Faculty of Medicine and Health Science (Graduate)

Programs, Courses and University Regulations

2021-2022

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

1 . McGill University reserves the right to mak

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12.3.5

1 Dean's Welcome

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. McGill's approach to graduate education emphasises skills development; we cultivate your academic and professional growth through a variety of workshops, events and experiential learning opportunities. I invite you to consult the

4 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.

5 Program Requirements

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

- Master's Degrees
- Doctoral Degrees
- Coursework for Graduate Programs, Diplomas, and Certificates

6 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.

7 Fellowships, Awards, and Assistantships

Please refer to *University Regulations & Resources* > *Graduate* > *: Fellowships, AwardTf1 0 S ta4.760 1 332.676 31Tm(and AssistanTm(es)Tj0 G0 g/F1 8.1 Tf1 670 1*

8.2 Guidelines and Policy for Academic Units on Postdoctoral Education

Every unit hosting postdocs should apply institutional policies and procedures for the provision of postdoctoral education and have established means for informing postdocs of policies, procedures, and privileges (available at *mcgill.ca/gps/postdocs*), as well as mechanisms for addressing complaints. For their part, postdocs are responsible for informing themselves of such policies, procedures, and privileges.

1. Definition and Status

i. Postdoctoral status will be recognized by the University in accordance with Quebec provincial regulations as may be modified from time to time. The eligibility period for postdoctoral status is up to five years from the date when the Ph.D. or equivalent degree was awarded. A *: leave of absence* for parental or health reasons may extend the eligibility period. Leaves for other reasons, including vacation, do not impact the eligibility period.

ii. Some McGill postdocs have dual status as both students and employees (unionized or non-unionized). Consult the *Graduate and Postdoctoral Studies website* for definitions of Postdoctoral Fellows, Postdoctoral Scholars and Postdoctoral Researchers.

iii. Postdocs must conduct research under the supervision of a McGill professor (including Adjunct Professors), qualified in the discipline in which training is being provided and with the ability to fulfil supervisory responsibilities and act as a mentor for career dev

i. Postdocs are subject to the responsibilities outlined at *mcgill.ca/students/srr* and must abide by the policies listed at *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 the responsibilities of the academic unit are:

- to verify the postdoc's eligibility period for registration;
- to provide postdocs with departmental policy and procedures that pertain to them;
- to facilitate the registration and appointment of postdocs;
- to assign departmental personnel the responsibility for postdoctoral affairs in the unit;
- 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 the 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 the responsibilities of postdocs are:

- to inform themselves of and adhere to the University's policies and/or regulations for postdocs as outlined at *mcgill.ca/gps/postdocs*, *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 (Postdoctoral Fellows and Scholars) and HR policies and guidelines (Postdoctoral Researchers).

Approved by Senate, April 2000; revised May 2014; February 2020.

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. The department shall forward the request ;depar1t

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 *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 a 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 ee ca1 0 0 1 67.785 9585542 7(e cj1 0 0 1 390783 6185542 7(e carded.j1 0 0 1 98.94335785542 7(e cAn cldi1 0 0 1 137.42 68185542 7(e cvidu loihei

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-Curricu4im(•)T•

12.1.2 About the School of Medicine

The School of Medicine houses several departments and units that contribute to the Undergraduate Medical Education (UGME), Postgraduate Medical Education (PGME), and Continuing Professional Development (CPD) programs.

12.1.3 Medical Physics

12.1.3.1 Location

Medical Physics Unit, DS1-7129
McGill University Health Centre – Glen Site
Cedars Cancer Centre
1001 Décarie Boulevard
Montreal QC H4A 3J1
Telephone: 514-934-1934 ext. 44158
Fax: 514-934-8229
Email: *margery.knewstubb@mcgill.ca*
Website: *mcgill.ca/medphys*

12.1.3.2 About Medical Physics

The Medical Physics Unit is a teaching and research unit focusing on the role that physics and its related sciences plays in medicine and cancer research, especially (but not exclusively) in radiation medicine; i.e., radiation oncology, medical imaging, and nuclear medicine. The Unit offers a graduate diploma and an M.Sc. in Medical Radiation Physics. Facilities are available for students to undertake a Ph.D. in Physics administered through the Department of Physics, or a Ph.D. in Biological and Biomedical Engineering administered through the Departments of Biomedical Engineering and Bioengineering, each with a research emphasis on medical physics. These graduate programs are supervised, funded, and hosted by Medical Physics Unit PIs (principal investigators).

The research interests of Unit members include various topics related to the application of physics methods to medicine:

- 3D and 4D imaging, the development of new imaging modalities, and applications of imaging in radiation therapy;
- radiation physics and computational & experimental dosimetry;
- AI and machine learning applications to medical imaging, radiation therapy, and health informatics;
- applications of nano-sciences to medical imaging and therapy;
- numerical modelling of fundamental interactions of radiation with living cells;
- metabolic and functional imaging using radio-nuclides and MRI;
- applications of radiation biology to therapy and radiation protection.

Graduate students are part of the *Medical Physics Research Training Network* (MPRTN) supported by the *Collaborative Research Education Training Experience* (CREATE) of the Natural Sciences & Engineering Research Council (NSERC).

The M.Sc. and Ph.D. programs in Medical Physics are accredited by the Commission on Accreditation of Medical Physics Education Programs, Inc., sponsored by the *American Association of Physicists in Medicine* (AAPM), the *American College of Radiology* (ACR), the *American Society for Radiation Oncology* (ASTRO), the *Canadian Or*

section 12.1.3.6: Graduate Diploma (Gr. Dip.) Medical Radiation Physics (31 credits)

The Medical Physics Unit offers a Graduate Diploma in Medical Radiation Physics which is accredited as a Certificate in Medical Physics by the *CAMPEP* (Commission on Accreditation of Medical Physics Education Programs). It allows eligible individuals to retrain in Medical Physics. Applicants should hold a Ph.D. degree and also a B.Sc. in Honours Physics, Physics Major, or related Physics-oriented science.

