify Postdocs’ needs and the means by which they will be met by the unit.

iii. Each academic unit should assess the availability of research supervision facilities, office space, and research funding before recruiting Postdocs.

iv. Some examples of responsibilities of the department are:
- to verify the Postdoc’s eligibility period for registration;
- to provide Postdocs with departmental policy and procedures that pertain to them;
- to oversee the registration and appointment of Postdocs;
- to assign departmental personnel (e.g., Postdoc coordinator and Graduate Program Director) the responsibility for Postdocs;
- to ensure that each Postdoc has a supervisor, lab and/or office space, access to research operating costs and necessary equipment;
- to include Postdocs in departmental career and placement opportunities;
- to refer Postdocs to the appropriate University policies and personnel for the resolution of conflict that may arise between a Postdoc and a supervisor.

v. Some examples of responsibilities of the supervisor are:
- to uphold and transmit to their Postdocs the highest professional standards of research and/or scholarship;
- to provide research guidance;
- to meet regularly with their Postdocs;
- to provide feedback on research submitted by the Postdocs;
- to clarify expectations regarding intellectual property rights in accordance with the University’s policy;
- to provide mentorship for career development;
- to prepare, sign, and adhere to a Letter of Agreement for Postdoctoral Education.

vi. Some examples of responsibilities of Postdocs are:
- to inform themselves of and adhere to the University’s policies and/or regulations for Postdocs for leaves, for research, and for student conduct as outlined in the *Handbook on Student Rights and Responsibilities* and the Graduate and Postdoctoral Studies University Regulations and Resources;
- to submit a complete file for registration to Enrolment Services;
- to sign and adhere to their Letter of Agreement for Postdoctoral Education;
- to communicate regularly with their supervisor;
- to inform their supervisor of their absences.

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

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

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

*Council of FGSR April 23, 1999*

8.4 **Leave of Absence for Health and Parental/Familial Reasons**

A leave of absence may be granted for maternity or parental reasons or for health reasons (see *Programs, Courses and University Regulations > University Regulations and Resources > Graduate > : Health and Parental/Familial Leave of Absence Policy*).

Such a leave must be requested on a term-by-term basis and may be granted for a period of up to 52 weeks. Students and Postdocs must make a request for such a leave in writing to their department and submit a medical certificate. The department shall forward the request to Enrolment Services. See procedure...
8.5 Postdoctoral Research Trainees

Eligibility
If your situation does not conform to the Quebec Ministère de l’Éducation, du Loisir et du Sport (MELS) definition of Postdoctoral Fellow, you may be eligible to attend McGill as a Postdoctoral Research Trainee. While at McGill, you can perform research only (you may not register for courses or engage in clinical practice). Medical specialists who will have clinical exposure and require a training card must register through Postgraduate Medical Education of the Faculty of Medicine—not Graduate and Postdoctoral Studies.

The category of Postdoctoral Research Trainee is for:

**Category 1:** An individual who has completed requirements for the Doctoral degree or medical specialty, but the degree/certification has not yet been awarded. The individual will subsequently be eligible for registration as a Postdoctoral Fellow.

**Category 2:** An individual who is not eligible for Postdoctoral Registration according to the MELS definition, but is a recipient of an external postdoctoral award from a recognized Canadian funding agency.

**Category 3:** An individual who holds a professional degree (or equivalent) in a regulated health profession (as defined under CIHR-eligible health profession) and is enrolled in a program of postgraduate medical education at another institution. The individual wishes to conduct the research stage or elective component of his/her program of study at McGill University under the supervision of a McGill professor. The individual will be engaged in full-time research with well-defined objectives, responsibilities, and methods of reporting. The application must be accompanied by a letter of permission from the home institution (signed by the Department Chair, Dean or equivalent) confirming registration in their program and stating the expected duration of the research stage.

Individuals who are expecting to spend more than one year are encouraged to obtain formal training (master’s or Ph.D.) through application to a relevant graduate program.

**Category 4:** An individual with a regulated health professional degree (as defined under CIHR-eligible health profession), but not a Ph.D. or equivalent or medical specialty training, but who fulfills criteria for funding on a tri-council operating grant or by a CIHR fellowship (up to maximum of five years post-degree).

**Note:** Individuals who are not Canadian citizens or permanent residents must inqure about eligibility for a work permit.

**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 Programs, Courses and University Regulations > 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
- Health and Parental/Familial Leave of Absence Policy
- Failure Policy
• Guideline on Hours of Work

10 Information on Research Policies and Guidelines, Patents, Postdocs, Associates, Trainees

Refer to Programs, Courses and University Regulations > University Regulations and Resources > Graduate > Research Policy and Guidelines, Patents, Postdocs, Associates, Trainees for information on the following:

• Policy on Research Ethics
• Regulations on Research Policy
• Policy on Research Integrity
• Guidelines for Research Involving Human Subjects
• Guidelines for Research with Animal Subjects
• Policy on Intellectual Property
• Regulations Governing Conflicts of Interest
• Safety in Field Work
• Office of Sponsored Research
• Postdocs
• Research Associates

11 Academic Programs

The programs and courses in the following sections have been approved for the 2012–2013 session as listed, but the Faculty reserves the right to introduce changes as may be deemed necessary or desirable.

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: 514-398-7820
Email: agr econ@mcgill.ca
Website: http://agrecon.mcgill.ca

11.1.2 About Agricultural Economics

For program information please see section 11.7: Natural Resource Sciences.

11.1.3 Agricultural Economics Faculty

Program Director
J.C. Henning

Associate Professors
J.C. Henning; B.Sc., Ph.D.(Guelph)
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: 514-398-7794
Fax: 514-398-7964
Email: animal.science@mcgill.ca
Website: www.mcgill.ca/animal

11.2.2 About Animal Science

The Department of Animal Science provides exciting challenges to graduate students in the areas of Biotechnology and Molecular Biology, Breeding and Genetics, Nutrition, and Reproductive Physiology as they relate, not only to livestock production but also leading into the fields of human nutrition and medicine via animal models for human disease, infertility, and obesity. Official options in Biotechnology are also available. Departmental researchers have excellent wet-lab facilities at their disposal; large-animal studies can be carried out at the Large Animal Research Unit on the Macdonald campus farm, where other livestock species are available for research trials as well. Research can make use of the Small Animal Research Unit for studies involving rodent animal models, guinea pigs, neonatal piglets, and rabbits. Expertise is also available in applied information systems, management-software development, and large-scale data analyses. Close collaboration with the Quebec Centre for Expertise in Dairy Production (Valacta) allows for large-scale data-mining projects, software development, and the production of advising tools for the industry. The Department also has significant expertise in food safety, environmental studies related to animal production, and global food security. Our staff's many connections via research networks allow for rich learning environments for our graduate students.

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

Four one-semester courses and two seminar courses at the postgraduate level complement an area of research (resulting in a thesis) under the supervision of one of our staff—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 graduate training in applied areas of animal production with a view toward integrating technology and management in animal production with allied areas of agricultural resource utilization.

section 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 normally be considerably less than is the case for the M.Sc. It depends on the background of the individual student and must be approved by the student's Advisory Committee. At a minimum, it includes two seminar courses at the graduate level and the Ph.D. Comprehensive Examination as an admission to candidacy for the Ph.D. As with the M.Sc. (Thesis), admission is based on an excellent track record. Suitable candidates are encouraged to contact potential supervisors within their chosen area of interest. Applicants should, however, be aware that no professor is in a position to accept students without formal approval of the application by the Graduate Admissions Committee.
Bioinformatics research lies at the intersection of biological/medical sciences and mathematics/computer science/engineering. The intention of the Bioinformatics Option is to train students to become researchers in this interdisciplinary field. This includes the development of strategies for experimental design, the construction of tools to analyze datasets, the application of modelling techniques, the creation of tools for manipulating bioinformatics data, the integration of biological databases, and the use of algorithms and statistics.

11.2.3 Animal Science Admission Requirements and Application Procedures

11.2.3.1 Admission Requirements

M.Sc. (Thesis)
Candidates are required to have either a bachelor's degree in Agriculture or a B.Sc. degree in an appropriate, related discipline 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. (Applied)
All candidates are required to have a B.Sc. degree or equivalent.

Ph.D.
Candidates are normally required to have an M.Sc. degree in an area related to the chosen field of specialization for the Ph.D. program.

11.2.3.2 Application Procedures

Applicants for graduate studies through academic units in the Faculty of Agricultural and Environmental Sciences must forward supporting documents to:

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

Telephone: 514-398-7792
Fax: 514-398-7964
Email: animal.science@mcgill.ca

Applications will be considered upon receipt of a signed and completed application form, $100 application fee, and the following supporting documents:

Transcripts – Two official copies of all university-level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a bachelor's degree or its equivalent, as determined by McGill, in a subject closely related to the one selected for graduate work.

Letters of Recommendation – Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. It is the applicant's responsibility to arrange for these letters to be sent. Letters of recommendation may also be sent electronically (via email). Letters sent electronically must meet the following conditions:

1. The email communicating the electronic letter must be sent from a valid institutional or corporate email address (domain). Electronic letters sent from public domain addresses such as Hotmail, Gmail, Yahoo Mail, or Videotron, etc., cannot be accepted.
2. The electronic letters must be specific as to which program the student has applied to, and include information that would aid an admissions committee in making an informed decision.
3. Letters of reference (electronic and hard copy) must be dated and must not be more than 12 months old.
4. The referee must indicate his/her position and full contact information at the institution.
5. Electronic letters sent from a Career Centre or Portfolio Management Company must state that the letters are confidential.

For hard-copy letters submitted on electronic letterhead with an electronic signature, the letter must conform to conditions 1) through 5) (above) and must also be sent in an envelope sealed by the referee.

Competency in English – Applicants to graduate studies whose mother tongue is not English, and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 550 or 86 on the Internet-based test, with each component score not less than 20) or IELTS (minimum 6.5 overall band). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31 (Graduate Schools), Biological Sciences – Agriculture, to ensure that your TOEFL reaches this office without delay.
Graduate Record Exam (GRE) – The GRE is not required, but it is highly recommended.

Documents submitted will not be returned.

Application Fee (non-refundable) – A fee of CAD$100 must accompany each application (including those of McGill students); otherwise, it cannot be considered. This sum must be remitted by credit card only.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to all programs depends on a staff member agreeing to serve as the student’s supervisor and the student obtaining financial support. 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.

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

11.2.3 Dates for Guaranteed Consideration

<table>
<thead>
<tr>
<th></th>
<th>Canadian</th>
<th>International</th>
<th>Special/Exchange/Visiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall: June 30</td>
<td>Fall: March 15</td>
<td>Same as Canadian/International</td>
<td></td>
</tr>
<tr>
<td>Winter: Sept. 15</td>
<td>Winter: Sept. 15</td>
<td>Same as Canadian/International</td>
<td></td>
</tr>
<tr>
<td>Summer: N/A</td>
<td>Summer: N/A</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

It may be necessary to delay review of the applicant’s file until the following admittance period if application materials including supporting documents are received after the Dates for Guaranteed Consideration. International applicants are advised to apply well in advance of these dates because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the web at www.mcgill.ca/gradapplicants/apply.

11.2.4 Animal Science Faculty

Chair
Kevin M. Wade

Emeritus Professors
R.B. Buckland; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(Md.)
E.R. Chavez; Ing.Agr.(Chile), M.Sc., Ph.D.(Davis)
E. Donefer; B.Sc., M.Sc.(C'nell), Ph.D.(McG.)
B.R. Downey; D.V.M.(Tor.), Ph.D.(McG.)
U. Kühnlein; B.Sc.(Fed. Inst. of Tech., Zurich), Ph.D.(Geneva)
J.E. Moxley; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(C'nell)
S. Touchburn; M.S.A.(Br. Col.), Ph.D.(Ohio St.)

Professors
J.F. Hayes; B.Agr.Sc., M.Agr.Sc.(Dublin), Ph.D.(N. Carolina St.)
X. Zhao; B.Sc., M.Sc.(Nanjing), Ph.D.(C'nell) (James McGill Professor)

Associate Professors
V. Bordignon; D.V.M.(URCAMP, Brazil), M.Sc.(UFPei, Brazil), Ph.D.(Montr.)
R.I. Cue; B.Sc.(Newcastle, UK), Ph.D.(Edin.)
S. Kimmins; B.Sc.(Dal.), M.Sc.(Nova Scotia Ag.), Ph.D.(Dal.) (CRC Chair, Tier 2)
H. Monardes; Ing.Agr.(Concepcion, Chile), M.Sc., Ph.D.(McG.)
A.F. Mustafa; B.Sc., M.Sc.(Khartoum), Ph.D.(Sask.)
L.E. Phillip; B.Sc.(Agr.), M.Sc.(Agr.)(McG.), Ph.D.(Guelph)
**11.2.5 Master of Science (M.Sc.); Animal Science (Thesis) (45 credits)**

**Thesis Courses (31 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 680</td>
<td>7</td>
<td>M.Sc. Thesis 1</td>
</tr>
<tr>
<td>ANSC 681</td>
<td>7</td>
<td>M.Sc. Thesis 2</td>
</tr>
<tr>
<td>ANSC 682</td>
<td>7</td>
<td>M.Sc. Thesis 3</td>
</tr>
<tr>
<td>ANSC 683</td>
<td>10</td>
<td>M.Sc. Thesis 4</td>
</tr>
</tbody>
</table>

**Required Courses (14 credits)**

12 credits of coursework at the 500 level or higher approved by the student's advisory committee, and two seminars.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 695</td>
<td>1</td>
<td>Animal Science Seminar 1</td>
</tr>
<tr>
<td>ANSC 696</td>
<td>1</td>
<td>Animal Science Seminar 2</td>
</tr>
</tbody>
</table>

Advanced undergraduate courses may be considered for graduate credit if approved by the student's committee and Graduate and Postdoctoral Studies and passed at the graduate level; generally, this will not constitute more than one of the four required courses.

