This PDF excerpt of Programs, Courses and University Regulations is an archived snapshot of the web content on the date that appears in the footer of the PDF. Archival copies are available at www.mcgill.ca/study.

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

1. 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.

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

3. 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.

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

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

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

7. 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.

8. 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.

Note: Throughout this publication, "you" refers to students newly admitted, readmitted or returning to McGill.
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1  Dean’s Welcome

To Graduate Students and Postdoctoral Fellows:

Welcome to Graduate and Postdoctoral Studies (GPS) at McGill. You are joining a community of world-class researchers and more than 10,000 graduate students in over 400 programs. GPS is here to support you from admissions through to graduation and beyond. We take a holistic approach to graduate student success; we support not only your academic development, but also your career-planning and professional development, and your well-being and student life. I invite you to consult the website Resources for Your Success, which is a one-stop-shop for the many resources and support systems in place for you across the University.

I would like to wish you all the best in your studies at McGill. We are here to make sure that you have the best possible experience.

Josephine Nalbantoglu, Ph.D.
Dean, Graduate and Postdoctoral Studies

2  Graduate and Postdoctoral Studies

2.1  Administrative Officers

<table>
<thead>
<tr>
<th>Administrative Officers</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Josephine Nalbantoglu, B.Sc., Ph.D.(McG.)</td>
<td>Dean (Graduate and Postdoctoral Studies)</td>
</tr>
<tr>
<td>Robin Beech, B.Sc.(Nott.), Ph.D.(Edin.)</td>
<td>Associate Dean (Graduate and Postdoctoral Studies)</td>
</tr>
<tr>
<td>France Bouthillier, B.Ed., C.Admin.(UQAM), M.B.S.I.(Montr.), Ph.D.(Tor.)</td>
<td>Associate Dean (Graduate and Postdoctoral Studies)</td>
</tr>
<tr>
<td>Lorraine Chalifour, B.Sc., Ph.D.(Manit.)</td>
<td>Associate Dean (Graduate and Postdoctoral Studies)</td>
</tr>
<tr>
<td>Elisa Pylkkanen, B.A., M.A.(McG.)</td>
<td>Director (Graduate and Postdoctoral Studies)</td>
</tr>
</tbody>
</table>

2.2  Location

James Administration Building, Room 400
845 Sherbrooke Street West
Montreal QC H3A 0G4
Website: www.mcgill.ca/gps

Note: For inquiries regarding specific graduate programs, please contact the appropriate department.

2.3  Graduate and Postdoctoral Studies’ Mission

The mission of Graduate and Postdoctoral Studies (GPS) is to promote university-wide academic excellence for graduate and postdoctoral education at McGill. GPS provides leadership and strategic direction across the university in close collaboration with the academic and administrative units, and the graduate and postdoctoral community.

3  Important Dates

For all dates relating to the academic year, consult www.mcgill.ca/importantdates.
Graduate Studies at a Glance

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

Program Requirements

Refer to University Regulations & Resources > Graduate > Regulations > : Program Requirements for graduate program requirements for the following:

- Master's Degrees
- Doctoral Degrees
- Ad Personam Programs (Thesis Option Only)
- Coursework for Graduate Programs, Diplomas, and Certificates

Graduate Admissions and Application Procedures

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

- Application for Admission
- Admission Requirements
- Application Procedures
- Competency in English

and other important information regarding admissions and application procedures for Graduate and Postdoctoral Studies.

Fellowships, Awards, and Assistantships

Please refer to University Regulations & Resources > Graduate > : Fellowships, Awards, and Assistantships for information and contact information regarding fellowships, awards, and assistantships in Graduate and Postdoctoral Studies.

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.

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 Enrolment 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 Enrolment 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 and supporting document—Commitments of Postdoctoral Scholars and Supervisors—available at www.mcgill.ca/gps/postdocs/fellows/responsibilities). This should stipulate, for example, the purpose of the postdoctoral appointment (research training and the advancement of knowledge), the duration of the fellowship, financial 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 University Regulations & Resources > Graduate > Regulations > Categories of Students > Leave of Absence Status). 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. This applies to all postdocs, except those for whom teaching is part of the award (e.g., Mellon grantees).

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 under www.mcgill.ca/students/srr, and those granted by the policies listed at www.mcgill.ca/secretariat/policies-and-regulations.

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.

9McGill University, Interfaculty Studies, 2019-2020 (Published March 18, 2019)
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 at [www.mcgill.ca/students/srr](http://www.mcgill.ca/students/srr) and must abide by the policies listed at [www.mcgill.ca/secretariat/policies-and-regulations](http://www.mcgill.ca/secretariat/policies-and-regulations).

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 oversee and sign off on the Letter of Agreement for Postdoctoral Education;
- 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 at [www.mcgill.ca/students/srr](http://www.mcgill.ca/students/srr) 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; revised May 2014

8.3 Vacation Policy for Graduate Students and Postdocs

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

*Council of FGSR April 23, 1999*

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 [University Regulations & Resources > Graduate > Leave of Absence Status](#)).

Such a leave must be requested on a term-by-term basis and may be granted for a period of up to 52 weeks. For a maternity or parental leave, the eligibility period of a maximum of 52 consecutive weeks is determined based on when the child is born; if the leave is interrupted for one or two terms, the eligibility period cannot be extended. Students and Postdocs must make a request for such a leave in writing to their department and submit a medical certificate.
department shall forward the request to Enrolment Services. See the procedure in University Regulations & Resources > Graduate > Leave of Absence Status.

Students who have been granted such a leave will have to register for the term(s) in question and their registration will show as “leave of absence” on their record. No tuition fees will be charged for the duration of the authorized leave. Research supervisors are not obligated to remunerate students and Postdocs on leave. A summary table of various leave policies (paid or unpaid) for students and Postdocs paid from the Federal and Quebec Councils through fellowships or research grants is available at www.mcgill.ca/gps/funding/getting-paid under "Leave Policies and Form."

### 8.5 Postdoctoral Research Trainees

**Eligibility**

If your situation does not conform to the Government of Quebec's 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 Government of Quebec's 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 fulfils 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 inquire 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 University Regulations & Resources > Graduate > Guidelines and Policies for information on the following:

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

Graduate students are encouraged to refer to: Student Services and Information for information on the following topics:

- Service Point
- Student Rights & Responsibilities
- Student Services – Downtown & Macdonald Campuses
- Residential Facilities
- Athletics and Recreation
- Ombudsperson for Students
- Extra-Curricular and Co-Curricular Activities
- Bookstore
- Computer Store
- Day Care

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

Refer to University Regulations & Resources > Graduate > : Research Policy and Guidelines 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

12 Browse Academic Units & Programs

The programs and courses in the following sections have been approved for the 2019–2020 session as listed. The Faculty/School reserves the right to introduce changes as may be deemed necessary or desirable at any time throughout the year.

12.1 Biological and Biomedical Engineering

12.1.1 Location

Duff Medical Building
3775 University Street, Room 316
Montreal QC H3A 2B4
Canada
Website: www.mcgill.ca/bbme
12.1.2 About Biological and Biomedical Engineering

The Biological and Biomedical Engineering (BBME) graduate program is an interfaculty program involving the Department of Bioengineering in the Faculty of Engineering and the Department of Biomedical Engineering in the Faculty of Medicine. The BBME interfaculty program builds on the excellence and high standard of its predecessor graduate program in Biomedical Engineering. This broader interfaculty restructuring supports the growing trend in research universities toward formalized interdisciplinary studies and multifaculty collaboration.

BBME students come from a wide range of backgrounds including engineering, physics, chemistry, biology, and dentistry, among others. The multicultural diversity of our student body is a strength of the program, as networking and collaborative opportunities are vast. Students in BBME have supervisors associated with the program whose home departments will be spread primarily across the Faculties of Engineering and Medicine.

As researchers in this field unravel the molecular and physiological mechanisms of biology, develop increasingly advanced technologies to transform healthcare, or attempt to reverse-engineer naturally occurring biological solutions, devices, and procedures, alumni of the BBME program are poised to play a critical role in shaping our global future.

Please consult our website for additional information.