12.1.3.3 Medical Physics Admission Requirements and Application Procedures

12.1.3.3.1 Admission Requirements

Candidates applying to the Graduate Diploma must hold a Ph.D. degree and also a B.Sc. in Physics, Physics Major, or related Physics-oriented science.

12.1.3.3.2 Application Procedures

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

See *University Regulations & Resources* > *Graduate* > *Graduate Admissions and Application Procedures* > *: Application Procedures* for detailed application procedures. Further information regarding the application procedures is available on the *Medical Physics Unit website*.

Only complete applications will be considered.

Note: When completing the online application, the following information should be entered in the "Application" section to ensure that the application is routed to the correct department:

Under **Program choice**:
"Application type" = Degree, certificate, or diploma
"Term" = Fall 2022
"Department" = Medical Physics Unit
"Program" = Graduate Diploma (Med Radiation Physics)
"Area of study" = Medical Radiation Physics-T
"Status" = Full Time

Under **Additional Questions**:
Please indicate source(s) of funding to cover tuition & student fees + living expenses while studying at McGill University.

Supporting Documents: All supporting documentation must be uploaded to the online application; any documents sent by mail will be considered unofficial and missing from the application. For detailed instructions on how to upload required supporting documents, please see *mcgill.ca/gradapplicants/apply/ready*.

Transcripts: All transcripts and degree certificates in a language other than English or French must be uploaded to the application in both the original language version and also in an officially certified English or French language version. If the applicant is accepted, original documents must be presented to the University prior to registration. The grading scale must also be viewable.

English Language Proficiency: 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 English by submitting a *TOEFL* iBT or *IELTS* test score. The original test report must be sent electronically by the testing centre to McGill University; to ensure successful transmission, the student's name given to the testing centre must be identical to the name used for the McGill online application, otherwise the electronic result will not be applied to the McGill application.

Note: McGill institution code = 0935; Medical Physics Unit = 99 (department not listed).

The test must have been taken within the two years prior to date of application review, i.e., not prior to January 1, 2020 for a graduate application to McGill for Fall 2022. Applicants from some countries are exempt from providing evidence of English language proficiency. For more information, see *mcgill.ca/gradapplicants/international/proficiency*.

Reference Letters: In order for referees to receive an automated email with instructions to upload their recommendation, applicants must include referees' institutional email addresses in the online application; Gmail, Yahoo, etc. email addresses will not be accepted.

12.1.3.3.2.1 Additional Requirements

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

- GRE is not required for the Medical Physics M.Sc. program.
- Applicants must either complete the "Applicant Statement" portion of the online application, or alternatively, may submit a one-page Personal Statement.
- Applicants are requested to provide information regarding expected funding, etc., under "Additional Questions".

12.1.3.3.3 Application Dates and Deadlines

Admissions to the M.Sc. and Graduate Diploma programs are open for the Fall term (beginning in September) only. Applications must be **completed** by January 15 to be considered for the following Fall term, i.e., online application submitted and all required documents uploaded.

	Application Opening Dates	Application Deadlines		
	All Applicants	**Non-Canadian citizens (incl. Special, Visiting & Exchange)**	**Canadian citizens/Perm. residents of Canada (incl. Special, Visiting & Exchange)**	**Current McGill Students (any citizenship)**
Fall Term:	Sept. 15	Jan. 15	Jan. 15	Jan. 15
Winter Term:	N/A	N/A	N/A	N/A
Summer Term:	N/A	N/A	N/A	N/A

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

12.1.3.4 Medical Physics Faculty

Director

J. Seuntjens

Emeritus Professors

S.M. Lehnert; B.Sc.(Nott.), M.Sc., Ph.D.(Lond.)

E.B. Podgorsak; Dipl.Ing.(Ljubljana), M.Sc., Ph.D.(Wisc. Madison), F.C.C.P.M., F.A.A.P.M., D.A.B.M.P., D.A.B.R.

Professors

D. Louis Collins; M.Eng., Ph.D.(McG.), F.C.C.P.M.

J. Seuntjens; M.Sc., Ph.D.(Ghent), F.C.C.P.M., F.A.A.P.M., F.C.O.M.P.

Assistant Professors

S. Devic; B.Sc., M.Sc., Ph.D.(Belgrade), F.C.C.P.M.

S. Enger; Ph.D.(Uppsala)

M.D.C. Evans; B.A.(Qu.), M.Sc.(McG.), F.C.C.P.M.

J. Kildea; Ph.D.(Dublin), M.Sc.(McG.)

I. Levesque; Ph.D.(McG.)

W. Parker; M.Sc.(McG.), F.C.C.P.M.

P. Pater; Ph.D.(McG.)

H.J. Patrocinio; M.Sc.(McG.), F.C.C.P.M., D.A.B.R.

M. Popovic; Ph.D.(McM.)

G. Stroian; M.Sc.(McG.), Ph.D.(Montp.), F.C.C.P.M.

N. Ybarra; B.Sc.(UNAM, Mexico), M.Sc., Ph.D.(Montr.)

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

Faculty Lecturers

K. Asiev, H. Bekerat, T. Connell 0 079 414.28 Tm p48 Tm(vic;88 TS1.427 236.36 T4rs)Tonnell 0 07gyi,

Adjunct Professors

C. Janicki; B.Sc., M.Sc., Ph.D.(Montr.)

B. Moftah; B.Sc.(Winn.), M.Sc., Ph.D.(Br. Col.)

G.B. Pike; B.Eng.(Nfld.), M.Eng., Ph.D.(McG.)