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

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

**Research Project (15 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 643</td>
<td>3</td>
<td>Project 1</td>
</tr>
<tr>
<td>ANSC 644</td>
<td>3</td>
<td>Project 2</td>
</tr>
<tr>
<td>ANSC 645</td>
<td>3</td>
<td>Project 3</td>
</tr>
<tr>
<td>ANSC 646</td>
<td>3</td>
<td>Project 4</td>
</tr>
<tr>
<td>ANSC 647</td>
<td>3</td>
<td>Project 5</td>
</tr>
</tbody>
</table>

**Complementary Courses (30 credits)**

15-30 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 610</td>
<td>3</td>
<td>Statistical Methods 2</td>
</tr>
<tr>
<td>ANSC 504</td>
<td>3</td>
<td>Population Genetics</td>
</tr>
<tr>
<td>ANSC 530</td>
<td>3</td>
<td>Experimental Techniques in Nutrition</td>
</tr>
<tr>
<td>ANSC 551</td>
<td>3</td>
<td>Carbohydrate and Lipid Metabolism</td>
</tr>
</tbody>
</table>
0-15 credits selected from 500- and 600-level courses from across the Faculty (with the possibility of up to 9 credits from outside the Faculty if deemed appropriate by the supervisor).

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

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

**Thesis**

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

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>(Credits)</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 701</td>
<td>(0)</td>
<td>Doctoral Comprehensive Examination</td>
</tr>
</tbody>
</table>

Two seminar courses at the 500, 600, or 700 level.

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

**Thesis**

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

**Required Courses (5 credits)**

<table>
<thead>
<tr>
<th>Code</th>
<th>(Credits)</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 701</td>
<td>(0)</td>
<td>Doctoral Comprehensive Examination</td>
</tr>
<tr>
<td>ANSC 797</td>
<td>(1)</td>
<td>Animal Science Seminar 3</td>
</tr>
<tr>
<td>ANSC 798</td>
<td>(1)</td>
<td>Animal Science Seminar 4</td>
</tr>
<tr>
<td>COMP 616D1</td>
<td>(1.5)</td>
<td>Bioinformatics Seminar</td>
</tr>
<tr>
<td>COMP 616D2</td>
<td>(1.5)</td>
<td>Bioinformatics Seminar</td>
</tr>
</tbody>
</table>

**Complementary Courses (6 credits)**

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

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
McDonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: 514-398-7774
Fax: 514-398-8387
Email: susan.gregus@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; and artificial intelligence. The Department also offers a Graduate Certificate in Bioresource Engineering (Integrated Water Resources Management). 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.

section 11.3.6: Master of Science (M.Sc.); Bioresource Engineering (Thesis) — 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 knowledge is transferred into action with regard to the environment and how to develop an appreciation of the roles of science, politics, economics, and ethics.

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

This option is a joint offering between McGill University and the Smithsonian Tropical Research Institute (STRI) in Panama. This interdisciplinary option encourages and promotes ethically sound and socially significant learning in the global context of environmental problems. Participation in the MSE-Panama Symposium presentation in Montreal is a requirement of this program. This program trains students in the socio-political aspects of the Tropical Environment.

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

Integrated Water Resource Management is a one-year program providing an essential approach for sustainable management of our natural watershed 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. As a graduate from this program, you will be well suited to opportunities in diverse fields of employment, such as water resources consulting, international development project management, research with governments or universities, public policy and governance development, and climate change impact assessment.
section 11.3.9: Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) (45 credits)

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

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

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

section 11.3.11: Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) — Neotropical Environment (45 credits)

The non-thesis option is aimed at individuals already employed in industry or seeking to improve their skills in specific areas of the Tropical Environment. Participation in the MSE-Panama Symposium presentation in Montreal is a requirement of this program.

section 11.3.12: Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) — Environmental Engineering (45 credits)

The Environmental Engineering program emphasizes interdisciplinary fundamental knowledge, practical perspective, and awareness of environmental issues through a wide range of technical and non-technical courses offered by collaborating departments and faculties at the University. The primary objective of the program is to train environmental professionals at the advanced level. The program is thus designed for individuals with a university undergraduate degree in engineering. Through this program, students will master specialized skills in their home disciplines and acquire a broader perspective and awareness of environmental issues.

section 11.3.13: Doctor of Philosophy (Ph.D.); Bioresource Engineering

Please contact the Department for more information about this program.

section 11.3.14: Doctor of Philosophy (Ph.D.); Bioresource Engineering — Environment

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

section 11.3.15: Doctor of Philosophy (Ph.D.); Bioresource Engineering — Neotropical Environment

This is a research-based degree with a team of co-advisers from McGill and Latin America with the requirements of a one-year residency in Panama or tropical Latin America, three interdisciplinary courses, at least two of them focusing on North-South issues, proficiency in Spanish or Portuguese, one-time off-campus (Panama) fees, and the possibility of NEO-specific fellowships. Only the accredited professors listed on the NEO website can accept students in the option.

section 11.3.16: Graduate Certificate in Bioresource Engineering — Integrated Water Resources Management (15 credits)

The Graduate Certificate in Integrated Water Resources Management is for practising professionals who wish to upgrade or focus their skill set to address water management issues. Students are trained in Water Ethics, Law and Policy of Water Management, Freshwater Ecosystems, Health, and Sanitation.

11.3 Bioresource Engineering Admission Requirements and Application Procedures

11.3.3.1 Admission Requirements

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

11.3.3.2 Application Procedures

Applicants for graduate studies through academic units in the Faculty of Agricultural and Environmental Sciences must forward supporting documents to:

Department of Bioresource Engineering
Macdonald Campus of McGill University
21,111 Lakeshore Road
Applications will be considered upon receipt of a completed application form, $100 application fee, and the following supporting documents:

**Transcripts** – Two official copies of all university-level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant’s university is essential. It is the applicant’s responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a bachelor's degree or its equivalent, as determined by McGill, in a subject closely related to the one selected for graduate work.

**Letters of Recommendation** – Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. It is the applicant’s responsibility to arrange for these letters to be sent.

**Competency in English** – Applicants to graduate studies whose mother tongue is not English, and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 550 on the paper-based test, or 86 on the Internet-based test with each component score not less than 20) or IELTS (minimum overall band 6.5). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use department code 31 (graduate schools), Biological Sciences – Agriculture to ensure that your TOEFL reaches this office without delay.

**Graduate Record Exam (GRE)** – The GRE is not required, but it is highly recommended.

Documents submitted will not be returned.

**Application Fee (non-refundable)** – A fee of $100 Canadian must accompany each application (including McGill students); otherwise, it cannot be considered. This sum must be remitted by credit card only.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to all programs depends on a staff member agreeing to serve as the student’s supervisor and the student obtaining financial support. 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.

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

### 11.3.3.3 Dates for Guaranteed Consideration

<table>
<thead>
<tr>
<th></th>
<th>Canadian</th>
<th>International</th>
<th>Special/Exchange/Visiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall: June 30</td>
<td>Fall: April 30</td>
<td>Fall: Open</td>
<td></td>
</tr>
<tr>
<td>Winter: Nov. 15</td>
<td>Winter: Sept. 30</td>
<td>Winter: Open</td>
<td></td>
</tr>
<tr>
<td>Summer: March 30</td>
<td>Summer: Feb. 28</td>
<td>Summer: Open</td>
<td></td>
</tr>
</tbody>
</table>

It may be necessary to delay review of the applicant’s file until the following admittance period if application materials including supporting documents are received after the Dates for Guaranteed Consideration. International applicants are advised to apply well in advance of these dates because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the web at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply).

### 11.3.4 Bioresource Engineering Faculty

**Chair**

S.O. Prasher

**Graduate Program Director**

G.S.V. Raghavan


**Associate Graduate Program Director**

V. Orsat

**Emeritus Professor**

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

**Professor (Post-Retirement)**

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

**Professors**

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

E. McKyes; B.Eng., M.Eng., Ph.D.(McG.)

S.O. Prasher; B.Tech., M.Tech.(Punj.), Ph.D.(Br. Col.), LL.D.(Dal.) *James McGill Professor*

G.S.V. Raghavan; B.Eng.(B'lore), M.Sc.(Guelph), Ph.D.(Colo. St.), D.Sc.(TNAU) *James McGill Professor*

**Associate Professors**

V.I. Adamchuk; B.Sc.(Kyiv, Ukraine), M.Sc., Ph.D.(Purd.)

M.O. Ngadi; B.Eng.(Agr.Eng.), M.A.Sc., Ph.D.(Dal.Tech.) *William Dawson Scholar*

**Assistant Professors**

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

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

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

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

**Adjunct Professors**

J. Boye; B.Sc.(Ghana), Ph.D.(McG.)

Y. Choi; B.Sc., M.Sc.(South Korea), Ph.D.(McG.)

M. Clamen; B.Eng., Ph.D.(McG.)

A. Drizo; B.Sc.(Belgrade), M.Sc., Ph.D.(Edin.)

S. Guiot; Lic.Sc., D.Sc.(Belgium)

P. Jutras; B.Sc.(McG.), M.Sc.(Montr.), Ph.D.(McG.)

J. Martinez; M.Sc.(Polytechnic Inst. of Toulouse), Ph.D.(U. of Perpignan)

B. Tartakovsky; M.Sc., Ph.D.(Moscow State U.)

C. Vigneault; B.Sc., M.Sc.(Laval), Ph.D.(McG.)

A. Madani; B.Sc., M.Sc.(Br. Col.), Ph.D.(WSU)

**Faculty Lecturers**

A. Cherestes; B.Sc., M.Sc.(Queens College), Ph.D.(CUNY)

M. Knutt; M.B.Sc.(W. Ont.), M.A., Ph.D.(Brandeis)

**Research/Professional Associates**

Y. Gariepy; B.Sc., M.Sc.(McG.)

D. Lyew; B.Sc., M.Sc., Ph.D.(McG.)

S. Sotocinal; B.Sc.(Phil.), M.Sc., Ph.D.(McG.)
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.

**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 (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
Environmental Seminar 3 (ENVR 652)

Complementary Courses (3 credits)
Chosen from the following:

- ENVR 519 (3) Global Environmental Politics
- ENVR 544 (3) Environmental Measurement and Modelling
- ENVR 580 (3) Topics in Environment 3
- ENVR 611 (3) The Economy of Nature
- ENVR 620 (3) Environment and Health of Species
- ENVR 622 (3) Sustainable Landscapes
- ENVR 630 (3) Civilization and Environment 1
- ENVR 680 (3) Topics in Environment 4

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

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

Thesis (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)

- BIOL 640 (3) Tropical Biology and Conservation
- 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

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.

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

Research Project (6 credits)

- BREE 631 (6) Integrated Water Resources Management Project
Required Courses (30 credits)

- BREE 503 (3) Water: Society, Law and Policy
- BREE 510 (3) Watershed Systems Management
- BREE 533 (3) Water Quality Management
- BREE 630 (13) Integrated Water Resources Management Internship
- BREE 651 (1) Departmental Seminar M.Sc. 1
- BREE 652 (1) Departmental Seminar M.Sc. 2
- BREE 655 (3) Integrated Water Resources Management Research Visits
- PARA 515 (3) Water, Health and Sanitation

Complementary Courses (9 credits)

9 credits selected as follows:
- 6 credits of any relevant graduate-level course(s) chosen in consultation with the Program Director.
- 3 credits of any graduate-level Statistics course 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 their M.Sc. Applied 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 collaborative 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 their M.Sc. Applied 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 580 (3) Topics in Environment 3
- ENVR 611 (3) The Economy of Nature
- ENVR 620 (3) Environment and Health of Species
- ENVR 622 (3) Sustainable Landscapes
- ENVR 630 (3) Civilization and Environment 1
- 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.

22 additional credits of 500-, 600-, or 700-level courses chosen in consultation with the academic adviser.

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

**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-, 600-, or 700-level courses chosen in consultation with the academic adviser.
11.3.12 Master of Science, Applied (M.Sc.A.); Bioresource Engineering (Non-Thesis) — Environmental Engineering (45 credits)

This inter-departmental graduate program leads to a master's degree in Environmental Engineering. The objective of the program is to train environmental professionals at an advanced level. The program is designed for individuals with an undergraduate degree in engineering. This non-thesis degree falls within the M.Eng. and M.Sc. programs which are offered in the Departments of Bioresource, Chemical, Civil, and Mining, Metals, and Materials Engineering.