Research Domains

Our faculty members are particularly active in research related to the development of quantitative analysis tools and instruments for biological and biomedical research. The ultimate goal is the pursuit of answers to biological and medical questions. Ongoing biological and biomedical engineering research at McGill includes:

- signal analysis, including brain (EEG), muscles (EMG), eyes (EOG), respiration, and mass spectrometry;
- systems analysis, including neuromuscular control, and oculomotor and vestibular control;
- experimental and computational biomechanics, including orthopedic and auditory mechanics;
- biomaterials, including artificial cells;
- medical imaging and image processing;
- micro and nanotechnology and biosensors;
- nanoparticles and cell imaging;
- bioinformatics and computational biology;
- computers in medical education, including interactive 3D models and haptics;
- biological materials and mechanics;
- biomolecular and cellular engineering, and regenerative medicine;
- biomedical, diagnostics, and high throughput screening engineering;
- mechanics of disease;
- tissue engineering, especially concerning 3D and nano-related biological microfluidics devices, such as fungi and cellular traffic;
- biological dynamic devices, from whole-organisms (e.g., bacteria) to nanodevices;
- information processing and storage in biological systems;
- systems and synthetic biology;
- cell mechanisms and the cytoskeleton;
- soft matter physics.

section 12.1.5: Master of Engineering (M.Eng.) Biological and Biomedical Engineering (Thesis) (45 credits)

The Biological and Biomedical Engineering Master's program focuses on the interdisciplinary application of methods, paradigms, technologies, and devices from engineering and the natural sciences to problems in biology, medicine, and the life sciences. With its unique multidisciplinary environment and taking advantage of research collaborations between staff in the Faculties of Medicine, Science, and Engineering, BBME offers thesis-based graduate degrees (M.Eng.) that span broad themes, including: biomodelling, biosignal processing, medical imaging, nanotechnology, artificial cells and organs, probiotics, bioinformatics, orthopedics, biological materials and mechanobiology, motor proteins and the cytoskeleton, biosensors and biological therapeutics, biological networks, and computational biology. BBME's internationally-renowned staff provide frequent and stimulating interactions with physicians, scientists, and the biomedical industry. Through courses and thesis research, this program will prepare students for careers in industry, academia, hospitals, and government and provide a solid basis for Ph.D. studies. Candidates should hold a Bachelor's degree in engineering, science, or medicine with a strong emphasis on mathematics, physics, chemistry, and basic biology (physiology, cell biology, or molecular biology).

For more information please consult www.mcgill.ca/bbme/prospective-students/masters-program.

section 12.1.6: Doctor of Philosophy (Ph.D.) Biological and Biomedical Engineering

The Biological and Biomedical Engineering doctoral program provides students with advanced training in the interdisciplinary application of methods, paradigms, technologies, and devices from engineering and the natural sciences to problems in biology, medicine, and the life sciences. The program will focus on an area of choice while integrating quantitative concepts and engineering tools for the study of natural and life sciences and/or for patient care. As part of the Ph.D. requirement, the student will integrate the scientific method, develop critical and deep thinking, and acquire advanced writing and
section 12.1.6: Doctor of Philosophy (Ph.D.) Biological and Biomedical Engineering

presentation skills that will form the foundation for his/her future career. Under the guidance of his/her supervisor, the student will tackle a research challenge and make original contributions to the advancement of science and engineering in an area of Biological and Biomedical Engineering. Through independent research and thesis writing, the program will prepare students for careers in academia, industry, hospitals, and government. Students who complete the program will obtain a doctor of philosophy in Biological and Biomedical Engineering. The best preparation for this program is a master's degree in BBME or a related discipline.

For more information please consult www.mcgill.ca/bbme/prospective-students/doctoral-program.

12.1.3 Biological and Biomedical Engineering Admission Requirements and Application Procedures

12.1.3.1 Admission Requirements

For up-to-date admission requirements, please consult www.mcgill.ca/bbme/prospective-students/how-apply and University Regulations & Resources > Graduate > Graduate Admissions and Application Procedures > : Admission Requirements (Minimum Requirements to be Considered for Admission).

12.1.3.2 Application Procedures

McGill’s online application form for graduate program candidates is available at www.mcgill.ca/gradapplicants/apply. See University Regulations & Resources > Graduate > Graduate Admissions and Application Procedures > : Application Procedures for detailed application procedures.

Please address enquiries directly to info.bbme@mcgill.ca.

12.1.3.3 Application Dates and Deadlines

Application opening dates are set by Enrolment Services in consultation with Graduate and Postdoctoral Studies (GPS), while application deadlines are set by the Biological and Biomedical Engineering Graduate Program and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at www.mcgill.ca/gps/contact/graduate-program. For additional information, please consult www.mcgill.ca/bbme/prospective-students/how-apply.

<table>
<thead>
<tr>
<th>Application Opening Dates</th>
<th>Application Deadlines</th>
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<tbody>
<tr>
<td></td>
<td>All Applicants</td>
</tr>
<tr>
<td>Fall Term:</td>
<td>Sept. 1</td>
</tr>
<tr>
<td>Winter Term:</td>
<td>Feb. 15</td>
</tr>
<tr>
<td>Summer Term:</td>
<td>N/A</td>
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</tbody>
</table>

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

Note: Applications for Summer term admission will not be considered.

12.1.4 Biological and Biomedical Engineering Faculty

Biological and Biomedical Engineering is an interfaculty program offered jointly by the Department of Bioengineering in the Faculty of Engineering and the Department of Biomedical Engineering in the Faculty of Medicine.

Please refer to : Bioengineering Faculty and : Biomedical Engineering Faculty for their respective faculty listings.

12.1.5 Master of Engineering (M.Eng.) Biological and Biomedical Engineering (Thesis) (45 credits)

The Biological and Biomedical Engineering (BBME) Master’s program focuses on the interdisciplinary application of methods, paradigms, technologies, and devices from engineering and the natural sciences to problems in biology, medicine, and the life sciences. With its unique multidisciplinary environment, and taking advantage of research collaborations between staff in the Faculties of Medicine, Science, and Engineering. BBME offers thesis-based graduate degrees (M.Eng.) that span broad themes in biomodelling, biosignal processing, medical imaging, nanotechnology, artificial cells and organs, probiotics, bioinformatics, bioengineering, biomaterials, and orthopaedics. BBME’s internationally renowned staff provide frequent and stimulating interactions with physicians, scientists, and the biomedical industry. Through courses and thesis research, this program will prepare students for careers in industry, academia, hospitals and government and provide a solid basis for Ph.D. studies. Candidates should hold a bachelor’s degree in engineering, science, or medicine with a strong emphasis on mathematics, physics, chemistry, and basic physiology or cell biology.
### Thesis Courses (24 credits)

- **BBME 693** (6) Thesis Research 1
- **BBME 694** (6) Thesis Research 2
- **BBME 695** (12) Thesis Submission

### Required Courses (3 credits)

- **BBME 600D1** (1.5) Seminars in Biological and Biomedical Engineering
- **BBME 600D2** (1.5) Seminars in Biological and Biomedical Engineering

**OR**

- **BBME 600N1** (1.5) Seminars in Biological and Biomedical Engineering
- **BBME 600N2** (1.5) Seminars in Biological and Biomedical Engineering

### Complementary Courses (18 credits)

3 credits from the following quantitative courses:

- **BIEN 510** (3) Engineered Nanomaterials for Biomedical Applications
- **BIEN 520** (3) High Throughput Bioanalytical Devices
- **BIEN 530** (3) Imaging and Bioanalytical Instrumentation
- **BIEN 550** (3) Biomolecular Devices
- **BIEN 560** (3) Biosensors
- **BIEN 570** (3) Active Mechanics in Biology
- **BIEN 590** (3) Cell Culture Engineering
- **BMDE 502** (3) BME Modelling and Identification
- **BMDE 503** (3) Biomedical Instrumentation
- **BMDE 512** (3) Finite-Element Modelling in Biomedical Engineering
- **BMDE 519** (3) Biomedical Signals and Systems
- **BMDE 610** (3) Functional Neuroimaging Fusion
- **BMDE 660** (3) Advanced MR Imaging and Spectroscopy of the Brain

6 credits from the following:

- **BIEN 510** (3) Engineered Nanomaterials for Biomedical Applications
- **BIEN 520** (3) High Throughput Bioanalytical Devices
- **BIEN 530** (3) Imaging and Bioanalytical Instrumentation
- **BIEN 540** (3) Information Storage and Processing in Biological Systems
- **BIEN 550** (3) Biomolecular Devices
- **BIEN 560** (3) Biosensors
- **BIEN 570** (3) Active Mechanics in Biology
- **BIEN 590** (3) Cell Culture Engineering
- **BIEN 680** (4) Bioprocessing of Vaccines
- **BMDE 501** (3) Selected Topics in Biomedical Engineering
- **BMDE 502** (3) BME Modelling and Identification
BMDE 503 (3) Biomedical Instrumentation
BMDE 504 (3) Biomaterials and Bioperformance
BMDE 505 (3) Cell and Tissue Engineering
BMDE 508 (3) Introduction to Micro and Nano-Bioengineering
BMDE 512 (3) Finite-Element Modelling in Biomedical Engineering
BMDE 519 (3) Biomedical Signals and Systems
BMDE 610 (3) Functional Neuroimaging Fusion
BMDE 625D1 (3) Design of Assistive Technologies: Principles and Praxis
BMDE 625D2 (3) Design of Assistive Technologies: Principles and Praxis
BMDE 650 (3) Advanced Medical Imaging
BMDE 653 (3) Patents in Biomedical Engineering
BMDE 654 (3) Biomedical Regulatory Affairs - Medical Devices
BMDE 655 (3) Biomedical Clinical Trials - Medical Devices
BMDE 660 (3) Advanced MR Imaging and Spectroscopy of the Brain
MDPH 607 (3) Medical Imaging

9 credits at the 500-level or higher chosen from a list on the program web site https://www.mcgill.ca/bbme/students/courses or from other courses, at the 500 level or higher, at least 3 credits of which have both life sciences content and content from the physical sciences, engineering, or computer science, with the prior written approval of the Thesis Supervisor and the Graduate Program Director.

12.1.6 Doctor of Philosophy (Ph.D.) Biological and Biomedical Engineering

The goal of the Biological and Biomedical Engineering Ph.D. program is for students to gain advanced training in the interdisciplinary application of methods, paradigms, technologies, and devices from engineering and the natural sciences to problems in biology, medicine, and the life sciences. The program will focus in an area of choice while integrating quantitative concepts and engineering tools for the study of life sciences and/or for patient care. As part of the Ph.D. requirement, the student will integrate the scientific method, develop critical and deep thinking, and acquire advanced writing and presentation skills that will form the foundation for his/her career. Under the guidance of his/her supervisor, the student will tackle a research challenge and make original contributions to the advancement of science and engineering in an area of Biological and Biomedical Engineering. The program will prepare students for careers in academia, industry, hospitals and government. Students who complete the program will obtain a Doctor of Philosophy in Biological and Biomedical Engineering. The best preparation for this program is a Master’s degree in BBME or a related discipline.

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 Course

BBME 701 (0) Ph.D. Comprehensive Examination

Students must be registered in this course at the time of the Thesis Proposal and Comprehensive Exam Meeting.

Further courses may be required by the supervisor(s) in consultation with the Graduate Program Director, depending on the educational background of individual students.
12.2 Neuroscience (Integrated Program)

12.2.1 Location

Montreal Neurological Institute, Room 141
3801 University Street
Montreal QC H3A 2B4
Canada
Telephone: 514-398-1905; 514-398-6243; or 514-398-1229
Fax: 514-398-4621
Email: ipn@mcgill.ca or ipn.admissions@mcgill.ca
Website: www.mcgill.ca/ipn

12.2.2 About the Integrated Program in Neuroscience

Montreal is home to the largest concentration of neuroscientists in North America. Neuroscience research at McGill University is internationally renowned, and its Integrated Program in Neuroscience (IPN) provides graduate training in this outstanding research environment. With approximately 340 M.Sc. and Ph.D. students and more than 230 supervisors, the IPN is the largest graduate program in the Faculty of Medicine and one of the largest neuroscience graduate programs in North America.

Neuroscience training within the IPN spans the full spectrum of research fields, from cellular and molecular neuroscience to behavioural and cognitive neuroscience. In addition to laboratory research, the IPN offers an extensive range of courses, hosts an annual Neuroscience Retreat, and maintains a seminar program to facilitate communication between students in different neuroscience disciplines. Neuroscience trainees from McGill have gone on to successful careers in academia and industry.

A prospective graduate student may identify a supervisor from one of several research streams, spanning the full spectrum of neuroscience research. A student with a bachelor's degree may apply to the M.Sc. program; it is common to transfer to the Ph.D. program if suitable progress is made. Students with M.Sc. degrees may apply directly to the Ph.D. program. IPN also offers a Ph.D. Rotation program each September.

GENERAL

1. Students must select an Advisory Committee, in conjunction with their thesis supervisor. This committee will consist of the thesis supervisor and two other individuals who will participate in discussions with students about their research program.

2. All Ph.D. students are required to complete a candidacy examination before the end of Ph.D. 3. The exam serves to evaluate the students' ability to perform original scholarship and to demonstrate their suitability for a Ph.D. degree. An M.Sc. student may be eligible to transfer to the Ph.D. program without submitting a master's thesis by taking the Transfer Seminar/Candidacy Exam. This exam is allowed if the master's CGPA is 3.3 or higher and if the student's Advisory Committee recommends the student as an appropriate candidate for Ph.D. studies. M.Sc. students who wish to pursue a Ph.D. degree, but who have not obtained the minimum 3.3 CGPA in their M.Sc. coursework while in the IPN, must submit a master's thesis and apply for the Ph.D. level afterwards.

3. Students are required to submit a written thesis proposal (18 months after the start of the program for M.Sc. students, and at least one month prior to the candidacy exam for Ph.D. students). This document must state the hypothesis being tested, the relevant literature, and a summary of the methods that will be used to address the research question. This proposal will then be orally presented to the student's Advisory Committee, which will review the written proposal and communicate its recommendations to the student.

4. Students will present a formal seminar on their research work prior to writing their thesis. This presentation will be attended by the student's Advisory Committee who will report their impressions and recommendations to the student.

5. Before final thesis submission, Ph.D. students must successfully complete an oral defence, which is a final, in-depth, formal presentation of their research.

6. An annual oral informal presentation of research work accomplished will be presented to the student's Advisory Committee.

7. The Graduate Program Committee has instituted a mentorship program by which each student will be matched with a specific member of the Committee. The Program Mentor ensures that the student, the supervisor(s), and other members of the Advisory Committee are aware of and meet key milestones, in a timely manner, throughout the course of the student's graduate study.

8. All incoming students are required to take the workshops on Responsible Conduct of Research. These will be included as part of the milestones for annual progress reports.

section 12.2.5: Master of Science (M.Sc.) Neuroscience (Thesis) (45 credits)

The M.Sc. program offers opportunities to a great diversity of individual interests and backgrounds, and prepares our students for scientific careers in neuroscience and related fields. Programs leading to an M.Sc. degree require the completion of intensive academic and research training.

section 12.2.6: Doctor of Philosophy (Ph.D.) Neuroscience

The IPN offers a highly competitive Ph.D. degree program that prepares students for successful scientific careers in the field of neuroscience. Over half of the students registered in the neuroscience graduate program at McGill University are in the doctoral stream.
12.2.3  Neuroscience (Integrated Program) Admission Requirements and Application Procedures

12.2.3.1 Admission Requirements

General

Applicants must hold a bachelor's degree, or its equivalent, from a recognized institution in a field related to the subject selected for graduate work, and must display an adequate background in basic sciences.

The applicant must present evidence of high academic achievement. A standing equivalent to a cumulative grade point average (CGPA) of 3.0 out of a possible 4.0 is required by Graduate and Postdoctoral Studies; however, the Integrated Program in Neuroscience (IPN) prefers applicants to show a higher academic standing, and requires a minimum CGPA of 3.3.

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 results of the TOEFL exam with their application and have a minimum score of 86 on the Internet-based test (iBT; 567 on the paper-based test [PBT]) with each component score not less than 20.

M.Sc. Degree

Bachelor's degree with adequate background in basic sciences, or an M.D.

Ph.D. Degree

Applicants must hold a graduate-level degree in a field related to neuroscience or have an M.D. degree, preferably with postgraduate training. Applicants will also be considered for admission if enrolled in the Doctor of Medicine & Master of Surgery with Ph.D. (Joint M.D., C.M. & Ph.D.) program through the Faculty of Medicine at McGill University.

Students currently registered in the Master's in Neuroscience may be permitted to transfer to the Ph.D. program without submitting a master's thesis. Applicants are expected to have attained a high scholastic standing equal to, or greater than, the minimum cumulative grade point average of 3.3 out of 4.0 in all levels of study. In exceptional circumstances, a student may enter the Ph.D. program directly from their undergraduate degree if a CGPA of 3.7 is attained and if the student already presents extensive research experience.

Applicants are expected to have a high academic standing in their previous academic studies and research.