A. Reader; B.Sc.(Kent), Ph.D.(Lond.)

A. Sarfehnia; B.Sc.(Br. Col.), M.Sc., Ph.D.(McG.)

E. Soisson; M.Sc., Ph.D.(Wisc. Madison)

12.1.3.5 Master of Science (M.Sc.) Medical Radiation Physics (Thesis) (45 credits)

The M.Sc. program in Medical Radiation Physics pro

MDPH 613	(2)	Health Physics
MDPH 614	(3)	Physics of Diagnostic Radiology
MDPH 615	(2)	Physics of Nuclear Medicine
MDPH 618	(3)	Anatomy and Physiology for Medical Physics
PHIL 643	(3)	Seminar: Medical Ethics

12.1.4 Medicine, Experimental

12.1.4.1 Location

Division of Experimental Medicine
Department of Medicine
1001 Decarie Boulevard
Montreal QC H4A 3J1
Canada
Telephone: 514-934-1934, ext. 34699 or 34700 or 36465
Email: *experimental.medicine@mcgill.ca*
Website: *mcgill.ca/expmed*

12.1.4.2 About Experimental Medicine

Experimental Medicine is a Division of the Department of Medicine charged with the task of providing graduate education in the Department, and enabling professors located in the research institutes of the McGill teaching hospitals and other centres to supervise graduate students. The Division offers various programs, each of which has different training objectives (see below). The internationally-recognized high-quality training our graduates receive is in essence what distinguishes graduates of our programs from the graduates of comparable programs in peer institutions.

section 12.1.4.5: Master of Science (M.Sc.) Experimental Medicine (Thesis) (45 credits)

Applicants for the M.Sc. in Experimental Medicine must hold either an M.D. degree, a B.Sc. degree, or the equivalent. The graduate training offered is wide-ranging and addresses experimental aspects of medicine in such diverse areas as:

- endocrinology;
- hematology;
- cardiology;
- oncology;
- gastroenterology;
- genetics;
- infectious diseases.

This thesis program may lead to careers in industry, or serve as a stepping stone to further graduate studies.

section 12.1.4.6: Master of Science (M.Sc.) Experimental Medicine (Thesis): Bioethics (45 credits)

Applicants for the M.Sc. Bioethics Option program must hold an M.D.; a Nursing degree; a Physical and Occupational Therapy degree; and/or any other professional health training degree. Students who do not fit these criteria may be considered for admission on an individual basis. The objectives of this research-stream program are to allow students to conduct innovative research in relation to a bioethical issue pertinent to health care, and to acquire a working knowledge of bioethical issues from the current viewpoint of other relevant disciplines such as law, philosophy, and religious studies.

The curriculum is composed of required courses (6 credits) offered in the Biomedical Ethics Unit, Bioethics courses (6-credit minimum) offered by the base faculty or department, and any graduate course required or accepted by a base faculty for the granting of a master's degree, for a total of 21 credits. A minimum of 45 credits is required including the thesis. The research culminates in the preparation of a thesis.

section 12.1.4.7: Master of Science (M.Sc.) Experimental Medicine (Thesis): Digital Health Innovation (45 credits)

The M.Sc. in Experimental Medicine; Digital Health Innovation focuses on the basics of clinical epidemiology, medical artificial intelligence, clinical innovation, and applied data science, including the use and generation of digitized health and social data using specialized software. Fundamentals of current AI applications in medicine, methods to employ big data in clinical tool development, mathematical principals underpinning digital health and big data, and design thinking methodology in clinical innovation. High-volume streams of clinical and health-related data from clinical systems, wearables and social media.

section 12.1.4.8: Master of Science (M.Sc.) Experimental Medicine (Thesis): Environment (45 credits)

Applicants for the M.Sc. Environment Option must meet the requirements for the M.Sc. in Experimental Medicine as well as those set out by the Bieler School of Environment (BSE) for their graduate option. Acceptance into the option will be based on a student's academic experience and performance; availability of an MSE-accredited supervisor or co-supervisor; the proposed research; and plans for funding as articulated by the supervisor(s). The Environment Option is aimed at students who wish to use interdisciplinary approaches in their graduate research on environmental issues, and who wish to benefit from interactions that will occur as they are brought into contact with students from a wide range of disciplines through structured courses, formal seminars, and informal discussions and networking. The graduate option in Environment provides students with an appreciation for the role of science in informed decision-making in the environmental sector, and its influence on political, socio-economic, and ethical judgments.

section 12.1.4.9: Doctor of Philosophy (Ph.D.) Experimental Medicine

Applicants for the Ph.D. in Experimental Medicine must normally hold an M.Sc. degree. The one exception is the possibility of direct entry offered to candidates having demonstrated academic excellence, i.e., a CGPA of 3.5 or more out of a possible 4.0 throughout their undergraduate studies. The training is in the conduct of research in a wide range of medical specialties. The method of instruction consists of a combination of in-class and practical training, as well as exposure to international conferences and guest seminars. Success is ultimately determined by the preparation and defence of a thesis. This program may lead to research careers in industry, government, or academia.

section 12.1.4.10: Doctor of Philosophy (Ph.D.) Experimental Medicine: Environment

Applicants to the Ph.D. Environment Option must meet the same qualifications as those for the M.Sc. Environment Option, the only difference being that they must hold an M.Sc. rather than simply a B.Sc. For further details, please see the section above regarding the M.Sc. Environment Option.

section 12.1.4.11: Graduate Certificate (Gr. Cert.) Regenerative Medicine (15 credits)

The Graduate Certificate in Regenerative Medicine focuses on the biology of stem cells, their uses in diagnostic and therapeutic applications, the practicalities of generating them, and using and modifying them for clinical translation. Students explore of the combination of stem cell-based model systems for drug discovery and disease modelling as well as the ethical implications of their use.

section 12.1.4.12: Graduate Diploma (Gr. Dip.) Clinical Research (30 credits)

The objectives of this program are to give students exposure to both theoretical and practical issues relevant to the conception and conduct of a clinical research study, as well as allowing them to put these principles in practice by participating in an ongoing clinical trial. The core element of the diploma is the Practicum in Clinical Research. It is an active “clerkship” or “intern/resident-type” participation in an ongoing clinical trial and/or research program. Six 1-credit workshops will be provided by experts in the academic, industrial, and government sectors, and cover wide-ranging issues pertinent to the conduct of clinical research. The training provided qualifies students to manage and design clinical research studies in both academic and industrial settings.