**Research Project (6 credits)**
- BREE 671* (6) Project 1
- BREE 672 (6) Project 2

* BREE 671 may also be taken as part of this requirement.

**Required Courses (9 credits)**
- BREE 533 (3) Water Quality Management
- CHEE 591 (3) Environmental Bioremediation
- CIVE 615 (3) Environmental Engineering Seminar

**Complementary Courses (19 credits)**

**Data Analysis Course**
3 credits from the following:
- AEMA 611 (3) Experimental Designs 1
- CIVE 555 (3) Environmental Data Analysis
- PSYC 650 (3) Advanced Statistics 1

**Toxicology Course**
3 credits from the following:
- OCCH 612 (3) Principles of Toxicology
- OCCH 616 (3) Occupational Hygiene

**Water Pollution Engineering Course**
4 credits from the following:
- CIVE 651 (4) Theory: Water / Wastewater Treatment
- CIVE 652 (4) Biological Treatment: Wastewaters
- CIVE 660 (4) Chemical and Physical Treatment of Waters

**Air Pollution Engineering Course**
3 credits from the following:
- CHEE 592 (3) Industrial Air Pollution Control
- MECH 534 (3) Air Pollution Engineering

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

**Environmental Impact Course**
3 credits from the following:
GEOG 501 (3) Modelling Environmental Systems
GEOG 551 (3) Environmental Decisions

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

Environmental Policy Course
3 credits from the following:
URBP 506 (3) Environmental Policy and Planning

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

Further complementary courses (balance of coursework to meet the 45-credit program requirement):
Remaining Engineering or Non-Engineering courses from an approved list of courses, at the 500, 600, or 700 level, from the Faculty of Engineering, Faculty of Agricultural and Environmental Sciences, Faculty of Law, Faculty of Religious Studies, Desautels Faculty of Management, and Departments of Atmospheric and Oceanic Sciences, Biology, Chemistry, Earth and Planetary Sciences, Economics, Epidemiology and Biostatistics, Geography, Occupational Health, Political Science, Sociology, and the McGill School of Environment.

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

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

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

Required Courses
BREE 701 (0) Ph.D. Comprehensive Examination
BREE 751 (0) Departmental Seminar Ph.D. 1
BREE 752 (0) Departmental Seminar Ph.D. 2
BREE 753 (0) Departmental Seminar Ph.D. 3
BREE 754 (0) Departmental Seminar Ph.D. 4

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

11.3.14 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
Complementary Courses

One course chosen from the following:

- ENVR 519 (3) Global Environmental Politics
- ENVR 544 (3) Environmental Measurement and Modelling
- ENVR 580 (3) Topics in Environment 3
- ENVR 611 (3) The Economy of Nature
- 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.

11.3.15 Doctor of Philosophy (Ph.D.); Bioresource Engineering — 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
- 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.

11.3.16 Graduate Certificate in Bioresource Engineering — Integrated Water Resources Management (15 credits)

Required Courses (9 credits)
Complementary Courses (6 credits)

3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREE 533</td>
<td>(3)</td>
<td>Water Quality Management</td>
</tr>
<tr>
<td>CIVE 550</td>
<td>(3)</td>
<td>Water Resources Management</td>
</tr>
</tbody>
</table>

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

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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: 514-398-7725
Fax: 514-398-7857
Email: program.biotech@mcgill.ca
Website: www.mcgill.ca/biotechgradprog

11.4.2 About Biotechnology


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

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

BIOTECHNOLOGY PROGRAMS

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

Candidates must possess a bachelor's degree in the biological/molecular sciences or an equivalent program. This applied master's program is unique in Quebec. It aims to prepare students for entry into the biotechnology and pharmaceutical industry or to pursue further graduate studies in biomedicine, agriculture, or the environment. Students can choose from a wide range of complementary courses given throughout the McGill campuses to "design" their own program toward a future career choice. The program provides in-house training in molecular biology with a strong focus on the molecular/biochemical sciences. Concurrently, it provides teaching in management and gives students the opportunity to look at the business aspect of biotechnology. A research internship of four to eight months is carried out in an active laboratory, and students learn to present and write research results. Graduates will find jobs ranging from positions as research assistants and/or technicians in biomedical or pharmaceutical laboratories to managerial or supervisory positions. They may also pursue a career in the business of biotechnology including patent and intellectual property management.

section 11.4.6: Graduate Certificate 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 gain hands-on experience via an intensive laboratory course using the latest molecular biology techniques. Students can choose from a wide range of complementary courses given throughout the McGill campuses to "design" their own program toward a future career choice. Graduates will find employment in research or industrial laboratories as assistants and/or technicians.
11.4.3 Biotechnology Admission Requirements and Application Procedures

11.4.3.1 Admission Requirements
Candidates for the Graduate Certificate and the M.Sc.(Applied) in Biotechnology must possess a bachelor’s degree in biological sciences or equivalent with a minimum cumulative grade point average of 3.0/4.0 or 3.2/4.0 GPA in the last two full-time years of university study for the Graduate Certificate, and a minimum of 3.2/4.0 CGPA for the M.Sc.(A.), as well as prerequisites or equivalents. 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.

11.4.3.2 Application Procedures
Applicants must forward supporting documents to:

Biotechnology Graduate Programs
Institute of Parasitology
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: 514-398-7725
Fax: 514-398-7857
Email: program.biotech@mcgill.ca
Website: www.mcgill.ca/biotechgradprog

Applications – Complete the online application form available at www.mcgill.ca/gradapplicants/apply. Note: There is a CAD$100 non-refundable application fee. Applications will not be processed without payment. Paper applications, or PDF versions thereof, are no longer available. All applications to McGill must be done online. Applications will be considered upon receipt of the completed online application form, the CAD$100 application fee, and the following supporting documents:

Note: Documents submitted will not be returned.

Transcripts – Two official copies of all university-level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent. It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a bachelor's degree or its equivalent, as determined by McGill, in a subject closely related to the one selected for graduate work.

Letters of Recommendation – Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. Letters may be sent electronically (via email). Electronic letters must be sent via a valid institutional or corporate email address (domain); public domains such as Hotmail, Yahoo, Gmail, Videotron, etc., cannot be accepted. Detailed information can be found at the following site: www.mcgill.ca/gradapplicants/apply/prepare/checklist/documents. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English – Applicants to graduate studies whose mother tongue is not English, and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English by appropriate exams, e.g., TOEFL (minimum score 577 on the paper-based test, or 90 on the Internet-based test with each component not less than 20). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31 (Graduate Schools), Biological Sciences – Agriculture, to ensure that your TOEFL reaches this office without delay. For detailed information consult the following site: www.mcgill.ca/gradapplicants/apply/prepare/checklist/documents. It is the applicant's responsibility to arrange for these letters to be sent.

Graduate Record Exam (GRE) – The GRE is not required, but it is highly recommended.

Application Fee (non-refundable) – A fee of CAD$100 must accompany each online application (including those submitted by McGill students); otherwise, it cannot be considered. This sum must be remitted by credit card only.

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.

Other Supporting Documents – Other documents may be required for the admission process. Please consult the Biotechnology website for full details of the admission process.

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

### 11.4.3.3 Dates for Guaranteed Consideration

<table>
<thead>
<tr>
<th></th>
<th>Canadian</th>
<th>International</th>
<th>Special/Exchange/Visiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall: June 1</td>
<td>Fall: March 15</td>
<td>Fall: N/A</td>
<td></td>
</tr>
<tr>
<td>Winter: N/A</td>
<td>Winter: N/A</td>
<td>Winter: N/A</td>
<td></td>
</tr>
<tr>
<td>Summer: N/A</td>
<td>Summer: N/A</td>
<td>Summer: N/A</td>
<td></td>
</tr>
</tbody>
</table>

It may be necessary to delay review of the applicant’s file until the following admittance period if application materials including supporting documents are received after the Dates for Guaranteed Consideration. International applicants are advised to apply well in advance of these dates because immigration procedures may be lengthy. Applicants must make use of the online application form available on the web at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply).

### 11.4.4 Biotechnology Faculty

Biotechnology is a program offered through the Institute of Parasitology. For a complete faculty listing, please refer to section 11.4.4: Parasitology Faculty.

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

#### Research Project (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>BTEC 622</td>
<td>2</td>
<td>Biotechnology Research Project 1</td>
</tr>
<tr>
<td>BTEC 623</td>
<td>6</td>
<td>Biotechnology Research Project 2</td>
</tr>
<tr>
<td>BTEC 624</td>
<td>6</td>
<td>Biotechnology Research Project 3</td>
</tr>
<tr>
<td>BTEC 625</td>
<td>2</td>
<td>Biotechnology Research Project 4</td>
</tr>
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</table>

#### Required Courses (17 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOT 505</td>
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<td>Selected Topics in Biotechnology</td>
</tr>
<tr>
<td>BTEC 501</td>
<td>3</td>
<td>Bioinformatics</td>
</tr>
<tr>
<td>BTEC 619</td>
<td>4</td>
<td>Biotechnology Laboratory 2</td>
</tr>
<tr>
<td>BTEC 620</td>
<td>4</td>
<td>Biotechnology Laboratory 1</td>
</tr>
<tr>
<td>BTEC 621</td>
<td>3</td>
<td>Biotechnology Management</td>
</tr>
</tbody>
</table>

#### Complementary Courses (12 credits)

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

### 11.4.6 Graduate Certificate in Biotechnology (16 credits)

#### Required Courses (10 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOT 505</td>
<td>3</td>
<td>Selected Topics in Biotechnology</td>
</tr>
<tr>
<td>BTEC 620</td>
<td>4</td>
<td>Biotechnology Laboratory 1</td>
</tr>
<tr>
<td>BTEC 621</td>
<td>3</td>
<td>Biotechnology Management</td>
</tr>
</tbody>
</table>

#### Complimentary Courses (6 credits)

Two courses chosen from the following:
### General Topics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 622</td>
<td>(3)</td>
<td>Selected Topics in Molecular Biology</td>
</tr>
<tr>
<td>BINF 511</td>
<td>(3)</td>
<td>Bioinformatics for Genomics</td>
</tr>
<tr>
<td>BIOL 524</td>
<td>(3)</td>
<td>Topics in Molecular Biology</td>
</tr>
<tr>
<td>BIOL 568</td>
<td>(3)</td>
<td>Topics on the Human Genome</td>
</tr>
<tr>
<td>BTEC 501</td>
<td>(3)</td>
<td>Bioinformatics</td>
</tr>
<tr>
<td>BTEC 502</td>
<td>(3)</td>
<td>Biotechnology Ethics and Society</td>
</tr>
<tr>
<td>BTEC 535</td>
<td>(3)</td>
<td>Functional Genomics in Model Organisms</td>
</tr>
<tr>
<td>BTEC 555</td>
<td>(3)</td>
<td>Structural Bioinformatics</td>
</tr>
<tr>
<td>BTEC 691</td>
<td>(3)</td>
<td>Biotechnology Practicum</td>
</tr>
<tr>
<td>EXMD 511</td>
<td>(3)</td>
<td>Joint Venturing with Industry</td>
</tr>
<tr>
<td>EXMD 602</td>
<td>(3)</td>
<td>Techniques in Molecular Genetics</td>
</tr>
</tbody>
</table>

### Health

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXMD 610</td>
<td>(3)</td>
<td>Biomedical Methods in Medical Research</td>
</tr>
<tr>
<td>PARA 635</td>
<td>(3)</td>
<td>Cell Biology and Infection</td>
</tr>
<tr>
<td>PHGY 518</td>
<td>(3)</td>
<td>Artificial Cells</td>
</tr>
</tbody>
</table>

### Environment and Food

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREE 530</td>
<td>(3)</td>
<td>Fermentation Engineering</td>
</tr>
<tr>
<td>FDSC 535</td>
<td>(3)</td>
<td>Food Biotechnology</td>
</tr>
</tbody>
</table>

### 11.5 Dietetics and Human Nutrition

#### 11.5.1 Location

School of Dietetics and Human Nutrition  
Macdonald-Stewart Building, Room MS2-039  
McGill University, Macdonald Campus  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue, QC H9X 3V9  
Canada

- Telephone: 514-398-7762  
- Fax: 514-398-7739  
- Email: lise.grant@mcgill.ca  
- Website: [www.mcgill.ca/dietetics](http://www.mcgill.ca/dietetics)

#### 11.5.2 About Dietetics and Human Nutrition

In the School of Dietetics and Human Nutrition, cutting-edge nutrition research is conducted by its nine tenure-track professors and six 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: epigenetics; proteomics; metabolomics; embryonic and fetal origins of health and disease; the development of improved recommendations and policies for optimizing health in at-risk populations including Aboriginal populations, mothers and children, and the elderly; and 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 labs, the Centre for Indigenous Peoples’ Nutrition and Environment (CINE), the Mary Emily Clinical Nutrition Research unit, and the MUHC Teaching Hospitals. Students can conduct research or participate in clinical rotations with the BITS – Barbados, IDRC – Ghana and field sites in Asia, Africa, and Latin America.
A master’s degree in Human Nutrition offers advanced Nutrition courses in a broad range of research areas. The program is suitable for students with an undergraduate degree in nutritional sciences, exercise physiology, kinesiology, food science, biochemistry, medicine, or another closely related field. Students are required to complete 14 credits in advanced nutrition coursework plus 31 credits related to their thesis research. Graduates of our M.Sc. thesis degree have pursued successful careers in research, international health agencies, government agencies, and industry.