To meet the diversity of individual interests and backgrounds, the graduate program for each student is designed at the time of entry. As part of the admission process, each applicant will identify, with the participation of the prospective thesis supervisor and the Graduate Studies Committee, a research thesis topic and the coursework required to complete the training deemed necessary for the degree. These decisions become an integral part of the graduation requirements for the student.

12.2.3.2 Application Procedures

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

See University Regulations & Resources > Graduate > Graduate Admissions and Application Procedures > : Application Procedures for detailed application procedures.

12.2.3.2.1 Additional Requirements

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

- Curriculum Vitae
- Personal Statement

12.2.3.3 Application Dates and Deadlines

Application opening dates are set by Enrolment Services in consultation with Graduate and Postdoctoral Studies (GPS), while application deadlines are set by the IPN and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at www.mcgill.ca/gps/contact/graduate-program.

<table>
<thead>
<tr>
<th>Application Opening Dates</th>
<th>Application Deadlines</th>
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<tbody>
<tr>
<td>All Applicants</td>
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<tr>
<td>Fall Term:</td>
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<tr>
<td>Non-Canadian citizens (incl. Special, Visiting &amp; Exchange)</td>
<td>September 15</td>
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<tr>
<td>Canadian citizens/Perm. residents of Canada (incl. Special, Visiting &amp; Exchange)</td>
<td>March 15</td>
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<tr>
<td>Current McGill Students (any citizenship)</td>
<td>June 1</td>
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<tr>
<td>Winter Term:</td>
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<tr>
<td>Non-Canadian citizens (incl. Special, Visiting &amp; Exchange)</td>
<td>September 10</td>
</tr>
<tr>
<td>Canadian citizens/Perm. residents of Canada (incl. Special, Visiting &amp; Exchange)</td>
<td>February 15</td>
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<tr>
<td>Current McGill Students (any citizenship)</td>
<td>November 10</td>
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<td>Summer Term:</td>
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<tr>
<td>Non-Canadian citizens (incl. Special, Visiting &amp; Exchange)</td>
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<tr>
<td>Canadian citizens/Perm. residents of Canada (incl. Special, Visiting &amp; Exchange)</td>
<td>N/A</td>
</tr>
<tr>
<td>Current McGill Students (any citizenship)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Admission to graduate studies is competitive; accordingly, late and/or incomplete applications are considered only as time and space permit.
12.2.4  Neuroscience (Integrated Program) Faculty

**Director**
J. Rochford

**Associate Director**
E. Ruthazer

**Emeritus Professors**
A. Aguayo; M.D. (Cordoba Nat.) F.R.C.P.(C) (Dept. of Neurology and Neurosurgery)
B. Collier; Ph.D. (Dept. of Pharmacology)
R. Del Maestro; Ph.D. (Uppsala) (Dept. of Neurology and Neurosurgery)
M. Diksic; Ph.D. (Dept. of Neurology and Neurosurgery)
K. Franklin; Ph.D. (Dept. of Psychology)
P.C. Holland; B.A.(Lanc.), Ph.D.(Newcastle, UK) (Dept. of Neurology and Neurosurgery)
M. Rasminsky; B.A. (Tor.), M.D. (Harv.), Ph.D. (Lond.), F.R.C.P.(C) (Dept. of Neurology and Neurosurgery)
C. Thompson; D.Sc., F.C.C.P.M. (Dept. of Neurology and Neurosurgery)
N. White; B.A.(McG.), Ph.D.(Pitt.) (Dept. of Psychology)

**Professors**
G. Almazan; B.Sc.(N'eastern), Ph.D.(McG.) (Dept. of Pharmacology and Therapeutics)
E. Andermann; M.D.,C.M., M.Sc., Ph.D.(McG.), F.C.C.M.G. (Dept. of Neurology and Neurosurgery)
J. Antel; M.D., B.Sc.(Med.)(Manit.), F.R.C.P.(C) (Dept. of Neurology and Neurosurgery)
D. Arnold; B.Sc., M.D.(Cornell), F.R.C.P.(C) (James McGill Professor) (Dept. of Neurology and Neurosurgery)
M. Avoli; M.D.(Rome), Ph.D.(McG.) (Dept of Neurology and Neurosurgery)
S. Baillet; Ph.D.(Paris XI) (Dept of Neurology and Neurosurgery)
C. Baker; Ph.D.(Calif.-San Diego) (Dept. of Ophthalmology)
S. Baum; Ph.D.(Brown) (School of Communication Sciences and Disorders)
D. Bernard; Ph.D. (Johns Hop.) (Dept of Pharmacology)
A. Bernasconi; M.D.(Basel) (Dept of Neurology and Neurosurgery)
D. Boivin; M.D. (Laval), Ph.D. (Montr.) (Dept of Psychiatry)
P. Boksa; Ph.D.(McG.) (Dept of Psychiatry)
C. Bourque; B.Sc.(Ott.), Ph.D.(McG.) (Dept of Neurology and Neurosurgery)
D. Bowie; Ph.D.(Lond.) (Dept of Pharmacology and Therapeutics)
J.C.S. Breitner; M.D.(Penn.), MPH (Johns Hop.) (Dept of Psychiatry)
C. Bushnell; Ph.D.(Amer.) (Dept of Anaesthesia)
S. Carbonetto; M.Sc.(Mass.), Ph.D.(N. Carolina) (Dept of Neurology and Neurosurgery)
F. Cervero; M.D., Ph.D (Madrid), D.Sc.(Edin.) (Dept of Anesthesia)
H. Chertkow; M.D.(W. Ont.), F.R.C.P.(C) (Dept of Neurology and Neurosurgery)
P. Clarke; M.A. (Camb.), Ph.D.(Lond.) (Dept of Pharmacology and Therapeutics)
T. Codere; Ph.D.(McG.) (Depts. of Anesthesia, Neurology and Neurosurgery, Psychology, and Experimental Medicine)
D.L. Collins; M.Eng., Ph.D.(McG.) (Depts of Neurology and Neurosurgery, Biomedical Engineering)
E. Cooper; Ph.D.(McM.) (Dept of Physiology)
C. Cuello; M.D.(Buenos Aires), M.A., D.Sc.(Oxf.) (Dept of Pharmacology and Therapeutics)
Professors