12.1.4.3 Medicine, Experimental Admission Requirements and Application Procedures

12.1.4.3.1 Admission Requirements

M.Sc. or Ph.D. in Experimental Medicine

Candidates who hold only an undergraduate degree in the medical and allied sciences (B.Sc. degree or an M.D. degree), must apply to the M.Sc. program, unless they have an undergraduate CGPA of 3.5 or more out of a possible 4.0, in which case they may apply for direct entry into the Ph.D. if they so desire. Candidates who already hold an M.Sc. apply directly to the Ph.D. program.

Admission is based on an evaluation by the Admissions Committee, which looks for evidence of high academic achievement, and on acceptance by a research director. ement,j1 0 0 1gFe0 1g(emfe.7 Tm(wing the4at)Tlom ,(emfe.7 me0 1g. 70.52 45Tm(unless the)Tj1 0 8ance bI)Tjd72..7520.445 TdoIt Tf1tion ourrTfpor in Exp

Graduate Certificate in Regenerative Medicine

Applicants for the Graduate Certificate in Regenerative Medicine must hold a B.Sc. degree. Applicants must have completed with success the following courses: BIOL 200 (Molecular Biology), BIOL 202 (Basic Genetics), CHEM 212 (Introduction to Organic Chemistry), their equivalent, or permission of the coordinator.

Graduate Diploma in Clinical Research

The Diploma program is open to health care and research professionals, medical residents, pharmacists, nurses, and those with an undergraduate degree in the medical and allied sciences.

12.1.4.3.2 Application Procedures

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

Associate Director, Division of Experimental Medicine

E. Fixman

Professors

M. Alaoui-Jamali; D.V.M.(EMI, Morocco), Ph.D.(Paris V)

S. Ali; B.Sc.(C'dia), Ph.D.(McG.)

C. Autexier; B.Sc.(C'dia), Ph.D.(McG.)

A. Bateman; B.Sc., Ph.D.(Imperial Coll.)

G. Batist; B.Sc.(Col.), M.D.,C.M.(McG.), F.R.C.P.(C)

O. Beauchet; B.Sc.(Jean Monnet), M.Sc.(Claude Bernard), Ph.D.(Jean Monnet)

M. Behr; B.Sc.(Tor.), M.D.(Qu.), M.Sc.(McG.)

H. Bennett; B.A.(York, UK), Ph.D.(Brunel)

S. Bernatsky; B.Sc.(Sask), M.D.(Tor.), M.Sc., Ph.D.(McG.)

V. Blank; B.Sc., M.Sc.(Konstanz), Ph.D.(Inst. Pasteur)

J. Bourbeau; M.D.(Laval), M.Sc.(McG.), F.R.C.P.(C)

A. Cybulsky; M.D.(Tor.), F.R.C.P.(C)

K. Dasgupta; B.Sc.(PEI), M.D.,C.M., M.Sc.(McG.)

G. Di Battista; B.Sc.(C'dia), M.Sc., Ph.D.(Montr.)

I.G. Fantus; B.Sc. M.D.,C.M.(McG.)

M. Friedrich; M.D.(Erlangen-Nuernberg)

A. Fuks; B.Sc., M.D.,C.M.(McG.)

A. Gatignol; M.Sc., Ph.D.(Toulouse III)

J. Genest Jr.; M.D.,C.M.(McG.), F.R.C.P.(C)

V. Giguere; B.Sc., Ph.D.(Laval)

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

D. Goltzman; B.Sc., M.D.,C.M.(McG.), F.R.C.P.(C)

S.A. Grover; B.A.(Roch.), M.D.,C.M.(McG.), M.P.A.(Harv.), F.R.C.P.(C)

L.J. Hoffer; B.Sc., M.D.,C.M.(McG.), Ph.D.(MIT)

S. Hussain; M.D.(Baghdad), Ph.D.(McG.)

A.C. Karaplis; B.Sc., M.D., Ph.D.(McG.)

R. Kremer; M.D., Ph.D.(Paris VI)

A.-M. Lauzon; B.Sc., M.Sc., Ph.D.(McG.)

S. Laporte; B.Sc., M.Sc., Ph.D.(Sher.)

C. Liang; B.Sc., Ph.D.(Nankai)

J.-J. Lebrun; B.Sc., M.Sc.(Rennes), Ph.D.(Paris V)

S. Lehoux; B.Sc.(Bishop's), Ph.D.(Sher.)

M.S. Ludwig; M.D.(Manit.), F.R.C.P.(C)

S. Magder; M.D.(Tor.), F.R.C.P.(C)

D. Malo; D.V.M., M.Sc.(Montr.), Ph.D.(McG.)

A. J. Marelli; B.Sc.(McG.), M.D.(Montr.)

J. Martin; B.Sc., M.B., B.Ch., M.D.(Cork), F.R.C.P.(C)

N. Mayo; B.Sc.(Qu.), M.Sc., Ph.D.(McG.)

W.H. Miller; A.B.(Princ.), Ph.D.(Rock.), M.D.(Cornell)

Professors

A. Mouland; B.A., B.Sc., Ph.D.(McG.)

W.J. Muller; B.Sc., Ph.D.(McG.)