The M.Sc. Applied program is a course-based master’s program. It allows students to further develop knowledge and expertise in nutrition. Students are required to complete 29 credits in advanced Nutrition courses plus 16 credits related to a research project or an advanced practicum (reserved for registered dietitians). Careers include managerial positions for practising dietitians, and careers in nutrition programs, government, and industry.

In the School of Dietetics and Human Nutrition at McGill, students pursuing a graduate degree in nutrition have the opportunity to apply to our Graduate Diploma in R.D. Credentialing, upon completion of the M.Sc. or Ph.D. program and upon completion of the undergraduate courses required by l’Ordre professionnel des diététistes du Québec (OPDQ). This Diploma consists of two semesters of Stage (internship) in Clinical Nutrition, Community Nutrition, and Foodservice Systems Management. Upon completion of the Diploma, the recipient is eligible to register and practice as a Dietitian in Québec, as well as in other Canadian provinces and other countries.

A Ph.D. degree in Human Nutrition is suitable for students with an M.Sc. degree in Nutritional Sciences or related areas who wish to become independent researchers and/or leaders in the field of nutritional sciences. The School offers a stimulating research environment with opportunities in a wide range of areas of basic science, clinical research with our many hospital clinicians, as well as population health in Canada and abroad. Careers include academic, senior government, and industry positions within Canada and internationally.

### Dietetics and Human Nutrition Admission Requirements and Application Procedures

#### 11.5.3.1 Admission Requirements

**M.Sc. Thesis and M.Sc. Applied (Project or Practicum)**

Applicants must be graduates of a university of recognized reputation and hold a B.Sc. degree 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 degree program. All eligible candidates to the M.Sc. (Applied) program may select the project option; those who have completed a dietetic internship and six months’ work experience are eligible to apply for a practicum option.

**Ph.D.**

Applicants must be graduates of a university of recognized reputation and hold a B.Sc. and M.Sc. degree 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.

**Graduate Diploma in R.D. Credentialing**

For information on admission requirements, applicants must contact Dr. Maureen Rose in the School of Dietetics and Human Nutrition.

#### 11.5.3.2 Application Procedures

Applicants for graduate studies must forward supporting documents to:

School of Dietetics and Human Nutrition  
McGill University, Macdonald Campus  
21,111 Lakeshore Road  
Sainte-Anne-de-Bellevue, QC H9X 3V9  
Canada  

Telephone: 514-398-7762  
Fax: 514-398-7739  
Email: lise.grant@mcgill.ca

Applications will be considered upon receipt of a completed online application form, $100 application fee, current resumé, statement describing reasons for interest in the program and career goals, and the following supporting documents:
TRANSCRIPTS – Applicants must submit two official copies of all university-level transcripts with proof that degree(s) were granted. Photocopies are not accepted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant’s university is essential. It is the applicant’s responsibility to arrange for transcripts to be sent. Transcripts should be sent directly from the issuing institution. When included in an application package, transcripts must be in the original sealed envelopes.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a B.Sc. degree equivalent to a McGill honours degree in a subject closely related to the one selected for graduate work.

LETTERS OF RECOMMENDATION – Two letters of recommendation on letterhead (official paper), or by email directly from the originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant’s work, preferably in the applicant’s area of specialization are minimally required. It is the applicant’s responsibility to arrange for these letters to be sent.

COMPETENCY IN ENGLISH – Applicants to graduate studies whose mother tongue is not English, and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 560 on the paper-based test or 86 on the Internet-based test with each component score not less than 20) or IELTS (minimum overall band 6.5). The MCHE is not considered equivalent. The School reserves the right to request TOEFL results. Please contact the School for details. Results must be submitted as part of the application. Use University code 0935 (McGill University, Montreal) to ensure that your TOEFL reaches this office without delay.

GRADUATE RECORD EXAM (GRE) – The GRE is required for all applicants to the School of Dietetics and Human Nutrition who are submitting non-Canadian and non-U.S. transcripts.

Submitted documents will not be returned.

Application Fee (non-refundable) – A fee of CAD$100 must accompany each application (including McGill students); otherwise, it cannot be considered. This sum must be remitted by credit card only.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Final acceptance to the M.Sc. (Thesis) and Ph.D. programs depends on a staff member agreeing to serve as the student’s supervisor. A supervisor is not required for acceptance to the M.Sc. (Applied) program. 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 school cannot guarantee financial support, teaching assistantships and other scholarships may be available.

QUALIFYING STUDENTS – Some applicants whose academic degrees and Standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a Qualifying program if they have met the 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.

11.5.3.3 Dates for Guaranteed Consideration

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<tr>
<th>Canadian</th>
<th>International</th>
<th>Special/Exchange/Visiting</th>
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<td>Fall: March 15</td>
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<tr>
<td>Summer: March 1</td>
<td>Summer: January 15</td>
<td>Summer: Same as Canadian/International</td>
</tr>
</tbody>
</table>

It may be necessary to delay review of the applicant’s file until the following admittance period if application materials including supporting documents are received after the Dates for Guaranteed Consideration. International applicants are advised to apply well in advance of these dates because immigration procedures may be lengthy. All applicants must use the online application form available on the web at www.mcgill.ca/gradapplicants/apply.

11.5.4 Dietetics and Human Nutrition Faculty

Director
Kristine G. Koski

Professor Emerita
Harriet V. Kuhnlein; B.S.(Penn. St.); M.S.(Ore. St.), Ph.D.(Calif.), R.D. (joint appt. with Faculty of Medicine)

Professors
Luis B. Agellon; B.Sc., Ph.D.(McM.) (Canada Research Chair)
Tim A. Johns; B.Sc.(McM.), M.Sc.(Br. Col.), Ph.D.(Mich.) (joint appt. with Plant Science)
**Associate Professors**

Katherine Gray-Donald; B.Sc., Ph.D.(McG.), R.D. (*joint appt. with Epidemiology and Biostatistics, Faculty of Medicine*)

Kristine G. Koski; B.S., M.S.(Wash.), Ph.D.(Calif.), R.D. (*joint appt. with the Division of Experimental Medicine, Faculty of Medicine*)

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

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

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*)

Linda J. Wykes; B.Sc., M.Sc., Ph.D.(Tor.) (*William Dawson Scholar*)

**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 (Stage) in Dietetics*)

Hughes Plourde; B.Sc.(McG.), M.Sc.(Montr.), Dt. P.

Maureen Rose; B.Sc., M.Ed., Ph.D.(McG.), Dt. P.

**Professional Associate**

Linda Jacobs Starkey; B.Sc.(Mt. St. Vin.), M.Sc., Ph.D.(McG.), R.D., F.D.C. (*Associate Dean of Students*)

**Associate Members**

Anaesthesia: Franco Carli, Ralph Lattermann, Thomas Schricker

Food Science & Agricultural Chemistry: Selim Kermasha

Kinesiology: Ross Andersen

Medicine: Louis Beaumier, Stéphanie Chevalier, Réjeanne Gougeon, L. John Hoffer, Larry Lands, Errol B. Marliss, José Morais, Celia Rodd, Thomas Schricker, Jean-François Yale

Parasitology: Marilyn E. Scott

**Adjunct Professors**

Laurie Chan (*Ott.*)

Kevin A. Cockell (*Health Canada*)

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

**Thesis Courses (31 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
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<tr>
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<td>Human Nutrition M.Sc. Thesis 1</td>
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<tr>
<td>NUTR 681</td>
<td>6</td>
<td>Human Nutrition M.Sc. Thesis 2</td>
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<td>Human Nutrition M.Sc. Thesis 3</td>
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<td>Human Nutrition M.Sc. Thesis 4</td>
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**Required Courses (2 credits)**

<table>
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<tr>
<th>Course Code</th>
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<th>Description</th>
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<td>Human Nutrition Seminar 1</td>
</tr>
<tr>
<td>NUTR 696</td>
<td>1</td>
<td>Human Nutrition Seminar 2</td>
</tr>
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</table>

**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) — 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.

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

**Practicum (12 credits)**

NUTR 656 (3) M.Sc. (Applied) Practicum 1
NUTR 657 (3) M.Sc. (Applied) Practicum 2
NUTR 658 (3) M.Sc. (Applied) Practicum 3
NUTR 659 (3) M.Sc. (Applied) Practicum 4

**Required Courses (6 credits)**

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

**Complementary Courses (18 credits)**
3 credits in statistics at the 500 level or higher
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.

### 11.5.8 Graduate Diploma in Registered Dietitian Credentialing (30 credits)

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)**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>NUTR 612</td>
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<tr>
<td>NUTR 613</td>
<td>(14)</td>
</tr>
<tr>
<td>NUTR 614</td>
<td>(8)</td>
</tr>
</tbody>
</table>

- Graduate Professional Practice 2 Management
- Graduate Professional Practice 3 Clinical Nutrition
- Graduate Professional Practice 4 Community Nutrition

### 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 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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<td>NUTR 797</td>
<td>(1)</td>
</tr>
<tr>
<td>NUTR 798</td>
<td>(1)</td>
</tr>
</tbody>
</table>

- Doctoral Comprehensive Examination
- Human Nutrition Seminar 3
- Human Nutrition Seminar 4

### 11.6 Food Science and Agricultural Chemistry

#### 11.6.1 Location

Department of Food Science and Agricultural Chemistry
Macdonald-Stewart Building, Room MS1-034
Macdonald Campus of McGill University
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: 514-398-7898
Fax: 514-398-7977
Email: foodscience@mcgill.ca
Website: www.mcgill.ca/foodscience

#### 11.6.2 About Food Science and Agricultural Chemistry

The Department of Food Science and Agricultural Chemistry offers both M.Sc. (thesis and non-thesis) and Ph.D. programs. These programs provide training in evolving interdisciplinary areas of food quality, food safety, food chemistry, food biotechnology, functional ingredients, applied infrared spectroscopy, food processing, thermal generation of aromas and toxicants, marine biochemistry, and food toxicology. The Department has key infrastructure with all
major equipment necessary for conducting research in all these areas. Our graduate program provides strong mentoring/advisory support while maintaining high flexibility for individual research projects.

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

The program offers advanced food science courses in a broad range of areas. It is suitable for students with an undergraduate degree in food science or a closely related discipline. Entry is possible from other disciplines; however, students will be expected to do a qualifying term or year to pick up relevant courses to orient themselves to food science. Students are required to complete a total of 45 credits (10 graduate-level courses, a seminar course, and a research project). Subsequent career paths include work with food industry and government agencies.

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

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

section 11.6.7: Master of Science (M.Sc.); Food Science and Agricultural Chemistry (Thesis) (45 credits)

This program is a research-based degree in various areas related to food science for candidates entering the M.Sc. program without restrictions (i.e., not requiring a qualifying term/year); the M.Sc. degree consists of 45 graduate credits. These credits are obtained through a combination of graduate courses (15 credits) and a research thesis (30 credits). Entry into the M.Sc. (thesis option) also hinges on the availability of supervisory staff and financing. However, it is advisable that the applicant for the M.Sc. degree, if the applicant so wishes, select the non-thesis M.Sc. option as a second choice in the application form, to ensure admission to the Food Science graduate program. Subsequent career paths include work with the food industry, government agencies, and in research.

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

A Ph.D. in food science is suitable for students with an M.Sc. degree in food science or related areas who wish to become independent researchers and/or leaders in the field of food science. Candidates with a B.Sc. degree applying for the Ph.D. need to register first for the M.Sc. degree. In cases where the candidates are proceeding well during their first year, they may be permitted to proceed to the Ph.D. degree. Entry into the Ph.D. graduate program hinges on the availability of supervisory staff and financing.

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.

11.6.3.2  Application Procedures

Applicants for graduate studies must forward supporting documents to:

Graduate Program Admissions
Department of Food Science and Agricultural Chemistry
Macdonald-Stewart Building, Room MS1-034
Macdonald Campus of McGill University
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada
Telephone: 514-398-7898
Fax: 514-398-7977
Email: foodscience@mcgill.ca

Applications will be considered upon receipt of a completed application form, $100 application fee, and the following supporting documents:

Transcripts – Two official copies of all university-level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a bachelor's degree or its equivalent, as determined by McGill, in a subject closely related to the one selected for graduate work.
Letters of Recommendation – Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors who have taught the applicant, preferably in the applicant’s area of specialization. It is the applicant’s responsibility to arrange for these letters to be sent.

Competency in English – Applicants to graduate studies whose mother tongue is not English, and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 550 on the paper-based test or 86 on the Internet-based test with each component not less than 20) or IELTS (minimum overall band 6.5). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31(Graduate Schools), Biological Sciences – Agriculture, to ensure that your TOEFL reaches this office without delay.