K. Cullen; Ph.D.(Chic.) (Dept. of Physiology)
S. Daniel; M.D.,C.M., M.Sc.(McG.) (Dept. of Otolaryngology – Head and Neck Surgery)
S. David; Ph.D.(Manit.) (Dept. of Neurology and Neurosurgery)
L. Diatchenko; M.D., Ph.D.(RNRMU) (Dept. of Anesthesia, Faculties of Dentistry and Medicine)
H. Durham; M.Sc.(W. Ont.), Ph.D.(Alta.) (Dept. of Neurology and Neurosurgery)
S. El Mestikawy; Ph.D.(Paris VI) (Dept. of Psychiatry)
A. Evans; M.Sc.(Sur.), Ph.D.(Leeds) (Dept. of Neurology and Neurosurgery)
L. Fellows; B.Sc.(McG.), D.Phil.(Oxf.), M.D.,C.M.(McG.) (Dept. of Neurology and Neurosurgery)
C. Flores; Ph.D.(C'dia) (Dept. of Psychiatry)
E. Fon; M.D.(Montr.), F.R.C.P.(C) (Dept. of Neurology and Neurosurgery)
S.G. Gauthier; B.A., M.D.(Montr.), F.R.C.P.(C) (Dept. of Neurology and Neurosurgery)
B. Giros; M.Sc., Ph.D.(Paris VI) (Dept. of Psychiatry)
J. Gotman; M.Eng.(Dart.), Ph.D.(McG.) (Dept. of Neurology and Neurosurgery)
V. Gracco; Ph.D.(Wisc.) (School of Communication Sciences and Disorders)
A. Gratton; Ph.D.(C’dia) (Dept. of Psychiatry)
J. Grodzinsky; Ph.D.(Brandeis) (Dept. of Linguistics)
D. Guitton; Dipl. IVK(Univ. Libre de Brux.), B.Eng., M.Eng., Ph.D.(Eng.), Ph.D.(Physiol.)(McG.) (Dept. of Neurology and Neurosurgery)
D. Haegert; M.D.(Br. Col.), F.R.C.P.(C) (Dept. of Pathology)
E. Hamel; B.Sc.(Sher.), Ph.D.(Montr.) (Dept. of Neurology and Neurosurgery)
K. Hastings; B.Sc., Ph.D.(McG.) (Dept. of Neurology and Neurosurgery)
R.T. Hepple; Ph.D.(Tor.) (Dept. of Kinesiology and Physical Education)
R. Hess; Ph.D.(Melb.), D.Sc.(Aston, UK) (Dept. of Ophthalmology)
B. Jones; B.A., M.A., Ph.D.(Delaware) (Dept. of Neurology and Neurosurgery)
M. Jones-Gotman; B.A.(Calif.), M.A., Ph.D.(McG.) (Dept. of Neurology and Neurosurgery)
T. Kennedy; B.Sc.(McM.), Ph.D.(Col.) (Dept. of Neurology and Neurosurgery)
B. Kieffer; Ph.D.(Strasbourg) (Dept. of Psychiatry)
F. Kingdom; Ph.D.(Reading) (Dept. of Ophthalmology)
P. Lachapelle; Ph.D.(Montr.) (Dept. of Ophthalmology)
N. Lamarche; Ph.D.(Montr.) (Dept. of Anatomy and Cell Biology)
M. Lepage; B.A. (C’dia), Ph.D. (UQAM) (James McGill Professor) (Dept. of Psychiatry)
L. Levin; B.Sc., M.D., Ph.D. (Harv.) (Depts. of Ophthalmology, Neurology and Neurosurgery)
M.F. Levin; Ph.D.(P.T.)(McG.) (School of Physical and Occupational Therapy)
M. Leyton; M.A., Ph.D.(C’dia) (Dept. of Psychiatry) (William Dawson Scholar)
G. Luheshi; Ph.D.(Newcastle, UK) (Dept. of Psychiatry)
D. Maysinger; M.Sc., Ph.D.(Calif.-LA) (Dept. of Pharmacology and Therapeutics)
H.M. McBride; Ph.D.(McG.) (Dept. of Neurology and Neurosurgery)
P.S. McPherson; M.Sc.(Manit.), Ph.D.(Iowa) (James McGill Professor) (Dept. of Neurology and Neurosurgery)
M.J. Meaney; B.A. (Loyola), M.A., Ph.D.(C’dia,) (Dept. of Psychiatry)
B. Milner; B.A., Sc.D.(Cant.), Ph.D.(McG.) (Dept. of Neurology and Neurosurgery)
T.E. Milner; B.Sc., M.Sc., Ph.D.(Alta.) (Dept. of Kinesiology and Physical Education)
J.S. Mogil; Ph.D.(Calif.-LA) (Dept. of Psychology)
K. Mullen; Ph.D.(Camb.) (Dept. of Ophthalmology)
Professors

G. Multhaup; Ph.D.(Cologne) (Dept. of Pharmacology and Therapeutics)
A. Olivier; M.D.(Montr.), Ph.D.(Laval), F.R.C.S.(C) (Dept. of Neurology and Neurosurgery)
J. Orlowski; B.Sc. (McG.), M.Sc., Ph.D.(Tor.) (Dept. of Psychology)
D.J. Ostry; B.A.Sc., M.A.Sc., Ph.D.(Tor.) (Dept. of Psychology)
O. Overbury; Ph.D.(C' dia) (Dept. of Ophthalmology)
C. Palmer; B.Sc., M.Sc., Ph.D.(Cornell) (Dept. of Psychology)
K. Pantopoulos; B.Sc., Ph.D. (Aristotle) (Dept. of Medicine)
M. Pell; B.A.(Ott.), M.Sc., Ph.D.(McG.) (School of Communication Sciences and Disorders)
M. Petrides; B.Sc., M.Sc.(Lond.), Ph.D.(Cant.) (James McGill Professor) (Depts. of Neurology and Neurosurgery, Psychology)
G. Plourde; M.D.(Laval), M.Sc.(Ott.) (Dept. of Anesthesia)
J. Poirier; Ph.D.(Montr.) (Dept. of Psychiatry and Medicine)
A. Ptito; Ph.D.(Montr.) (Dept. of Neurology and Neurosurgery)
A. Ribeiro-da-Silva; M.D., Ph.D.(Porto) (Dept. of Pharmacology and Therapeutics)
G. Rouleau; M.D. (Ott.), Ph.D. (Harv.), F.R.C.P.(C), F.R.S.C. (Dept. of Neurology and Neurosurgery)
A. Sadikot; M.D.,C.M.(McG.), Ph.D.(Laval), F.R.C.S.(C) (Dept. of Neurology and Neurosurgery)
H.U. Saragovi; Ph.D.(Miami) (Dept. of Pharmacology and Therapeutics)
H. Schipper; M.D., Ph.D.(McG.), F.R.C.P.(C) (Dept. of Neurology and Neurosurgery)
G. Sebire; M.D., Ph.D.(Paris VI) (Dept. of Pediatrics)
P. Seguela; Doct. 3e Cycle(Bord.), Ph.D.(Montr.) (Dept. of Neurology and Neurosurgery)
M. Shevell; B.Sc., M.D.(Vanderbilt) (Dept. of Neurology and Neurosurgery)
T. Shultz; M.Phil., Ph.D.(Yale) (Dept. of Psychology)
E. Shoubridge; M.Sc., Ph.D.(Br. Col.) (Dept. of Neurology and Neurosurgery)
N. Sonenberg; B.Sc., M.Sc. (Tel Aviv), Ph.D. (Weizmann) (James McGill Professor) (Dept. of Biochemistry)
W. Sossin; B.S.(MIT), Ph.D.(Stan.) (Dept. of Neurology and Neurosurgery)
L. Srivastava; Ph.D.(J. Nehru) (Dept. of Psychiatry)
S. Stifani; D.Chem.(Rome), Ph.D.(Alta.) (Dept. of Neurology and Neurosurgery)
M. Sullivan; B.A.(McG.), M.A., Ph.D.(C'dia) (Dept of Psychology)
G. Tannenbaum; M.Sc., Ph.D.(McG.) (Dept. of Neurology and Neurosurgery)
A. Thiel; Ph.D. (Cologne), M.D. (Bonn) (Dept. of Neurology and Neurosurgery)
D. Titone; B.A.(NYU), M.A., Ph.D.(SUNY) (Dept. of Psychology)
G. Turecki; M.D.(Fed. Univ. São Paulo), Ph.D.(McG.) (Dept. of Psychiatry)
C.-D. Walker; Ph.D.(Geneva) (Dept of Psychiatry)
S. Williams; Ph.D. (Montr.) (Dept. of Psychiatry)
C. Wolfson; Ph.D.(McG.) (Dept. of Epidemiology and Biostatistics)
R.J. Zatorre; A.B.(Boston), M.Sc., Ph.D.(Brown) (Dept. of Neurology and Neurosurgery)

Associate Professors

P. Archambault; B.Sc.(McG.), M.Sc., Ph.D.(Montr.) (Dept. of Physical and Occupational Therapy)
J. Armony; Ph.D.(NYU) (Dept. of Psychiatry)
E. Balaban; Ph.D.(Rockefeller) (Dept. of Psychology)
S. Beaulieu; M.D., Ph.D., F.R.C.P.(C) (Dept. of Psychiatry)
G. Bernard; M.D., M.Sc. (Montr.) F.R.C.P.(C) (Depts. of Pediatrics and Neurology and Neurosurgery)
Associate Professors

A. Bertone; M.A. (C’dia), M.A., Ph.D. (Montr.) (Dept. of Educational and Counselling Psychology)

M. Blanchette; B.Sc., M.Sc. (Montr.), Ph.D. (Wash.) (School of Computer Science)

V. Bobbot; Ph.D.(Ariz.) (Dept. of Psychiatry)

B. Brais; M.D., Ph.D. (McG.), F.R.C.P.(C) (Depts. of Neurology and Neurosurgery and Human Genetics)

A. Brunet; Ph.D.(Montr.) (Dept. of Psychiatry)

M. Cayouette; M.Sc., Ph.D.(Laval) (Depts. of Anatomy and Cell Biology, Biology, and Experimental Medicine)

V. Bohbot; Ph.D.(Ariz.) (Dept. of Psychiatry)

N. Cermakian; Ph.D.(Montr.) (Dept. of Psychiatry)

M.J. Chacron; B.Sc., Ph.D.(Ott.) (Dept. of Physiology)

F. Charron; B.Sc.(C’dia), Ph.D.(McG.) (Insttitut de Recherches Clinique de Montreal, Depts. of Anatomy and Cell Biology, Biology, and Experimental Medicine)

J.-F. Cloutier; B.Sc.(C’dia), Ph.D.(McG.) (Depts. of Neurology and Neurosurgery, and Anatomy and Cell Biology)