A. Nepveu; B.Sc., M.Sc.(Montr.), Ph.D.(Sher.)

T. Nilsson; B.Sc., Ph.D.(Uppsala)

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

L. Panasci; B.Sc., M.D.(G'town)

K. Pantopoulos; B.Sc., Ph.D.(Thessaloniki)

M. Park; B.Sc., Ph.D.(Glas.)

B.J. Petrof; M.D.(Laval)

L. Pilote; M.D.,C.M.(McG.), M.Sc.(Harv.), Ph.D.(Calif.)

M.N. Pollak; M.D.,C.M.(McG.), F.R.C.P.(C)

W.S. Powell; B.A.(Sask.), Ph.D.(Dal.)

S. Rabbani; M.B.B.S.(KEMU, Pakistan)

D. Radzioch; M.Sc., Ph.D.(Jagiellonian)

S. Richard; B.Sc., Ph.D.(McG.)

J.-P. Routy; B.Sc., M.D., Ph.D.(Aix-Marseille)

D. Sasseville; M.D.(Laval), F.R.C.P.(C)

E. Schiffrin; M.D.(Buenos Aires), Ph.D.(McG.)

E. Schurr; Diplom., Ph.D.(Freiburg)

A. Schwertani; D.V.M.(Baghdad), M.D., Ph.D.(Lond.)

D. Sheppard; M.D.(Tor.), F.R.C.P.(C)

A.D. Sniderman; M.D.(Tor.)

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

T. Takano; M.D., Ph.D.(Tokyo)

M. Trifiro; B.Sc., M.D.,C.M.(McG.)

C. Tsoukas; B.Sc.(McG.), M.Sc.(Univ. Hawai'i), M.D.(Athens), F.R.C.P.(C)

B.J. Ward; M.D.,C.M.(McG.), M.Sc.(Oxf.), F.R.C.P.(C)

J. White; B.Sc., M.Sc.(Car.), Ph.D.(Harv.)

S. Wing; B.Sc., M.Sc.(McG.)

X.-J. Yang; B.Sc.(Zhejiang), Ph.D.(Shanghai)

Associate Professors

J. Afilalo; M.D.,C.M., M.Sc.(McG.), F.R.C.P.(C)

C. Baglole; B.Sc., M.Sc.(PEI), Ph.D.(Calg.)

D. Baran; M.D.,C.M.(McG.), F.R.C.P.(C)

N. Bernard; B.Sc.(McG.), Ph.D.(Duke)

M. Blostein; M.D.,C.M.(McG.)

P. Brassard; B.Sc., M.D.(Montr.), M.Sc.(McG.), F.R.C.P.(C)

L. Chalifour; B.Sc., Ph.D.(Manit.), M.A.(Harv.)

I. Colmegna; M.Sc.(El Salvador)

D. Cournoyer; M.D.(Sher.), F.R.C.P.(C)

S. Daskalopoulou; M.D.(Athens)

Assistant Professors

R. Aloyz; B.A., M.Sc., Ph.D.(Buenos Aires)

I. Azuelos; M.D.,C.M., M.Sc.(McG.)

A. Baass; B.Sc.(McG.), M.D., M.Sc.(Montr.), F.R.C.P.(C)

A. Bessissow; M.D.,C.M. (Montr); M.Sc. (McM.), F.R.C.P.C.

Y. Chen; M.D.,C.M. (McG.), M.Sc. (McG.)

C. Costiniuk; B.A.(UWO), B.Sc.(Nfld.), M.D.(McM.), M.Sc.(OtatOtat1 0 0 1 112.446 725.4(bs.))Tj0 M.9m,M.D.,C.M. (McG.),;M.Sc. (McG.)

Adjunct Professors

Q.A. Hamid; M.D.(Mosul), Ph.D.(Lond.)

D. Hipfner; B.Sc., Ph.D.(Qu.)

P. Jolicoeur; B.A., M.D., Ph.D.(Laval)

A. Kania; B.Sc.(McG.), Ph.D.(BCM)

M. Kmita; Ph.D.(URCA, France)

E. Lecuyer; B.Sc.(UQAM), Ph.D.(Montr.)

M. Malleshaiah; M.Sc. (Bangalore), Ph.D. (Montr.)

T. Moroy; M.Sc.(Tübingen), Ph.D.(LMU Munich)

M. Oeffinger; M.Sc.(Vienna), Ph.D.(Edin.)

R. Rabasa-Lhoret; (Paris VI), M.D., Ph.D.(Montp.)

E. Racine; B.A.(Ott.), M.A., Ph.D.(Montr.)

F. Robert; B.Sc., Ph.D.(Sher.)

N. Seidah; B.Sc.(AUC), Ph.D.(G'town)

W.-K. Suh; B.Sc., M.Sc.(Seoul), Ph.D.(Tor.)

H. Takahashi; M.D., Ph.D.(Gunma)

M. Trudel; B.Sc.(McG.), Ph.D.(Paris VI)

J. Vacher; M.Sc., Ph.D.(Paris VII)

A. Veillette; M.D.(Laval)

12.1.4.5 Master of Science (M.Sc.) Experimental Medicine (Thesis) (45 credits)

The overall objective of this program is to train students in the in-depth analysis of fundamental, translational and/or clinical research.

Students perform studies at diverse levels, from molecular, cellular, and tissue to whole animal, human, and population in order to elucidate mechanisms behind human diseases, leading to drug discovery. Students are trained to perform research in both academic and industrial settings.