Graduate Record Exam (GRE) – The GRE is not required, but it is highly recommended.

Submitted documents will not be returned.

Application and Fee

The online application form is available on the web at www.mcgill.ca/gradapplicants/apply.

- Complete the online application form ($100 non-refundable fee (including McGill Students); VISA or MasterCard accepted). Applications will not be processed without payment.
- It should take you approximately 30 minutes to complete the online application. You may stop at any time and finish later by re-entering your Login ID and PIN number.
- You can apply to two programs in different academic units (departments, schools, or institutes), on the same online application form.
- Do not apply to a thesis and a non-thesis master's program within the same academic unit as two separate choices. Select only one program and you can request a change at a later time.

11.6.3.3 Dates for Guaranteed Consideration

<table>
<thead>
<tr>
<th>Canadian</th>
<th>International</th>
<th>Special/Exchange/Visiting</th>
</tr>
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<tbody>
<tr>
<td>Fall: June 30</td>
<td>Fall: March 1</td>
<td>Fall: Same as Canadian/International</td>
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<td>Winter: Nov. 15</td>
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<tr>
<td>Summer: March 30</td>
<td>Summer: Jan. 15</td>
<td>Summer: Same as Canadian/International</td>
</tr>
</tbody>
</table>

It may be necessary to delay review of the applicant’s file until the following admittance period if application materials including supporting documents are received after the Dates for Guaranteed Consideration. International applicants are advised to apply well in advance of these dates because immigration procedures may be lengthy.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Final acceptance to the M.Sc. and Ph.D. programs depends on a staff member agreeing to serve as the student’s supervisor. A supervisor is not required for acceptance to the M.Sc. Non-Thesis program. 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.

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

11.6.4 Food Science and Agricultural Chemistry Faculty

Chair

V. Yaylayan

Chair of Graduate Program

S. Karboune

Professors

I. Alli; B.Sc.(Guy.), M.Sc., Ph.D.(McG.)
W.D. Marshall; B.Sc.(New Br.), Ph.D.(McM.)
H.S. Ramaswamy; B.Sc.(B'lore), M.Sc., Ph.D.(Br. Col.)
F.R. van de Voort; B.Sc., M.Sc., Ph.D.(Br. Col.)
ASSOCIATE PROFESSORS
A.A. Ismail; B.Sc., Ph.D.(McG.)
S. Kermasha; B.Sc.(Baghdad), C.E.S, D.E.A, D.Sc.(Nancy)
B.K. Simpson; B.Sc.(Ghana), Ph.D.(Nfld.)
V.A. Yaylayan; B.Sc.(Beirut), M.Sc., Ph.D.(Alta.)

ASSISTANT PROFESSORS
M. Chénier; B.Sc.(Laval), M.Sc.(IAF), Ph.D.(McG.)
S. Karboune; B.Sc., M.Sc.(Rabat), D.E.A., Ph.D.(Marseille)

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

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

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

PROGRAM REQUIREMENTS

Research Project (12 credits)

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

Complementary Courses (18 credits)

3 credits chosen from the following:

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

15 credits chosen from the following:

AGRI 510 (3) Professional Practice
FDSC 515 (3) Enzyme Thermodynamics/Kinetics
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.
11.6.6 Master of Science (M.Sc.); Food Science and Agricultural Chemistry — Food Safety (Non-Thesis) (45 credits)

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

PROGRAM REQUIREMENTS

Research Project (12 credits)

<table>
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<tr>
<th>Course</th>
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<th>Title</th>
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<tr>
<td>FDSC 697</td>
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<td>M.Sc. Project Part 2</td>
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Required Courses (12 credits)

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<th>Credits</th>
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</tr>
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<td>FDSC 545</td>
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<td>Advances in Food Microbiology</td>
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<tr>
<td>FDSC 624</td>
<td>3</td>
<td>Current Food Safety Issues</td>
</tr>
<tr>
<td>FDSC 626</td>
<td>3</td>
<td>Food Safety Risk Assessment</td>
</tr>
<tr>
<td>FDSC 634</td>
<td>3</td>
<td>Food Toxins &amp; Toxicants</td>
</tr>
</tbody>
</table>

Complementary Courses (15 credits)

3 credits chosen from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>FDSC 695</td>
<td>3</td>
<td>M.Sc. Graduate Seminar 1</td>
</tr>
<tr>
<td>FDSC 696</td>
<td>3</td>
<td>M.Sc. Graduate Seminar 2</td>
</tr>
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</table>

12 credits chosen from the following:

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<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 510</td>
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<td>BREE 535</td>
<td>3</td>
<td>Food Safety Engineering</td>
</tr>
<tr>
<td>FDSC 525</td>
<td>3</td>
<td>Food Quality Assurance</td>
</tr>
<tr>
<td>FDSC 536</td>
<td>3</td>
<td>Food Traceability</td>
</tr>
<tr>
<td>FDSC 555</td>
<td>3</td>
<td>Comparative Food Law</td>
</tr>
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<td>NUTR 512</td>
<td>3</td>
<td>Herbs, Foods and Phytochemicals</td>
</tr>
<tr>
<td>OCCH 612</td>
<td>3</td>
<td>Principles of Toxicology</td>
</tr>
<tr>
<td>PARA 515</td>
<td>3</td>
<td>Water, Health and Sanitation</td>
</tr>
</tbody>
</table>


11.6.7 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/year, the M.Sc. degree consists of 45 graduate credits. These credits are obtained through a combination of graduate courses and a research thesis.

The residence time for a M.Sc. degree is three academic terms based on unqualified entry into the M.Sc. program. Students are encouraged to complete their studies within this time frame.

Thesis (30 credits)
ACADEMIC PROGRAMS

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

Required Courses (6 credits)
FDSC 695 (3) M.Sc. Graduate Seminar 1
FDSC 696 (3) M.Sc. Graduate Seminar 2

Complementary Courses (9 credits)
At least 9 credits, normally from 500- or 600-level departmental courses.

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

Candidates will be judged principally on their research ability. Coursework will be arranged in consultation with the student's departmental graduate advisory committee.

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

Required Courses (9 credits)
Note: Candidates should be prepared to take the Comprehensive Preliminary Examination before the end of the second year of the program.
FDSC 700 (0) Comprehensive Preliminary Examination
FDSC 725 (3) Advanced Topics in Food Science
FDSC 797 (3) Ph.D. Graduate Seminar 1
FDSC 798 (3) Ph.D. Graduate Seminar 2

11.7 Natural Resource Sciences

11.7.1 Location
Department of Natural Resource Sciences
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: 514-398-7890
Fax: 514-398-7990
Email: info.nrs@mcgill.ca
Website: www.mcgill.ca/nrs

11.7.2 About Natural Resource Sciences
The Department of Natural Resource Sciences offers programs leading to M.Sc. and Ph.D. degrees in Entomology (includes Environment and Neotropical Environment options), Microbiology (includes Bioinformatics and Environment options), Renewable Resources (includes Forest Science, Micrometeorology, Soil Science, and Wildlife Biology with Environment and Neotropical Environment options available) and an M.Sc. degree in Agricultural Economics. It is also possible for students to pursue doctoral studies through the Department of Economics with Agricultural Economics as a field of specialization. An interdisciplinary option in Bioinformatics for doctoral students is available.
The Department possesses, or has access to, excellent facilities for laboratory and field research. Affiliated with the Department are the Lyman Entomological Museum and Research Laboratory, the Molson Nature Reserve, the Morgan Arboretum, and the Ecomuseum of the St. Lawrence Valley Natural History Society.

Master of Science Degrees

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

This program provides students with applied economic concepts and tools to identify, define, and analyze economic problems affecting the performance of the agri-food sector and the environment. The ideal prior 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.

Attention is given to the development of analytical skills in the broad areas of agricultural, environmental, and ecological economics. Students may specialize, by way of their research program, in agribusiness, development, finance, marketing and trade, policy, and resource economics. The program prepares graduates for rewarding careers in research, analysis, and decision-making in academia, private and NGO sectors, and government.

section 11.7.6: Master of Science (M.Sc.); Entomology (Thesis) (45 credits)

Please contact the Department for more information about this program.

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

Please contact the Department for more information about this program.

section 11.7.8: Master of Science (M.Sc.); Entomology (Thesis) — Neotropical Environment (48 credits)

Please contact the Department for more information about this program.

section 11.7.9: Master of Science (M.Sc.); Microbiology (Thesis) (45 credits)

Please contact the Department for more information about this program.

section 11.7.10: Master of Science (M.Sc.); Microbiology (Thesis) — Environment (46 credits)

Please contact the Department for more information about this program.

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

(Including Micrometeorology, Forest Science, Soil Science, and Wildlife Biology as areas of research)

section 11.7.12: Master of Science (M.Sc.); Renewable Resources (Thesis) — 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) — 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) — Environmental Assessment (45 credits)

This program is under revision. Please contact the Department for more information.

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

Please contact the Department for more information about this program.

section 11.7.16: Doctor of Philosophy (Ph.D.); Microbiology

Please contact the Department for more information about this program.

section 11.7.17: Doctor of Philosophy (Ph.D.); Renewable Resources

Please contact the Department for more information about this program.
### 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 deficiencies in these areas will be required to take additional courses as part of their degree 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 2012–2013 academic year; the program is under revision.

**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.

#### 11.7.3.2 Application Procedures

Applicants for graduate studies must forward supporting documents to:

- Department of Natural Resource Sciences
- Graduate Student Office
- McGill University, Macdonald Campus
- 21,111 Lakeshore Road
- Sainte-Anne-de-Bellevue, QC H9X 3V9
- Canada

Telephone: 514-398-7941
Fax: 514-398-7990
Email: marie.kubecki@mcgill.ca

Applications will be considered upon receipt of the online application form, $100 application fee, and the following supporting documents:
**Transcripts** – Two official copies of all university-level transcripts with proof of degree(s) granted are required for admission. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a bachelor's degree equivalent to a McGill Honours degree in a subject closely related to the one selected for graduate work.

**Letters of Recommendation** – Two letters of recommendation on official letterhead of the originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. It is the applicant's responsibility to arrange for these letters to be sent.

**Competency in English** – Non-Canadian applicants whose mother tongue is not English, who did not graduate from a Canadian institution (anglophone or francophone), and who have not completed an undergraduate degree using the English language are required to submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 550 on the paper-based test or 86 on the Internet-based test with each component score not less than 20) or IELTS (minimum overall band 6.5). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31 (Graduate Schools), Biological Sciences – Agriculture, to ensure that your TOEFL reaches this office without delay.

For entrance into the master’s program in Agricultural Economics the following test scores are required: TOEFL (minimum score 570 on the paper-based test or 88 on the Internet-based test with each component score not less than 20) or IELTS (minimum 7 overall band).

**Graduate Record Exam (GRE)** – The GRE is not required, but it is highly recommended.

**Application Fee (non-refundable)** – A fee of $100 Canadian must accompany each application (including McGill students); otherwise, it cannot be considered. This fee must be remitted by credit card only.

**Financial Support**

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to all programs normally depends on a staff member agreeing to serve as the student’s supervisor and the student obtaining financial support. 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.

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

### 11.7.3.3 Dates for Guaranteed Consideration

<table>
<thead>
<tr>
<th>Canadian</th>
<th>International</th>
<th>Special/Exchange/Visiting</th>
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<tr>
<td>Fall: Feb. 15</td>
<td>Fall: Feb. 15</td>
<td>Fall: Feb. 15</td>
</tr>
<tr>
<td>Winter: Nov. 15</td>
<td>Winter: Sept. 30</td>
<td>Winter: Same as Canadian/International</td>
</tr>
<tr>
<td>Summer: March 30</td>
<td>Summer: Feb. 28</td>
<td>Summer: Same as Canadian/International</td>
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</table>

It may be necessary to delay review of the applicant’s file until the following admittance period if application materials including supporting documents are received after the Dates for Guaranteed Consideration. International applicants are advised to apply well in advance of these dates because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the web at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply).