E. Cook; B.Sc.(Ariz. St.), M.Sc.(Rice), Ph.D.(Baylor) (Dept. of Physiology)

A. Dagher; M.Eng.(McG.), M.D.(Tor.), F.R.C.P.(C) (Dept. of Neurology and Neurosurgery)

D. Debruille; M.D.(Paris XI), Ph.D.(Paris VI) (Dept. of Psychiatry)

A. Ernst; B.Sc. (McG.), M.Sc. (Br. Col.), Ph.D. (McG.) (Dept. of Psychiatry)

A. Fournier; B.Sc., Ph.D.(McG.) (Dept. of Neurology and Neurosurgery)

I. Gold; B.A.(McG.), Ph.D.(Princ.) (Dept. of Psychiatry)

R. Gruber; Ph.D.(Tel Aviv) (Dept. of Psychiatry)

P. Haghighi; Ph.D. (McG.) (Dept. of Physiology)

R.D. Hoge; Ph.D.(McG.) (Dept. of Neurology and Neurosurgery)

R. Joober; M.D.(Tunisia), Ph.D.(McG.) (Dept. of Psychiatry)

A. Lamontagne; Ph.D.(Laval) (School of Physical and Occupational Therapy)

H. Paudel; Ph.D.(Okla.), M.Sc.(Nepal) (Dept. of Neurology and Neurosurgery)

A. Peterson; B.Sc., Ph.D.(Tor.) (Dept. of Psychology)

K. Petrecca; B.Sc., M.D., Ph.D.(McG.) (Dept. of Neurology and Neurosurgery)

M. Pompeiano; M.D.(Pisa), Ph.D.(Scuola Sup. Pisa) (Dept. of Psychology)

R. Postuma; M.D. (Manit.), M.Sc. (McG.) (Dept. of Neurology and Neurosurgery)

J. Mendola; Ph.D.(MIT) (Dept of Ophthalmology)

G. Mitsis; Dipl. (Nat. Tech., Athens), M.Sc., Ph.D. (USC) (Dept. of Bioengineering)

D. Juncker; Dipl., Ph.D.(Neuchâtel) (Dept. of Biomedical Engineering)

A. Kania; Ph.D.(Baylor) (Depts. of Biology, Anatomy and Cell Biology, and Experimental Medicine)

M. Kokoeva; Ph.D. (Russian Acad. Of Sci.) (Dept. of Medicine)

S. King; B.A.(McG.), M.Ed., Ed.S.(James Madison Univ.), Ph.D.(Virginia Tech) (Dept of Psychiatry)

A. McKinney; Ph.D.(Ulster) (Dept of Pharmacology and Therapeutics)

N. Mechawar; Ph.D.(Montr.) (Dept. of Psychiatry)

J. Nalbantoglu; B.Sc., Ph.D.(McG.) (Dept of Neurology and Neurosurgery)

C. Pack; B.Sc.(Tufts), Ph.D.(Boston) (Dept. of Neurology and Neurosurgery)

H. Paudel; Ph.D.(Okla.), M.Sc.(Nepal) (Dept. of Neurology and Neurosurgery)

A. Peterson; B.Sc.(Vic., BC), Ph.D.(Br. Col.) (Dept of Neurology and Neurosurgery)

K. Petrecca; B.Sc., M.D., Ph.D.(McG.) (Dept of Neurology and Neurosurgery)

M. Pompeiano; M.D.(Pisa), Ph.D.(Scuola Sup. Pisa) (Dept of Psychology)

R. Postuma; M.D. (Manit.), M.Sc. (McG.) (Dept. of Neurology and Neurosurgery)

D. Ragsdale; B.S.(Ill.), Ph.D.(Calif.) (Dept of Neurology and Neurosurgery)

N. Rajah; Ph.D.(Tor.) (Dept of Psychiatry)

Y. Rao; B.Sc.(Sichuan), Ph.D.(Tor.) (Dept of Neurology and Neurosurgery)

A. Raz; M.Sc., Ph.D.(Hebrew) (Dept of Psychiatry)
**Associate Professors**

A. Reader; Ph.D. (King’s Coll., Lond.)  (*Dept. of Neurology and Neurosurgery*)  
J. Renaud; M.D., M.Sc. (Montr.), F.R.C.P.(C)  (*Dept. of Psychiatry*)  
J. Rochford; Ph.D. (C’ dia)  (*Dept. of Psychiatry*)  
B. Rosenblatt; B.Sc., M.D., C.M. (McG.), F.R.C.P.(C)  (*Dept. of Neurology and Neurosurgery*)  
E. Ruthazer; A.B. (Princ.), Ph.D. (Calif.-SF)  (*Dept. of Neurology and Neurosurgery*)  
J.T. Sakata; B.A. (Cornell), Ph.D. (Texas-Austin)  (*Dept. of Biology*)  
A. Shmuel; B.Med., M.Sc. (Hebrew), Ph.D. (Weizmann Institute of Science)  (*Dept. of Neurology and Neurosurgery*)  
P.J. Sjostrom; M.Sc. (Uppsala), Ph.D. (Brandeis)  (*Dept. of Neurology and Neurosurgery*)  
N. Spreng; M.A., Ph.D. (Tor.)  (*Dept. of Neurology and Neurosurgery*)  
K. Steinhauer; M.Sc., Ph.D. (Free Univ., Berlin)  (*School of Communication Sciences and Disorders*)  
D. Stellwagen; B.Sc. (Brown), Ph.D. (Calif.)  (*Dept. of Neurology and Neurosurgery*)  
L. Stone; Ph.D. (Minn.)  (*Dept. of Dentistry*)  
K.-F. Storch; Ph.D. (Max Planck)  (*Dept. of Psychiatry*)  
D. Van Meyel; Ph.D. (W. Ont.)  (*Dept. of Neurology and Neurosurgery*)  
A. Watt; Ph.D. (Brandeis)  (*Dept. of Biology*)  
P. Wintermark; M.D. (Lausanne)  (*Dept. of Pediatrics*)  
T.P. Wong; Ph.D. (McG.)  (*Dept. of Psychiatry*)  
J. Zhang; M.D. (Shanghai II Medical U.), M.Sc. (Paris XI), Ph.D. (Laval)  (*Dept. of Neurology and Neurosurgery*)