Thesis Courses (36 credits)

EXMD 690	(3)	Master's Thesis Research 1
EXMD 692	(9)	Master's Thesis Research 3
EXMD 693	(12)	Master's Thesis Research 4
EXMD 694	(12)	Master's Thesis Research 5

Complementary Courses (9 credits)

9 credits at the 500 level or higher.

Course choices should be made in consultation with research supervisor(s). Courses may be taken outside the department at the 500 level or higher in medical and allied sciences*.

* Note that some seminar, current topics and readings, and conference courses may not count towards your degree. Thus, students must obtain prior approval from the Division’s Student Affairs Coordinator for courses at the 500 level or higher from other Allied Health Sciences departments.

12.1.4.6 Master of Science (M.Sc.) Experimental Medicine (Thesis): Bioethics (45 credits)

Thesis Courses (24 credits)

BIOE 690	(3)	M.Sc. Thesis Literature Survey
		M.Sc. Thesis Research V TFposl

Required Courses (6 credits)

BIOE 680	(3)	Bioethical Theory
BIOE 681	(3)	Bioethics Practicum

Complementary Courses (15 credits)

3 credits, one of the following:

BIOE 682	(3)	Medical Basis of Bioethics
CMPL 642	(3)	Law and Health Care
PHIL 643	(3)	Seminar: Medical Ethics
RELG 571	(3)	Ethics, Medicine and Religion

12 credits, four 3-credit BIOE or EXMD graduate courses (500, 600, or 700 level) chosen in consultation with the Supervisor.

12.1.4.7 Master of Science (M.Sc.) Experimental Medicine (Thesis): Digital Health Innovation (45 credits)

The M.Sc. in Experimental Medicine; Digital Health Innovation focuses on the basics of clinical epidemiology, medical artificial intelligence, clinical innovation, and applied data science, including the use and generation of digitized health and social data using specialized software. Fundamentals of current AI applications in medicine, methods to employ big data in clinical tool development, mathematical principals underpinning digital health and big data, and design thinking methodology in clinical innovation. High-v

EXMD 693	(12)	Master's Thesis Research 4
EXMD 694	(12)	Master's Thesis Research 5

Required Course (3 credits)

ENVR 615	(3)	Interdisciplinary Approach Environment and Sustainability

Complementary Courses (15 credits)

3-6 credits from:

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 614	(3)	Mobilizing Research for Sustainability

0-3 credits from:

ENVR 585	(3)	Readings in Environment 2
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

or 3 credits at the 500 level or higher recommended by the Advisory Committee and approved by the Environment Option Committee.

9 credits of courses at the 500-level or higher. Course choices should be made in consultation with research supervisor(s). Courses may be taken outside the department at the 500 level or higher in medical and allied sciences*.

* Students must get approval of GPD for courses at the 500 level or higher from other Allied Health Sciences.

12.1.4.9 Doctor of Philosophy (Ph.D.) Experimental Medicine

The overall objective of this program is to train students in the in-depth analysis of fundamental, translational and/or clinical research. Students perform studies at diverse levels, from molecular, cellular, and tissue to whole animal, human, and population in order to elucidate mechanisms behind human diseases, leading to drug discovery. Students are trained to become research leaders in both academic and industrial settings.

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

EXMD 701D1	(0)	Comprehensive Oral Examination
EXMD 701D2	(0)	Comprehensive Oral Examination

Complementary Courses (12 or 18 Credits)

12 credits, at the 500 level or higher, are required for students admitted to Ph.D. 2, i.e. students entering the program with a prior Master's degree.

18 credits, at the 500 level or higher, are required for students admitted to Ph.D. 1, i.e. students entering the program with only a B.Sc. or M.D. degree. Students that fast track from the masters level should take a total of 18 credits including previous courses taken at the Masters Level in a related-field.

Course choices should be made in consultation with research supervisor(s). Courses may be taken outside the department at the 500 level or higher in medical and allied sciences *.

* Note that some seminar, current topics and readings, and conference courses may not count towards your degree. Thus, students must obtain prior approval from the Division’s Student Affairs Coordinator for courses at the 500 level or higher from other Allied Health Sciences Di

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 (3 credits)

ENVR 615	(3)	Interdisciplinary Approach Environment and Sustainability
EXMD 701D1	(0)	Comprehensive Oral Examination
EXMD 701D2	(0)	Comprehensive Oral Examination

Complementary Courses (18 or 24 credits)

3-6 credits from:

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 614	(3)	Mobilizing Research for Sustainability

0-3 credits from:

ENVR 585	(3)	Readings in Environment 2
ENVR 630	(3)	Civilization and Environment
ENVR 680	(3)	Topics in Environment 4

or 3 credits at the 500 level or higher recommended by the Advisory Committee and approved by the Environment Option Committee.

12 credits, at the 500 level or higher, are required for students admitted to Ph.D. 2, i.e. students entering the program with a prior Master's degree.

Or

18 credits, at the 500 level or higher, are required for students admitted to Ph.D. 1, i.e. students entering the program with only a B.Sc. or M.D. degree and who have been either admitted directly or fast-tracked to the Ph.D.

Course choices should be made in consultation with research supervisor(s). Courses may be taken outside the department at the 500 level or higher in medical and allied sciences *.

* Students must get approval from the GPD for courses at the 500 level or higher from other allied health sciences.

12.1.4.11 Graduate Certificate (Gr. Cert.) Regenerative Medicine (15 credits)

The Graduate Certificate in Regenerative Medicine focuses on biology of stem cells, their uses in diagnostic and therapeutic applications, the practicalities of generating them, and using and modifying them for clinical translation. Exploration of the combination of stem cell-based model systems for drug discovery and disease modelling as well as the ethical implications of their use.