### 11.7 Natural Resource Sciences Faculty

**Chair**

J.W. Fyles

**Program Director - Agricultural Economics**

J.C. Henning

**Graduate Program Director**

T.A. Wheeler
### Emeritus Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees</th>
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</tr>
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<tbody>
<tr>
<td>N.N. Barthakur</td>
<td>B.Sc.(Gauh.), M.Sc.(Alld.), Ph.D.(Sask.)</td>
<td>Agricultural Physics</td>
</tr>
<tr>
<td>E.S. Idziak</td>
<td>B.Sc.(Agr.), M.Sc.(McG.), D.Sc.(Delft)</td>
<td>Microbiology</td>
</tr>
<tr>
<td>R.A. MacLeod</td>
<td>B.A., M.A.(Br. Col.), Ph.D.(Wisc.)</td>
<td>Microbiology</td>
</tr>
<tr>
<td>R.K. Stewart</td>
<td>B.Sc.(Agr.), Ph.D.(Glas.)</td>
<td>Entomology</td>
</tr>
</tbody>
</table>

### Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees</th>
<th>Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.M. Bird</td>
<td>B.Sc.(Guelph), M.Sc., Ph.D.(McG.)</td>
<td>Wildlife Biology</td>
</tr>
<tr>
<td>P. Brown</td>
<td>B.A.(Haver.), M.A., Ph.D.(Col.)</td>
<td>Environmental Policy and Ethics (joint appt. with Geography and McGill School of Environment)</td>
</tr>
<tr>
<td>J.W. Fyles</td>
<td>B.Sc., M.Sc.(Vic., BC), Ph.D.(Alta.)</td>
<td>Forest Resources (Tomlinson Chair in Forest Ecology)</td>
</tr>
<tr>
<td>W.H. Hendershot</td>
<td>B.Sc.(Tör.), M.Sc.(McG.), Ph.D.(Br. Col.)</td>
<td>Soil Science</td>
</tr>
</tbody>
</table>

### Associate Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees</th>
<th>Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Buddle</td>
<td>B.Sc.(Guelph), Ph.D.(Alta.)</td>
<td>Forest Insect Ecology</td>
</tr>
<tr>
<td>B. Côté</td>
<td>B.Sc., Ph.D.(Laval)</td>
<td>Forest Resources</td>
</tr>
<tr>
<td>B.T. Driscoll</td>
<td>B.Sc., Ph.D.(McM.)</td>
<td>Microbiology</td>
</tr>
<tr>
<td>G.B. Dunphy</td>
<td>B.Sc.(New Br.), M.Sc., Ph.D.(Nfld.)</td>
<td>Entomology</td>
</tr>
<tr>
<td>J.C. Henning</td>
<td>B.Sc., Ph.D.(Guelph)</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>M. Humphries</td>
<td>B.Sc.(Manit.), M.Sc.(Alta.), Ph.D.(McG.)</td>
<td>Wildlife Biology</td>
</tr>
<tr>
<td>D.J. Lewis</td>
<td>B.Sc., M.Sc., Ph.D.(Nfld.)</td>
<td>Entomology</td>
</tr>
<tr>
<td>I.B. Strachan</td>
<td>B.Sc.(Tör.), M.Sc., Ph.D.(Qu.)</td>
<td>Micrometeorology</td>
</tr>
<tr>
<td>P.J. Thomassini</td>
<td>B.Sc.(McG.), M.S., Ph.D.(Hawaii Pac.)</td>
<td>Agricultural and Environmental Economics</td>
</tr>
<tr>
<td>J. Whalen</td>
<td>B.Sc.(Agr.)(Dal.), M.Sc.(McG.), Ph.D.(Ohio St.)</td>
<td>Soil Science</td>
</tr>
<tr>
<td>T.A. Wheeler</td>
<td>B.Sc.(Nfld.), M.Sc., Ph.D.(Guelph)</td>
<td>Entomology</td>
</tr>
<tr>
<td>L.G. Whyte</td>
<td>B.Sc.(Regina), Ph.D.(Wat.)</td>
<td>Microbiology</td>
</tr>
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</table>

### Assistant Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees</th>
<th>Fields</th>
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</thead>
<tbody>
<tr>
<td>E. Bennett</td>
<td>B.A.(Oberline Coll.), M.S., Ph.D.(Wisc.)</td>
<td>Ecosystem Ecology (joint appt. with McGill School of Environment)</td>
</tr>
<tr>
<td>S. Faucher</td>
<td>B.Sc., Ph.D.(Montr.)</td>
<td>Microbiology</td>
</tr>
<tr>
<td>G. Hickey</td>
<td>B.Sc.(Melb.), Ph.D.(Br. Col.), EMPA (ANZSOG, Monash)</td>
<td>Sustainable Natural Resource Management</td>
</tr>
<tr>
<td>N. Kosoy</td>
<td>B.Sc.(Univ. Simon Bolivar), M.Sc.(Univ. of Kent, Univ. Autonoma de Barcelona), Ph.D.(Univ. Autonoma de Barcelona)</td>
<td>Ecological Economics (joint appt. with McGill School of Environment)</td>
</tr>
<tr>
<td>A. Naseem</td>
<td>B.Sc.(McG.), M.Sc., Ph.D.(Mich.)</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>C. Solomon</td>
<td>B.Sc.(C’nell), Ph.D.(Wisc.)</td>
<td>Wildlife Biology</td>
</tr>
</tbody>
</table>

### Associate Members

<table>
<thead>
<tr>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>C.A. Chapman</td>
<td>Anthropology</td>
</tr>
<tr>
<td>L.J. Chapman</td>
<td>Biology</td>
</tr>
<tr>
<td>D. Green</td>
<td>Redpath Museum</td>
</tr>
<tr>
<td>W.D. Marshall</td>
<td>Food Science and Agricultural Chemistry</td>
</tr>
<tr>
<td>M. Scott</td>
<td>Institute of Parasitology</td>
</tr>
<tr>
<td>D. Smith</td>
<td>Plant Science</td>
</tr>
<tr>
<td>I. Vaccaro</td>
<td>Anthropology, McGill School of Environment</td>
</tr>
</tbody>
</table>
Adjunct Professors

D. Angers
G. Boivin
M.A. Bouchard
K. Fernie
C. Greer
D. Houle
J.P. Savard
E. Smith
G. Sunahara
C. Vincent
F. Whoriskey

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

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

Thesis Courses (27 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>AGEC 691</td>
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<td>M.Sc. Thesis 1</td>
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<td>AGEC 692</td>
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<td>M.Sc. Thesis 2</td>
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<tr>
<td>AGEC 693</td>
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<td>M.Sc. Thesis 3</td>
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<tr>
<td>AGEC 694</td>
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<td>M.Sc. Thesis 4</td>
</tr>
<tr>
<td>AGEC 695</td>
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<td>M.Sc. Thesis 5</td>
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Required Course

(1 credit)

<table>
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<tr>
<th>Course</th>
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<th>Title</th>
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<tbody>
<tr>
<td>AGEC 690</td>
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<td>Seminar</td>
</tr>
</tbody>
</table>

Complementary Courses (18 credits)

6 credits, two theory courses chosen from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>AGEC 633</td>
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<td>Environmental and Natural Resource Economics</td>
</tr>
<tr>
<td>ECON 610</td>
<td>3</td>
<td>Microeconomic Theory 1</td>
</tr>
<tr>
<td>ECON 611</td>
<td>3</td>
<td>Microeconomic Theory 2</td>
</tr>
<tr>
<td>ECON 620</td>
<td>3</td>
<td>Macroeconomic Theory 1</td>
</tr>
<tr>
<td>ECON 621</td>
<td>3</td>
<td>Macroeconomic Theory 2</td>
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</table>

3 credits, one quantitative methods course chosen from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 610</td>
<td>3</td>
<td>Statistical Methods 2</td>
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<tr>
<td>ECON 525</td>
<td>3</td>
<td>Project Analysis</td>
</tr>
<tr>
<td>ECON 662</td>
<td>6</td>
<td>Econometrics</td>
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<tr>
<td>ECON 665</td>
<td>3</td>
<td>Quantitative Methods</td>
</tr>
<tr>
<td>MGSC 634</td>
<td>3</td>
<td>Econometric Methods in Management</td>
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</tbody>
</table>
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

Complimentary Courses (3 credits)

One of the following courses:

ENVR 519  (3)  Global Environmental Politics
ENVR 544  (3)  Environmental Measurement and Modelling
ENVR 580  (3)  Topics in Environment 3
ENVR 611  (3)  The Economy of Nature
ENVR 620  (3)  Environment and Health of Species
ENVR 622  (3)  Sustainable Landscapes
ENVR 630  (3)  Civilization and Environment 1
or another 500-, 600-, or 700-level course recommended by the advisory committee and approved by the Environment Option Committee.

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

Thesis Courses (36 credits)
- NRSC 691 (12) M.Sc. Thesis Research 1
- NRSC 692 (12) M.Sc. Thesis Research 2
- NRSC 693 (12) M.Sc. Thesis Research 3

Required Courses (9 credits)
- BIOL 640 (3) Tropical Biology and Conservation
- ENVR 610 (3) Foundations of Environmental Policy
- NRSC 643 (1) Graduate Seminar 1
- NRSC 644 (1) Graduate Seminar 2
- NRSC 651 (1) Graduate Seminar 3

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

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

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

Thesis Courses (36 credits)
- NRSC 691 (12) M.Sc. Thesis Research 1
- NRSC 692 (12) M.Sc. Thesis Research 2
- NRSC 693 (12) M.Sc. Thesis Research 3

Required Courses (3 credits)
- NRSC 643 (1) Graduate Seminar 1
- NRSC 644 (1) Graduate Seminar 2
- NRSC 651 (1) Graduate Seminar 3

Complementary Courses (6 credits)
Two 3-credit 500-, 600-, or 700-level courses; normally one of these will be a course in statistics.

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

Thesis Courses (36 credits)
- NRSC 691 (12) M.Sc. Thesis Research 1
- NRSC 692 (12) M.Sc. Thesis Research 2
- NRSC 693 (12) M.Sc. Thesis Research 3

Required Courses (7 credits)
Complementary Course (3 credits)

One of the following courses:

- ENVR 519 (3) Global Environmental Politics
- ENVR 544 (3) Environmental Measurement and Modelling
- ENVR 580 (3) Topics in Environment 3
- ENVR 611 (3) The Economy of Nature
- 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

Required Courses (7 credits)

- ENVR 610 (3) Foundations of Environmental Policy
Complimentary Courses (6 credits)
3 credits, one of the following courses:
- ENVR 519: Global Environmental Politics (3)
- ENVR 544: Environmental Measurement and Modelling (3)
- ENVR 580: Topics in Environment 3 (3)
- ENVR 611: The Economy of Nature (3)
- ENVR 620: Environment and Health of Species (3)
- ENVR 622: Sustainable Landscapes (3)
- ENVR 630: Civilization and Environment 1 (3)
- ENVR 680: Topics in Environment 4 (3)

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

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

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

Thesis Courses (36 credits)
- NRSC 691: M.Sc. Thesis Research 1 (12)
- NRSC 693: M.Sc. Thesis Research 3 (12)

Required Courses (9 credits)
- BIOL 640: Tropical Biology and Conservation (3)
- ENVR 610: Foundations of Environmental Policy (3)
- NRSC 643: Graduate Seminar 1 (1)
- NRSC 644: Graduate Seminar 2 (1)
- NRSC 651: Graduate Seminar 3 (1)

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.

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

The non-thesis master’s in Renewable Resources: Environmental Assessment option is normally taken over a one year cycle beginning in the Winter term and concluding in the Fall term. It is comprised of three interrelated elements: graduate-level courses, primarily given in the Winter term, a Summer term internship, and a project-related research paper, which is completed in the Fall term. The program is aimed at environmental assessment professionals and 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’s 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)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSC 616</td>
<td>(9)</td>
<td>Environmental Assessment Project Paper</td>
</tr>
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**Required Internship (15 credits)**

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<tr>
<th>Course Code</th>
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<th>Description</th>
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<tbody>
<tr>
<td>NRSC 615</td>
<td>(15)</td>
<td>Environmental Assessment Internship</td>
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**Required Courses (15 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
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<tr>
<td>NRSC 610</td>
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<td>NRSC 611</td>
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<td>Environmental Assessment Knowledge Base</td>
</tr>
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<td>NRSC 612</td>
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<td>Environmental Assessment and Sustainable Development</td>
</tr>
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<td>NRSC 613</td>
<td>(3)</td>
<td>Strategic and Sectoral Environmental Assessment</td>
</tr>
<tr>
<td>NRSC 614</td>
<td>(3)</td>
<td>Meeting Environmental Assessment Regulations</td>
</tr>
</tbody>
</table>

**Complementary Courses (6 credits)**

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

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

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

**Thesis**

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

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>NRSC 701</td>
<td>(0)</td>
<td>Ph.D. Comprehensive Examination</td>
</tr>
<tr>
<td>NRSC 751</td>
<td>(0)</td>
<td>Graduate Seminar 4</td>
</tr>
<tr>
<td>NRSC 752</td>
<td>(0)</td>
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<td>NRSC 753</td>
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<td>Graduate Seminar 6</td>
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<tr>
<td>NRSC 754</td>
<td>(0)</td>
<td>Graduate Seminar 7</td>
</tr>
</tbody>
</table>

**Coursework**

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

11.7.16 **Doctor of Philosophy (Ph.D.); Microbiology**

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

**Thesis**

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NRSC 701</td>
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<td>Ph.D. Comprehensive Examination</td>
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<td>Graduate Seminar 4</td>
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<td>NRSC 754</td>
<td>(0)</td>
<td>Graduate Seminar 7</td>
</tr>
</tbody>
</table>

Coursework

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

11.7.17 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 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

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<tbody>
<tr>
<td>NRSC 701</td>
<td>(0)</td>
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<td>(0)</td>
<td>Graduate Seminar 4</td>
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<tr>
<td>NRSC 752</td>
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<td>Graduate Seminar 5</td>
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<tr>
<td>NRSC 753</td>
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<td>Graduate Seminar 6</td>
</tr>
<tr>
<td>NRSC 754</td>
<td>(0)</td>
<td>Graduate Seminar 7</td>
</tr>
</tbody>
</table>