**Assistant Professors**

G. Armstrong; M.Sc., Ph.D. (Qu.)  (*Dept. of Neurology and Neurosurgery*)  
N. Auclair Oullet; B.A., M.Sc., Ph.D. (Laval)  (*School of Communication Sciences and Disorders*)  
R. Bagot; Ph.D. (McG.)  (*Dept. of Psychology*)  
B. Bedell; B.S. (Leigh), M.D., C.M. (McG.), Ph.D. (Texas)  (*Dept. of Neurology and Neurosurgery*)  
M. Berlim; M.D., M.Sc. (UFRGS)  (*Dept. of Psychiatry*)  
B. Bernhardt; Ph.D. (McG.)  (*Department of Neurology and Neurosurgery*)  
S. Blain-Moraes; B.Sc., Ph.D. (Tor.)  (*School of Communication Sciences and Disorders*)  
M-H. Boudrias; B.Sc. (Montr.), Ph.D. (KUMC)  (*School of Physical and Occupational Therapy*)  
M. Brandon; B.A. (Conn.), Ph.D. (Boston)  (*Dept. of Psychiatry*)  
J.P. Britt; Ph.D. (Chic.)  (*Dept. of Psychology*)  
M. Brossard-Racine; B.Sc. (Montr.), Ph.D. (McG.)  (*School of Communication Sciences and Disorders*)  
M. Chakravarty; B.Eng. (Wat.), M.Eng., Ph.D. (McG.)  (*Dept. of Psychiatry*)  
B. Chen; Ph.D. (SUNY)  (*Dept. of Neurology and Neurosurgery*)  
E. de Villers-Sidani; M.D. (McG.)  
R. Diaz; B.Sc., M.D., Ph.D. (Tor.), F.R.C.S.(C)  (*Dept. of Neurology and Neurosurgery*)  
S. Ducharme; M.D. (Montr.), M.Sc. (McG.), F.R.C.P.(C)  (*Depts. of Psychiatry, Neurology and Neurosurgery*)  
M. Elsabbagh; B.Sc. (McG.), Ph.D. (UQAM)  (*Dept. of Neurology and Neurosurgery*)  
R. Farivar; B.Sc. (Vic., BC), Ph.D. (McG.)  (*Dept. of Ophthalmology*)  
C. Ferland-Legault; Ph.D. (Montr.)  (*Dept. of Anesthesia*)  
Z. Gan-Or; M.D., Ph.D. (Tel Aviv)  (*Dept. of Neurology and Neurosurgery*)  
C. Grova; Ph.D. (Rennes)  (*Depts. of Biomedical Engineering & Neurology and Neurosurgery*)  
P. Haghighi; Ph.D. (McG.)  (*Dept. of Physiology*)
<table>
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<th>Assistant Professors</th>
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<tr>
<td>L. Healy; B.Sc. (Univ. Coll. Cork), Ph.D. (Trinity Coll. Dublin) (Dept. of Neurology and Neurosurgery)</td>
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<tr>
<td>A. Hendricks; Ph.D. (Mich.) (Dept. of Bioengineering)</td>
</tr>
<tr>
<td>M. Hendricks; B.A. (Bowdoin), Ph.D. (Sing.) (Dept. of Biology)</td>
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<td>P. Huot; M.D, M.Sc. (Laval), Ph.D. (Tor.) (Dept. of Neurology and Neurosurgery)</td>
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<td>A. Jahani-Asl; B.Sc. (Tor.), M.Sc., Ph.D. (Ott.) (Dept. of Oncology)</td>
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<tr>
<td>S. Karama; M.D., Ph.D. (Montr.), F.R.C.P.(C) (Dept. of Psychiatry)</td>
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<td>J. Karamchandani; B.Sc. (Harv.), M.D. (Stan.) (Dept. of Pathology)</td>
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<td>A. Khadra; B.Sc. (C’dia), M.Sc., Ph.D. (Wat.) (Dept. of Physiology)</td>
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<td>A. Khoutorsky; DVM, Ph.D. (Hebrew) (Dept. of Anesthesia)</td>
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<td>A. Krishnaswamy; Ph.D. (McG.) (Dept. of Physiology)</td>
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<td>D. Klein; B.A., Ph.D. (Witw./S. Af.) (Dept. of Neurology and Neurosurgery)</td>
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<td>E. Kobayashi; M.D., Ph.D. (Campinas State) (Dept. of Neurology and Neurosurgery)</td>
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<td>L. Koski; B.Sc. (Tor.), Ph.D. (McG.) (Dept. of Neurology and Neurosurgery)</td>
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<td>A. Kostikov; Ph.D. (Georgia) (Dept. of Neurology and Neurosurgery)</td>
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<tr>
<td>N. Ladbon-Bernasconi; M.D. (Lausanne), Ph.D. (McG.) (Dept. of Neurology and Neurosurgery)</td>
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<td>G. Leonard; Ph.D. (McG.) (Dept. of Neurology and Neurosurgery)</td>
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<td>J. Marcoux; M.Sc., M.D. (Montr.) (Dept. of Neurology and Neurosurgery)</td>
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<td>A. Milnerwood; B.Sc. (Hertfordshire), Ph.D. (Open, UK) (Dept. of Neurology and Neurosurgery)</td>
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<td>L. Minor; B.A., Ph.D. (Berlin) (Dept. of Pharmacology and Therapeutics)</td>
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<td>S. Narayanan; B.Sc. (C’dia), M.Sc., Ph.D. (McG.) (Dept. of Neurology and Neurosurgery)</td>
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<td>J. Near; B.Sc. (Qu.), Ph.D. (Western) (Dept. of Psychiatry)</td>
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<td>T. Nguyen; M.D., M.Sc. (McG.), F.R.C.P.(C) (Dept. of Psychiatry)</td>
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<td>T. Ohyama; Ph.D. (Baylor) (Dept. of Biology)</td>
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<td>C. Paquette; B.Sc., M.Sc. (Laval), Ph.D. (McG.) (Dept. of Kinesiology and Physical Education)</td>
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<td>P. Pelufo Silveira; M.D., M.Sc., Ph.D. (UFRGS) (Dept. of Psychiatry)</td>
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<td>A. Peyrache; M.Sc. (ESPCI), M.Sc., Ph.D. (Paris VI) (Dept. of Neurology and Neurosurgery)</td>
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<td>M. Prager-Khoutorsky; Ph.D. (Hebrew) (Dept. of Physiology)</td>
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<td>M. Roig; M.Sc. (Nott.), Ph.D. (Br. Col.) (Dept. of Physical and Occupational Therapy)</td>
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<td>P. Rosa-Neto; M.D., M.Sc. (UFRGS), Ph.D. (Aarhus) (Depts. of Neurology and Neurosurgery, Psychiatry)</td>
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<td>D. Rudko; M.Sc. (Vic. BC), PhD (Western) (Depts. of Biomedical Engineering, Neurology and Neurosurgery)</td>
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<td>J. Shah; M.D. (Tor.), F.R.C.P.(C) (Dept. of Psychiatry)</td>
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<tr>
<td>R. Sharif; Ph.D. (McG.) (Dept. of Physiology)</td>
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<tr>
<td>M. Sharp; M.D. (McG.) (Department of Neurology and Neurosurgery)</td>
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<tr>
<td>D. Sinclair; B.Sc., Ph.D. (Dal.) (Dept. of Neurology and Neurosurgery)</td>
</tr>
<tr>
<td>M. Srour; M.D.C.M. (McG.), Ph.D. (Montr.), F.R.C.P.(C) (Depts. of Pediatrics, Neurology and Neurosurgery)</td>
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<tr>
<td>T. Stroh; Dip. (J. Liebig Univ. Giessen), Ph.D. (Max Planck) (Dept. of Neurology and Neurosurgery)</td>
</tr>
<tr>
<td>A. Suvrathan; B.Sc. (Delhi), Ph.D. (Tata Inst.) (Depts. of Pediatrics, Neurology and Neurosurgery)</td>
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<tr>
<td>V. Sziklas; Ph.D. (McG.) (Dept. of Neurology and Neurosurgery)</td>
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<tr>
<td>H. Takahashi; M.D., Ph.D. (Gunma) (IRCM, Dept. of Experimental Medicine)</td>
</tr>
<tr>
<td>C. Tardif; B.Sc. (McG.), M.Sc. (Imperial), Ph.D. (McG.) (Depts. of Biomedical Engineering, Neurology and Neurosurgery)</td>
</tr>
<tr>
<td>S. Trenholm; B.Sc. (Vic. BC) M.Sc., Ph.D. (Dal.) (Dept. of Neurology and Neurosurgery)</td>
</tr>
</tbody>
</table>
Assistant Professors
J. Van Raamsdonk; Ph.D. (Br. Col.) (Dept. of Neurology and Neurosurgery)
M. Vollrath; Ph.D. (Baylor) (Dept. of Neurology and Neurosurgery)
S. Villeneuve; Ph.D. (Montr.) (Dept. of Psychiatry)
S.C. Woolley; B.Sc. (Duke), Ph.D. (Texas-Austin) (Dept of Biology)
T.Y. Zhang; M.D., M.Sc. (Yanbian), Ph.D. (Yonsei) (Dept. of Psychiatry)

Lecturer
TBA

Adjunct Professors
E. Racine; B.A. (Ott.), M.A., Ph.D. (Montr.) (Dept. of Neurology and Neurosurgery)
L. Xiong; Ph.D. (McG.)

12.2.5 Master of Science (M.Sc.) Neuroscience (Thesis) (45 credits)

Required Courses (36 credits)

- NEUR 696 (6) Master's Thesis Research
- NEUR 697 (9) Master's Thesis Proposal
- NEUR 698 (9) Master's Seminar Presentation
- NEUR 699 (12) Master's Thesis Submission
- NEUR 705 (0) Responsible Research Conduct

Complementary Courses (9 credits)
3 credits from the following:

- NEUR 630 (3) Principles of Neuroscience 1
- NEUR 631 (3) Principles of Neuroscience 2

And 6 credits in other courses at the 500 level or higher that are relevant to the program.

Upon recommendation, depending upon their particular background and needs, students may be requested to take additional selected courses at the 500 level or higher.

Note: All M.Sc.-level students must register for a minimum of 12 credits per term during the first three terms of their master's program.

12.2.6 Doctor of Philosophy (Ph.D.) Neuroscience

Students with an M.Sc. degree continuing in this Department will receive credit exemptions for graduate coursework accomplished (including NEUR 630 or NEUR 631). It may be recommended that they take specialty courses related to their field of study in neuroscience. Students with an M.Sc. degree from another program will be required to take NEUR 630 and NEUR 631 and/or other courses listed under the M.Sc. degree depending upon their background and field of study.