Required Courses (9 credits)

FMED 525	(3)	Foundations of Translational Science
HGEN 675	(3)	Stem Cell Biology
PHAR 508	(3)	Drug Discovery and Development 3

Complementary Courses (6 credits)

CHEE 512	(3)	Stem Cell Bioprocess Engineering
EXMD 501	(3)	Clinical Applications of Regenerative Medicine
EXMD 505	(3)	Directed Readings in Regenerative Medicine
HGEN 660	(3)	Genetics and Bioethics

12.1.4.12 Graduate Diploma (Gr. Dip.) Clinical Research (30 credits)

The objectives of this program are to give students exposure to both theoretical and practical issues relevant to the conception and conduct of a clinical research study, and to put these principles into practice by participating in an ongoing clinical trial. The training provided qualifies students to manage and design clinical research studies in both academic and industrial settings.

Required Courses (24 credits)

EXMD 617	(1)	Workshop in Clinical Trials 1
EXMD 618	(1)	Workshop in Clinical Trials 2
EXMD 619	(1)	Workshop: Clinical Trials 3
EXMD 620	(1)	Clinical Trials and Research 1
EXMD 625	(1)	Clinical Trials and Research 2
EXMD 626	(1)	Clinical Trials and Research 3
EXMD 627	(18)	Practicum in Clinical Research

Complementary Courses (6 credits)

Six credits at the 500 level or higher chosen from: Experimental Medicine (EXMD), Pharmacology and Therapeutics (PHAR), Epidemiology and Biostatistics (EPIB). With prior approval from the Division's Student Affairs Coordinator, courses at the 500 level or higher, from other Allied Health Sciences departments may be accepted.

12.1.5 Medicine, Family

12.1.5.1 Location

Department of Family Medicine
5858 Côte-des-Neiges Road, 3rd Floor
Montreal QC H3S 1Z1
Telephone: 514-399-9109
Fax: 514-398-4202
Email: *graduateprograms.fammed@mcgill.ca*
Website: *mcgill.ca/familymed/education/graduate-programs*

12.1.5.2 About Family Medicine

The McGill Department of Family Medicine is home to an exceptional community of primary health care professionals, researchers, students, and support staff, whose mission is to contribute to the health of the population and the sustainability of the health care system in Quebec, in Canada, and internationally by:

- training medical students, residents, and other health care professionals to become committed to primary care, contributing to accessibility, continuity, coordination, accountability, patient-centredness, and health promotion and prevention;
- promoting innovation in family medicine and primary health care delivery and practice;
- developing research and scholarly activity to contribute to the academic discipline;
- promoting curriculum innovation and education research;
- engaging in international and global health activities;
- developing and engaging in public policy discussions.

We understand that research in family medicine and primary care is essential to the achievement of excellence in health care delivery, patient care, and education. Our research division is composed of Ph.D. and clinical researchers who dedicate their efforts to producing and translating knowledge that advances the discipline, practice, and teaching of family medicine and primary care while supporting the scholarly activities of clinicians and residents in the Department. We have developed unique and rigorous research programs for **M.Sc.** and **Ph.D.** students that advance academic excellence in family medicine and primary health care through patient-oriented, community-based research with innovative methodologies and participatory approaches.

section 12.1.5.5: Master of Science (M.Sc.) Family Medicine (Thesis) (45 credits)

The M.Sc. in Family Medicine is a **research-oriented thesis-based graduate program** in family medicine. The objective is to increase the skills of those interested in carrying out research pertinent to the practice of family medicine.

section 12.1.5.5: Master of Science (M.Sc.) Family Medicine (Thesis) (45 credits)

As many relevant research questions cross conv

For overseas graduates, an attempt is made to situate the applicant's academic grades among the standards of their universities. Grades are, however, conv

	Application Opening Dates		Application Deadlines	
Summer Term:	N/A	N/A	N/A	N/A

All supporting documents must be received by February 1 for the Fall semester. Candidates who are interested in our MSc programs are only allowed to apply for the Fall semester. Candidates who are interested in our Ph.D. in Family Medicine and Primary Care program may apply in either the Fall or Winter semesters.

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

Medicine, Family F

Required Courses (13 credits)

FMED 505	(3)	Epidemiology and Data Analysis in Primary Care 1
FMED 509	(3)	Epidemiology and Data Analysis in Primary Care 2
FMED 603	(1)	Foundations of Participatory Research
FMED 614	(2)	Foundations of Mixed Methods Research
FMED 616	(1)	Applied Literature Reviews
FMED 625	(3)	Qualitative Health Research

Elective Courses (8 credits)

8 credits at the 500 level or higher chosen by the student and the Department in consultation with the student's thesis supervisor(s) of which 3 credits may be chosen from another department at McGill.

FMED 504D1	(.5)	Family Medicine Research Seminars
FMED 504D2	(.5)	Family Medicine Research Seminars
FMED 511	(1)	Introduction to Art in Healthcare: Making Art Accessible
FMED 525	(3)	Foundations of Translational Science
FMED 601	(3)	Advanced Topics in Family Medicine
FMED 604	(3)	Advanced Participatory Research in Health
FMED 605	(1)	AI and Analytical Decision-Making in Healthcare
FMED 606	(1)	Operational Issues in Survey Methods in Primary Care
FMED 607	(1)	Intro to Discourse Analysis & Interpretive Health Research
FMED 608	(1)	Advanced Mixed Methods Seminar in Health Research
FMED 610	(1)	Foundations of Family Medicine
FMED 611	(3)	Healthcare Systems, Policy and Performance
FMED 612	(1)	Evaluation Research and Implementation Science
FMED 615	(1)	Applied Knowledge Translation and Exchange in Health
FMED 618	(1)	Topics in Pharmacoeconomics, Drug Safety and Policy
FMED 619	(3)	Program Management in Global Health & Primary Health Care
FMED 621	(1)	Participatory Health Systems for Safe Birth
FMED 690	(3)	Advanced Ethnography: Context, Complexity and Coordination

12.1.5.6 Master of Science (M.Sc.) Family Medicine (Thesis): Bioethics (45 credits)

The M.Sc. in Family Medicine; Bioethics is a thesis graduate program option designed to provide graduate training to those interested in studying empirical research methods and bioethics specialization.