Coursework

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

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

Thesis

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

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>ENVR 610</td>
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<td>Foundations of Environmental Policy</td>
</tr>
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<td>ENVR 650</td>
<td>(1)</td>
<td>Environmental Seminar 1</td>
</tr>
<tr>
<td>ENVR 651</td>
<td>(1)</td>
<td>Environmental Seminar 2</td>
</tr>
<tr>
<td>ENVR 652</td>
<td>(1)</td>
<td>Environmental Seminar 3</td>
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<td>NRSC 701</td>
<td>(0)</td>
<td>Ph.D. Comprehensive Examination</td>
</tr>
<tr>
<td>NRSC 754</td>
<td>(0)</td>
<td>Graduate Seminar 7</td>
</tr>
</tbody>
</table>
Coursework

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

Complementary Courses

One course chosen from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 519</td>
<td>Global Environmental Politics</td>
</tr>
<tr>
<td>ENVR 544</td>
<td>Environmental Measurement and Modelling</td>
</tr>
<tr>
<td>ENVR 580</td>
<td>Topics in Environment 3</td>
</tr>
<tr>
<td>ENVR 611</td>
<td>The Economy of Nature</td>
</tr>
<tr>
<td>ENVR 620</td>
<td>Environment and Health of Species</td>
</tr>
<tr>
<td>ENVR 622</td>
<td>Sustainable Landscapes</td>
</tr>
<tr>
<td>ENVR 630</td>
<td>Civilization and Environment</td>
</tr>
<tr>
<td>ENVR 680</td>
<td>Topics in Environment 4</td>
</tr>
</tbody>
</table>

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

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

Thesis

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

Required Courses

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>BIOL 640</td>
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<td>ENVR 610</td>
<td>Foundations of Environmental Policy</td>
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<td>NRSC 701</td>
<td>Ph.D. Comprehensive Examination</td>
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<td>NRSC 751</td>
<td>Graduate Seminar 4</td>
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<td>Graduate Seminar 6</td>
</tr>
<tr>
<td>NRSC 754</td>
<td>Graduate Seminar 7</td>
</tr>
</tbody>
</table>

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

Elective Courses

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

11.7.20 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 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
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.

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

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

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

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

Complementary Courses
One course chosen from the following:
- ENVR 519 (3) Global Environmental Politics
- ENVR 544 (3) Environmental Measurement and Modelling
- ENVR 580 (3) Topics in Environment 3
- ENVR 611 (3) The Economy of Nature
- ENVR 620 (3) Environment and Health of Species
or another 500-, 600-, or 700-level course recommended by the advisory committee and approved by the Environment Option Committee.

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**

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<thead>
<tr>
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<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
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<td>(3)</td>
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</tr>
<tr>
<td>ENVR 650</td>
<td>(1)</td>
<td>Environmental Seminar 1</td>
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<td>ENVR 651</td>
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<td>Environmental Seminar 2</td>
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<td>ENVR 652</td>
<td>(1)</td>
<td>Environmental Seminar 3</td>
</tr>
<tr>
<td>NRSC 701</td>
<td>(0)</td>
<td>Ph.D. Comprehensive Examination</td>
</tr>
<tr>
<td>NRSC 754</td>
<td>(0)</td>
<td>Graduate Seminar 7</td>
</tr>
</tbody>
</table>

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

**Complementary Courses**
One course chose from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>ENVR 680</td>
<td>(3)</td>
<td>Topics in Environment 4</td>
</tr>
</tbody>
</table>

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

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

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

11.8 Parasitology

11.8.1 Location

Institute of Parasitology
Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: 514-398-7722
Fax: 514-398-7857
Email: graduate.parasitology@mcgill.ca
Website: www.mcgill.ca/parasitology

11.8.2 About Parasitology


The Institute of Parasitology teaches and researches the phenomenon of parasitism of humans and livestock. The nutrition/parasitism interface is also examined. Current research involvement includes the biology, biochemistry, bioinformatics, pharmacology, control, ecology, epidemiology, immunology, molecular biology, neurobiology, and population and molecular genetics of parasitic organisms, viruses, and cancer cells. The non-thesis programs in Biotechnology offer a course-based curriculum with practical training in laboratory courses and internships.

The Institute is housed in its own building adjacent to the Macdonald Campus Library and has well-equipped laboratories. A confocal microscopy suite and a FACSAria cell sorting facility are available on site. Small and large animal facilities are present on the Macdonald campus. The Institute is affiliated with the McGill Centre for Tropical Diseases at the Montreal General Hospital.

Graduates typically go on to become career research scientists, enter the biotechnology sector in research, management, or sales, or accept government positions.

Parasitology Programs

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 have found employment in scientific fields.

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

A research project is undertaken in an area of parasitology under the direction of a supervisor, and a thesis is produced. This option involves additional coursework specializing in bioinformatics, and graduates are highly trained professionals with expertise in bioinformatics.
section 11.8.7: Master of Science (M.Sc.); Parasitology (Thesis) — Environment (46 credits)
A research project is undertaken under the direction of a supervisor, and a thesis is produced. This option involves extra coursework in topics relevant to the environment and is suitable for students interested in environmental issues. Graduates find employment in science and/or the environment, such as management or consulting positions in the emerging field of environmental protection, or go on to further graduate studies.

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 research careers in a university or private industry laboratory.

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 career, 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, or government, especially where the focus is on environmental protection or management of valuable natural resources, such as water.

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 degree 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.

11.8.3.2 Application Procedures
Applicants for the thesis research degrees (M.Sc. and Ph.D.) must forward supporting documents to:

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

Applications – Complete the online application form available at www.mcgill.ca/gradapplicants/apply. Note: There is a CAD$100 non-refundable application fee. Applications will not be processed without payment. Paper applications, or PDF versions thereof, are no longer available. All applications to McGill must be done online. Applications will be considered upon receipt of the completed online application form, the CAD$100 application fee, and the following supporting documents:

Note: Documents submitted will not be returned.

Transcripts – Two official copies of all university-level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a bachelor's degree or its equivalent, as determined by McGill, in a subject closely related to the one selected for graduate work.

Letters of Recommendation – Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. Letters may be sent electronically (via email). Electronic letters must be sent via a valid institutional or corporate email address (domain); public domains such as Hotmail, Yahoo, Gmail,
Videotron, etc., cannot be accepted. Detailed information can be found at the following site: www.mcgill.ca/gradapplicants/apply/prepare/checklist/documents. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English – Applicants to graduate studies whose mother tongue is not English, and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English by appropriate exams, e.g., TOEFL (minimum score 577 on the paper-based test, or 90 on the Internet-based test with each component not less than 20). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31 (Graduate Schools), Biological Sciences – Agriculture, to ensure that your TOEFL reaches this office without delay. For detailed information consult the following site: www.mcgill.ca/gradapplicants/apply/prepare/requirements/proficiency.

Competency in English – Applicants to graduate studies whose mother tongue is not English, and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English by appropriate exams, e.g., TOEFL (minimum score 577 on the paper-based test, or 90 on the Internet-based test with each component not less than 20). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31 (Graduate Schools), Biological Sciences – Agriculture, to ensure that your TOEFL reaches this office without delay. For detailed information consult the following site: www.mcgill.ca/gradapplicants/apply/prepare/requirements/proficiency.

Graduate Record Exam (GRE) – The GRE is not required, but it is highly recommended.

Application Fee (non-refundable) – A fee of CAD$100 must accompany each online application (including those submitted by McGill students); otherwise, it cannot be considered. This sum must be remitted by credit card only.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to all research programs depends on a staff member agreeing to serve as the student’s supervisor and the student obtaining financial support. 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.

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.

Other Supporting Documents – Other documents may be required for the admission process. Please consult the respective website of Parasitology and Biotechnology for full details of the admission process.

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

11.8.3.3 Dates for Guaranteed Consideration

<table>
<thead>
<tr>
<th>Canadian</th>
<th>International</th>
<th>Special/Exchange/Visiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall: June 30</td>
<td>Fall: April 30</td>
<td>Fall: Same as Canadian/International</td>
</tr>
<tr>
<td>Winter: November 15</td>
<td>Winter: September 30</td>
<td>Winter: Same as Canadian/International</td>
</tr>
<tr>
<td>Summer: N/A</td>
<td>Summer: N/A</td>
<td>Summer: N/A</td>
</tr>
</tbody>
</table>

It may be necessary to delay review of the applicant’s file until the following admittance period if application materials including supporting documents are received after the Dates for Guaranteed Consideration. International applicants are advised to apply well in advance of these dates because immigration procedures may be lengthy. Applicants must make use of the online application form available on the web at www.mcgill.ca/gradapplicants/apply.

11.8.4 Parasitology Faculty

Director

Timothy G. Geary

Professors

John P. Dalton; B.Sc., Ph.D.(Dublin) (Canada Research Chair in Infectious Diseases)
Timothy G. Geary; B.Sc.(Notre Dame), Ph.D.(Mich.) (Canada Research Chair in Parasite Biotechnology)
Roger Prichard; B.Sc., Ph.D.(NSW) (James McGill Professor)

Associate Professors

Robin N. Beech; B.Sc.(Nott.), Ph.D.(Edin.)
Elias Georges; B.Sc., Ph.D.(McG.)
Armando Jardim; B.Sc., Ph.D.(Vic., BC)
Paula Ribeiro; B.Sc., Ph.D.(York)
Marilyn E. Scott; B.Sc.(New Br.), Ph.D.(McG.)
Assistant Professors

Petra Rohrbach; B.Sc.(McG.), Ph.D.(Heidelberg, Germany)
Reza Salavati; B.A., M.A.(Calif. St.), Ph.D.(Wesl.)

Associate Members

Gregory J. Matlashewski (Medicine, Microbiology and Immunology)
Mary Stevenson (Medicine, Experimental Medicine)
Brian Ward (Medicine, Experimental Medicine)

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

Thesis Courses (32 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARA 687</td>
<td>(10)</td>
<td>Thesis Research 1</td>
</tr>
<tr>
<td>PARA 688</td>
<td>(10)</td>
<td>Thesis Research 2</td>
</tr>
<tr>
<td>PARA 689</td>
<td>(12)</td>
<td>Thesis Research 3</td>
</tr>
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</table>

Required Courses (14 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARA 600</td>
<td>(4)</td>
<td>Thesis Proposal for M.Sc</td>
</tr>
<tr>
<td>PARA 606</td>
<td>(2)</td>
<td>Parasitology Seminar</td>
</tr>
<tr>
<td>PARA 607</td>
<td>(2)</td>
<td>Parasitology Research Seminar</td>
</tr>
<tr>
<td>PARA 635</td>
<td>(3)</td>
<td>Cell Biology and Infection</td>
</tr>
<tr>
<td>PARA 655</td>
<td>(3)</td>
<td>Host-Parasite Interactions</td>
</tr>
</tbody>
</table>

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

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

Thesis Courses (24 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARA 688</td>
<td>(10)</td>
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</tr>
<tr>
<td>PARA 689</td>
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</tr>
<tr>
<td>PARA 690</td>
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<td>Thesis Research 4</td>
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Required Courses (17 credits)

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>COMP 616D1</td>
<td>(1.5)</td>
<td>Bioinformatics Seminar</td>
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<tr>
<td>COMP 616D2</td>
<td>(1.5)</td>
<td>Bioinformatics Seminar</td>
</tr>
<tr>
<td>PARA 600</td>
<td>(4)</td>
<td>Thesis Proposal for M.Sc</td>
</tr>
<tr>
<td>PARA 606</td>
<td>(2)</td>
<td>Parasitology Seminar</td>
</tr>
<tr>
<td>PARA 607</td>
<td>(2)</td>
<td>Parasitology Research Seminar</td>
</tr>
<tr>
<td>PARA 635</td>
<td>(3)</td>
<td>Cell Biology and Infection</td>
</tr>
<tr>
<td>PARA 655</td>
<td>(3)</td>
<td>Host-Parasite Interactions</td>
</tr>
</tbody>
</table>

Complementary Courses (6 credits)

6 credits from the following courses:
FACULTY OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES, INCLUDING SCHOOL OF DIETETICS AND HUMAN NUTRITION (GRADUATE)

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

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

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

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 580 (3) Topics in Environment 3
- ENVR 611 (3) The Economy of Nature
- 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 field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

Required Courses (10 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
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<td>PARA 655</td>
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<tr>
<td>PARA 700</td>
<td>0</td>
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<tr>
<td>PARA 710</td>
<td>2</td>
</tr>
<tr>
<td>PARA 711</td>
<td>2</td>
</tr>
</tbody>
</table>

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

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

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

Thesis
A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, 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 (13 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>COMP 616D1</td>
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<tr>
<td>COMP 616D2</td>
<td>1.5</td>
</tr>
<tr>
<td>PARA 635</td>
<td>3</td>
</tr>
<tr>
<td>PARA 655</td>
<td>3</td>
</tr>
<tr>
<td>PARA 700</td>
<td>0</td>
</tr>
<tr>
<td>PARA 710</td>
<td>2</td>
</tr>
<tr>
<td>PARA 711</td>
<td>2</td>
</tr>
</tbody>
</table>