Students with an M.D. degree proceeding directly into a Ph.D. program will be required to take NEUR 630 and NEUR 631. They will also be required to take 6 credits of graduate-level courses.

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 (6 credits)

- NEUR 630 (3) Principles of Neuroscience 1
Complementary Courses (6 credits)
6 credits at the 500, 600, or 700 level, approved by the graduate program adviser.

12.3 Quantitative Life Sciences

12.3.1 Location

Telephone: 514-398-4826
Email: coordinator.qls@mcgill.ca
Website: www.mcgill.ca/qls

12.3.2 About Quantitative Life Sciences

Quantitative Life Sciences is the broad application of mathematical, computational and other quantitative methods to study biological systems at all scales—from single molecules to the environment. It is part of a rapidly expanding field that includes such specializations as systems biology, bioinformatics, biophysics, medical informatics, computational biology, computational pharmacology, computational neuroscience, and mathematical biology.

section 12.3.5: Doctor of Philosophy (Ph.D.) Quantitative Life Sciences

Please refer to the QLS website for further details.

12.3.3 Quantitative Life Sciences Admission Requirements and Application Procedures

12.3.3.1 Admission Requirements

General

Applicants are expected to hold an undergraduate degree in one of the following areas (or equivalent): biology, chemistry, physiology, genetics, engineering, computer science, mathematics, statistics, physics, or chemistry.

Applicants must have a strong quantitative background. Such a background may be obtained by having at least the equivalent of a minor in computer science, mathematics, statistics, physics, chemistry, or engineering.

Applicants who do not have a formal education in life sciences need to have a demonstrated interest for that field, for example in the form of an undergraduate research project or the completion of life-science courses.

Applicants are expected to have attained a high scholastic standing equal to, or greater than, the minimum Cumulative Grade Point Average of 3.3 (out of 4.0 at McGill University) in all levels of study.

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 results of the TOEFL exam with their application and have a minimum score of 86 on the Internet-based test (iBT, 567 on the paper-based test [PBT]) with each component score not less than 20. Further information on English proficiency requirements is available at www.mcgill.ca/gradapplicants/international/apply/proficiency.

12.3.3.2 Application Procedures

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

See University Regulations & Resources > Graduate > Graduate Admissions and Application Procedures > Application Procedures for detailed application procedures.

12.3.3.2.1 Additional Requirements

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

- Curriculum Vitae
- Personal Statement
• Research Statement
• Two reference letters
• Copy of official transcripts

12.3.3.3 Application Dates and Deadlines
Application opening dates are set by Enrolment Services in consultation with Graduate and Postdoctoral Studies (GPS), while application deadlines are set by Quantitative Life Sciences and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at www.mcgill.ca/gps/contact/graduate-program.

<table>
<thead>
<tr>
<th>Application Opening Dates</th>
<th>Application Deadlines</th>
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<tbody>
<tr>
<td>All Applicants</td>
<td>Non-Canadian citizens (incl. Special, Visiting &amp; Exchange)</td>
</tr>
<tr>
<td>Fall Term:</td>
<td>Sept. 15</td>
</tr>
<tr>
<td>Winter Term:</td>
<td>Feb. 15</td>
</tr>
<tr>
<td>Summer Term:</td>
<td>N/A</td>
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</table>

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

12.3.4 Quantitative Life Sciences Faculty

Director
TBA

Professors
TBA

Associate Professors
TBA

Assistant Professors
TBA

Lecturers
TBA

Adjunct Professors
TBA

12.3.5 Doctor of Philosophy (Ph.D.) Quantitative Life Sciences

Required Courses (6 credits)

<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>QLSC 600D1</td>
<td>3</td>
<td>Foundations of Quantitative Life Sciences</td>
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<td>QLSC 600D2</td>
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<tr>
<td>QLSC 603D1</td>
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<td>Quantitative Life Sciences Seminars 3</td>
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QLSC 603D2 (0) Quantitative Life Sciences Seminars 3
QLSC 701 (0) Ph.D. Comprehensive Exam

**Complementary Courses**

9-11 credits

Students will be required to take one or two courses from each of the Quantitative and Life Science Blocks for a total of three, stream-specific courses.

**Biophysics Stream**

Quantitative

<table>
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<th>Course Code</th>
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<tr>
<td>BIEN 530</td>
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<td>Imaging and Bioanalytical Instrumentation</td>
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<tr>
<td>BMDE 512</td>
<td>3</td>
<td>Finite-Element Modelling in Biomedical Engineering</td>
</tr>
<tr>
<td>BMDE 519</td>
<td>3</td>
<td>Biomedical Signals and Systems</td>
</tr>
<tr>
<td>CHEM 514</td>
<td>3</td>
<td>Biophysical Chemistry</td>
</tr>
<tr>
<td>CHEM 520</td>
<td>3</td>
<td>Methods in Chemical Biology</td>
</tr>
<tr>
<td>COMP 551</td>
<td>4</td>
<td>Applied Machine Learning</td>
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<tr>
<td>PHYS 519</td>
<td>3</td>
<td>Advanced Biophysics</td>
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<tr>
<td>PHYS 559</td>
<td>3</td>
<td>Advanced Statistical Mechanics</td>
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<td>QLSC 611</td>
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<td>Directed Readings</td>
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Life Sciences

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<tr>
<td>BIOC 605</td>
<td>3</td>
<td>Protein Biology and Proteomics</td>
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<tr>
<td>BIOL 551</td>
<td>3</td>
<td>Principles of Cellular Control</td>
</tr>
<tr>
<td>PHGY 518</td>
<td>3</td>
<td>Artificial Cells</td>
</tr>
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<td>PHGY 520</td>
<td>3</td>
<td>Ion Channels</td>
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<td>QLSC 611</td>
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<td>Directed Readings</td>
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**Computational and Statistical Molecular Biology Stream**

Quantitative

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<tr>
<td>BIOS 601</td>
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<td>Epidemiology: Introduction and Statistical Models</td>
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<tr>
<td>BMDE 502</td>
<td>3</td>
<td>BME Modelling and Identification</td>
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<tr>
<td>COMP 551</td>
<td>4</td>
<td>Applied Machine Learning</td>
</tr>
<tr>
<td>COMP 561</td>
<td>4</td>
<td>Computational Biology Methods and Research</td>
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<tr>
<td>COMP 598</td>
<td>3</td>
<td>Topics in Computer Science 1</td>
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<td>HGEN 677</td>
<td>3</td>
<td>Statistical Concepts in Genetic and Genomic Analysis</td>
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<td>MATH 523</td>
<td>4</td>
<td>Generalized Linear Models</td>
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<td>MATH 533</td>
<td>4</td>
<td>Honours Regression and Analysis of Variance</td>
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<td>MATH 680</td>
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<td>Computation Intensive Statistics</td>
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Life Sciences

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<td>BIOC 603</td>
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<td>Genomics and Gene Expression</td>
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<td>BIOL 551</td>
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<td>Principles of Cellular Control</td>
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<td>Course Code</td>
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<td>EXMD 602</td>
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<td>Techniques in Molecular Genetics</td>
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<td>HGEN 661</td>
<td>3</td>
<td>Population Genetics</td>
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<td>HGEN 692</td>
<td>3</td>
<td>Human Genetics</td>
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<tr>
<td>PHAR 503</td>
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<td>Drug Discovery and Development 1</td>
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<td>PHAR 505</td>
<td>3</td>
<td>Structural Pharmacology</td>
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**Ecosystems Stream**

Quantitative

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<tr>
<td>ENVB 506</td>
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<td>Quantitative Methods: Ecology</td>
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<td>MATH 523</td>
<td>4</td>
<td>Generalized Linear Models</td>
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<tr>
<td>MATH 525</td>
<td>4</td>
<td>Sampling Theory and Applications</td>
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<td>MATH 533</td>
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<td>Honours Regression and Analysis of Variance</td>
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<td>MATH 537</td>
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<td>Honours Mathematical Models in Biology</td>
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<td>MATH 547</td>
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<td>Stochastic Processes</td>
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<td>MATH 556</td>
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<td>Mathematical Statistics 1</td>
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**Life Sciences**

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<tr>
<td>BIOL 509</td>
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<td>Methods in Molecular Ecology</td>
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<td>BIOL 510</td>
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<td>Advances in Community Ecology</td>
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<tr>
<td>QLSC 611</td>
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<td>Directed Readings</td>
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* Students either choose BIOL 540 or ENV 540 but not both.