Complementary Courses (6 credits)

6 credits chosen from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 621</td>
<td>3</td>
</tr>
<tr>
<td>BMDE 652</td>
<td>3</td>
</tr>
<tr>
<td>BTEC 555</td>
<td>3</td>
</tr>
<tr>
<td>COMP 618</td>
<td>3</td>
</tr>
<tr>
<td>PHGY 603</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional courses at the 500, 600, or 700 level may be required at the discretion of the candidate's supervisory committee.
11.8.10 Doctor of Philosophy (Ph.D.); Parasitology — Environment

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

Required Courses (14 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 610</td>
<td>3</td>
<td>Foundations of Environmental Policy</td>
</tr>
<tr>
<td>ENVR 650</td>
<td>1</td>
<td>Environmental Seminar 1</td>
</tr>
<tr>
<td>ENVR 651</td>
<td>1</td>
<td>Environmental Seminar 2</td>
</tr>
<tr>
<td>ENVR 652</td>
<td>1</td>
<td>Environmental Seminar 3</td>
</tr>
<tr>
<td>PARA 700</td>
<td>0</td>
<td>Thesis Proposal for Ph.D</td>
</tr>
<tr>
<td>PARA 710</td>
<td>2</td>
<td>Parasitology Ph.D. Seminar 1</td>
</tr>
<tr>
<td>PARA 711</td>
<td>2</td>
<td>Parasitology Ph.D. Seminar 2</td>
</tr>
</tbody>
</table>

Complementary Courses (6 credits)

One of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARA 635</td>
<td>3</td>
<td>Cell Biology and Infection</td>
</tr>
<tr>
<td>PARA 655</td>
<td>3</td>
<td>Host-Parasite Interactions</td>
</tr>
</tbody>
</table>

One course chosen from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 519</td>
<td>3</td>
<td>Global Environmental Politics</td>
</tr>
<tr>
<td>ENVR 544</td>
<td>3</td>
<td>Environmental Measurement and Modelling</td>
</tr>
<tr>
<td>ENVR 580</td>
<td>3</td>
<td>Topics in Environment 3</td>
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<tr>
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<td>The Economy of Nature</td>
</tr>
<tr>
<td>ENVR 620</td>
<td>3</td>
<td>Environment and Health of Species</td>
</tr>
<tr>
<td>ENVR 622</td>
<td>3</td>
<td>Sustainable Landscapes</td>
</tr>
<tr>
<td>ENVR 630</td>
<td>3</td>
<td>Civilization and Environment</td>
</tr>
<tr>
<td>ENVR 680</td>
<td>3</td>
<td>Topics in Environment 4</td>
</tr>
</tbody>
</table>

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

11.9 Plant Science

11.9.1 Location

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

Telephone: 514-398-7851
Fax: 514-398-7897
Email: plant.science@mcgill.ca
11.9.2 About Plant Science

The Department offers an M.Sc. and Ph.D. in Plant Science with options in Bioinformatics, Environment, or Neotropical Environment, and provides for study in all fields of plant science. Research facilities—both field and laboratory—are available for investigations in plant breeding, crop physiology, crop management, crop quality, plant ecology, the epidemiology and biology of plant diseases, epigenetics, biosystematics, recombinant DNA technology, mycology, weed biology, tissue culture, plant biochemistry, and bioinformatics. Facilities include: the Horticultural Research Centre, the Emile A. Lods Agronomy Research Centre, greenhouses, growth cabinets, the McGill University Herbarium, the Applied Biotechnology laboratory, the CT Scanning laboratory, and a Level 2 Quarantine Facility.

An advisory committee is named for each student and has the responsibility of developing the program of study appropriate to the student's background and area of specialization.

section 11.9.5: Master of Science (M.Sc.); Plant Science (Thesis) (45 credits)

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

section 11.9.6: Master of Science (M.Sc.); Plant Science (Thesis) — Bioinformatics (48 credits)

This M.Sc. in Plant Science requires approximately two years for completion. Overall, the program consists of two graduate-level courses, seminars, and a research project leading to a thesis. The courses and the research project are chosen and defined with the help of an advisory committee. Subsequent career paths are varied, but include work with government agencies, the private sector, or further graduate studies in a related field. This option/concentration has an added emphasis on bioinformatics, including additional courses and seminars.

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

This M.Sc. in Plant Science requires approximately two years for completion. Overall, the program consists of two graduate-level courses, seminars, and a research project leading to a thesis. The courses and the research project are chosen and defined with the help of an advisory committee. Subsequent career paths are varied, but include work with government agencies, the private sector, or further graduate studies in a related field. This option/concentration has an added emphasis on environmental sciences, including additional courses and seminars.

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

This M.Sc. in Plant Science requires approximately two years for completion. Overall, the program consists of two graduate-level courses, seminars, and a research project leading to a thesis. The courses and the research project are chosen and defined with the help of an advisory committee. Subsequent career paths are varied, but include work with government agencies, the private sector, or further graduate studies in a related field. This option/concentration has an added emphasis on neotropical environments, including additional courses and seminars. Part of the program takes place in Panama.

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

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

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

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

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

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

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

This Ph.D. in Plant Science requires approximately three years for completion. Overall, the program consists of seminars and a research project leading to a thesis. Students must also complete a comprehensive examination within their first year of study. The research project is defined with the help of an advisory committee. Subsequent career paths are varied, but include work with government agencies, universities, or the private sector. This option/concentration has an added emphasis on environmental sciences, including additional courses and seminars.
section 11.9.13: Doctor of Philosophy (Ph.D.); Plant Science — Neotropical Environment

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

11.9.3 Plant Science Admission Requirements and Application Procedures

11.9.3.1 Admission Requirements

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

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

11.9.3.2 Application Procedures

Applicants for graduate studies must forward supporting documents to:

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

Telephone: 514-398-7851
Fax: 514-398-7897
Email: carolyn.bowes@mcgill.ca

Applications will be considered upon receipt of a signed and completed application form, $100 application fee, and the following supporting documents:

Note: Documents submitted will not be returned.

Transcripts – Two official copies of all university-level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a bachelor's degree or its equivalent, as determined by McGill, in a subject closely related to the one selected for graduate work.

Letters of Recommendation – Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English – Applicants to graduate studies whose mother tongue is not English, and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 550 on the paper-based test or 86 on the Internet-based test, with a minimum score of 20 on each), or IELTS (minimum overall band 6.5). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31 (Graduate Schools), Biological Sciences – Agriculture, to ensure that your TOEFL reaches this office without delay.

Graduate Record Exam (GRE) – The GRE is not required, but it is highly recommended.

Application Fee (non-refundable) – A fee of $100 Canadian must accompany each application (including McGill students); otherwise, it cannot be considered. This sum must be remitted by credit card only.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

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

11.9.3.3 Dates for Guaranteed Consideration

<table>
<thead>
<tr>
<th>Canadian</th>
<th>International</th>
<th>Special/Exchange/Visiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall: June 1</td>
<td>Fall: March 15</td>
<td>Fall: Same as Canadian/International</td>
</tr>
<tr>
<td>Winter: Oct. 15</td>
<td>Winter: Sept. 15</td>
<td>Winter: Same as Canadian/International</td>
</tr>
<tr>
<td>Summer: March 1</td>
<td>Summer: Jan. 15</td>
<td>Summer: Same as Canadian/International</td>
</tr>
</tbody>
</table>

It may be necessary to delay review of the applicant’s file until the following admittance period if application materials, including supporting documents, are received after the Dates for Guaranteed Consideration. International applicants are advised to apply well in advance of these dates because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the web at www.mcgill.ca/gradapplicants/apply.

11.9.4 Plant Science Faculty

Chair
P. Seguin

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

Professors
P. Dutilleul; L.Sc., D.Sc.(Louvain)
D.L. Smith; B.Sc., M.Sc.(Acad.), Ph.D.(Guelph)
A.K. Watson; B.Sc.(Agr.), M.Sc.(Br. Col.), Ph.D.(Sask.)

Associate Professors
J. Bede; B.Sc.(Calg.), M.Sc., Ph.D.(Tor.)
S. deBlois; B.Sc.(Agr.)(McG.), M.Sc., Ph.D.(Montr.)
D.J. Donnelly; B.Sc.(Agr.)(McG.), M.Sc.(Br. Col.), Ph.D.(S. Fraser)
S. Jabaji; B.Sc.(Beirut), M.Sc.(Guelph), Ph.D.(Wat.)
A.C. Kushalappa; B.Sc., M.Sc.(B'Lore), Ph.D.(Fior.)
P. Seguin; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(Minn.)
K. Stewart; B.Sc.(Agr.), (Br. Col.), Ph.D.(Rdg) (Post-Retirement)
M. Stromvik; B.A., M.Sc.,(Stockholm), Ph.D.(Ill.)
M. Waterway; B.A.(Grand Rapids), M.S.(Wisc.), Ph.D.(C'nell)

Assistant Professors
J.-B. Charron; B.Sc.(Montr.), M.Sc., Ph.D.(UQAM)
J. Singh; B.Sc.(Agr.), M.Sc.(Punjab), Ph.D.(Syd.)

Faculty Lecturers
C. Begg; B.Sc.(Agr.)(McG.), M.Sc.(Sask.), Ph.D.(McG.)
S. Lussier; B.Sc.(Agr.)(McG.)
D. Wees; B.Sc.(Agr.), M.Sc.(McG.)
11.9.5 Master of Science (M.Sc.); Plant Science (Thesis) (45 credits)

**Thesis Courses (39 credits)**
- PLNT 664 (12) M.Sc. Thesis 1
- PLNT 665 (12) M.Sc. Thesis 2
- PLNT 666 (15) M.Sc. Thesis 3

**Required Invitational Seminar**
- PLNT 690 (0) Research Horizons in Plant Science 1

**Complementary Courses (6 credits)**
Two graduate-level courses

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

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

**Thesis Courses (39 credits)**
- PLNT 664 (12) M.Sc. Thesis 1
- PLNT 665 (12) M.Sc. Thesis 2
- PLNT 666 (15) M.Sc. Thesis 3

**Required Invitational Seminar**
- PLNT 690 (0) Research Horizons in Plant Science 1

**Required Courses (3 credits)**
- COMP 616D1 (1.5) Bioinformatics Seminar
- COMP 616D2 (1.5) Bioinformatics Seminar
- PLNT 691 (0) Research Horizons in Plant Science 2

**Complementary Courses (6 credits)**
Chosen from the following:
- BINF 511 (3) Bioinformatics for Genomics
BINF 621 (3) Bioinformatics: Molecular Biology
BMDE 652 (3) Bioinformatics: Proteomics
BTEC 555 (3) Structural Bioinformatics
COMP 618 (3) Bioinformatics: Functional Genomics
PHGY 603 (3) Systems Biology and Biophysics

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

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

Thesis Courses (39 credits)

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

Required Invitational Seminar

PLNT 690 (0) Research Horizons in Plant Science 1

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 580 (3) Topics in Environment 3
ENVR 611 (3) The Economy of Nature
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)
**Required Invitational Seminar**

PLNT 690 (0) Research Horizons in Plant Science 1

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**Required Courses (6 credits)**

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

**Elective Courses (3 credits)**

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

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

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

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

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

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

**Thesis**

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

**Required Invitational Seminar**

PLNT 690 (0) Research Horizons in Plant Science 1

**Required Courses**

* Must be taken within one year of registering

PLNT 701 (0) Doctoral Comprehensive Examination

**Complementary Courses**

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

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

**Thesis**

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

PLNT 690 (0)  Research Horizons in Plant Science 1

Required Courses (3 credits)

* Must be taken within one year of registering.

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

Complementary Courses (6 credits)

Two courses to be chosen from the following:

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

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

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

Thesis

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

Required Invitational Seminar

PLNT 690 (0)  Research Horizons in Plant Science 1

Required Courses (6 credits)

* Must be taken within the first year of registering

ENVR 610 (3)  Foundations of Environmental Policy
ENVR 650 (1)  Environmental Seminar 1
ENVR 651 (1)  Environmental Seminar 2
ENVR 652 (1)  Environmental Seminar 3
PLNT 701* (0)  Doctoral Comprehensive Examination

Coursework

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

Complementary Courses (3 credits)

One course chosen from the following:
ENR 519 (3) Global Environmental Politics
ENR 544 (3) Environmental Measurement and Modelling
ENR 580 (3) Topics in Environment 3
ENR 611 (3) The Economy of Nature
ENR 620 (3) Environment and Health of Species
ENR 622 (3) Sustainable Landscapes
ENR 630 (3) Civilization and Environment
ENR 680 (3) Topics in Environment 4

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

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

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

The required thesis for this Ph.D. degree must display original scholarship expressed in proper literate style and must be a distinct contribution to knowledge.

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

**Thesis**

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

**Required Invitational Seminar**

PLNT 690 (0) Research Horizons in Plant Science 1

**Required Courses (6 credits)**

* Must be taken within one year of registering.

BIOL 640 (3) Tropical Biology and Conservation
ENR 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:
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<th>Course</th>
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<td>BMDE 652</td>
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