Required Courses (31 credits)

BIOE 680	(3)	Bioethical Theory
BIOE 681	(3)	Bioethics Practicum
BIOE 690	(3)	M.Sc. Thesis Literature Survey
BIOE 691	(3)	M.Sc. Thesis Research Proposal
BIOE 692	(6)	M.Sc. Thesis Research Progress Report
BIOE 693	(12)	M.Sc. Thesis
FMED 603	(1)	Foundations of Participatory Research

Complementary Course (3 credits)

3 credits from the following:

FMED 505	(3)	Epidemiology and Data Analysis in Primary Care 1
FMED 625	(3)	Qualitative Health Research

Elective Courses (11 credits)

11 credits, at the 500 level or higher, of coursework may be chosen from inside or outside the Department in consultation with the student's academic adviser or supervisor.

12.1.5.7 Master of Science (M.Sc.) Family Medicine (Thesis): Medical Education (45 credits)

The MSc in Family Medicine; Medical Education option is a thesis option graduate program designed to provide research training to family physicians, and exceptionally other health professionals and other students interested in family medicine education research. This MSc Option has very close ties to the Family Medicine Educational Research Group (FMER), which integrates family medicine researchers deeply committed to the development of the family medicine education field of inquiry. The FMER's ultimate goal is to advance knowledge to: (1) constantly inform family medicine curricula innovations and continuing professional development to better family physicians' clinical practice, (2) significantly contribute to the development of the family medicine education field of inquiry, and (3) rigorously develop and inform medical education policy. This research agenda of FMER is articulated into four interrelated streams: (1) family physicians' professional identity formation; (2) information use and technology in the learning episodes of practicing physicians and organizational learning; (3) mentoring in family medicine education, and (4) knowledge synthesis.

Thesis Courses (24 credits)

Thesis subject should be related to medical education.

FMED 697	(12)	Master's Thesis Research 1
FMED 698	(12)	Master's Thesis Research 2

Required Courses (13 credits)

FMED 505	(3)	Epidemiology and Data Analysis in Primary Care 1
FMED 509	(3)	Epidemiology and Data Analysis in Primary Care 2
		F

PhD students are expected to demonstrate proficiency in the following topics: basic statistics, epidemiology, qualitative and mixed methods, literature synthesis, knowledge translation and participatory research approaches. If a PhD candidate does not have prior training in any of these areas and believes that he or she cannot answer questions on these topics during the comprehensive exam, additional courses will be required for the PhD student.

FMED 701	(0)	PhD Comprehensive Examination

Required Courses (9 credits)

FMED 601	(3)	Advanced Topics in Family Medicine
FMED 604	(3)	Advanced Participatory Research in Health
FMED 702*	(1)	Advanced Doctoral Primary Care Research Seminars

* Note: this slot course must be taken three times (3 cr.)

Elective Course (3 credits)

3 credits in advanced research methods, at the 600 level or higher. May be chosen from outside the Department, in consultation with the student's academic adviser or supervisor.

12.1.6 Oncology

12.1.6.1 Location

Gerald Bronfman Department of Oncology
5100 de Maisonneuve Blvd West, Suite 720
Montreal QC H4A 3T2
Website: *medicine.mcgill.ca/oncology*

12.1.6.2 Grad. Dip. in Oncology

The Graduate Diploma in Oncology provides students the opportunity to gain exposure to the principles and practice of oncology as well as its research domains, while exploring in more detail one of four areas of focus:

- population and global cancer control
- psychosocial oncology/palliative care
- clinical cancer research
- cancer care services and quality.

12.1.6.3 Oncology Faculty

Chair

E. Franco

Professors

B. Abdulkarim, M. Alaoui-Jamali, A. Aprikian, M. Basik, G. Batist, N. Beauchemin, C. Borchers, P. Brodt, R. Cohen, L. Ferri, W. Foulkes, E. Franco, C. Freeman, V. Giguère, L. Gilbert, P. Gold, W. Gotlieb, C. Greenwood, V. Hirsh, T. Hutchinson, A. Koromilas, C. Loiselle, R. Margolese, S. Meterissian, W. Miller, A. Nepveu, L. Panasci, M. Park, J. Pelletier, M. Pollak, S. Richard, N. Sadeghi, J.P. Seuntjens, C. Shustik, L. Souhami, A. Spatz, M. Thirlwell, M. Tremblay, T. Vuong

Associate Professors

S. Abbasinejad Enger, J. Agulnik, T. Alcindor, J. Asselah, L. Azoulay, S. Caplan, P. Chaudhury, D. Cournoyer, S. Devic, M. Fabian, S.L. Faria, M. Henry, M. Hier, T. Hijal, I. Hings, N. Johnson, P. Kavan, P. Laneuville, A. Langleben, B. Lapointe, S. Lau, A.S. Liberman, A. Loutfi, K. Mann, M. Martin, L. McCaffrey, A. Meguerditchian, E.J. Mitmaker, M. T. Niazi, A. Peterson, J. Prchal, R. Rajan, Z. Rosberger, G. Shenouda, I. Topisirovic, A. Towers, J. Ursini-Siegel, A. Vigano, M. Witcher, J.H. Wu, J. Zidulka, G. Zogopoulos

Assistant Professors

S. Abish, J. Alfieri, R. Aloyz, D. Anderson, S. Aubin, M. Azoulay, B. Bahoric, G. Blake, M. Borod, N. Bouganim, J. Burnier, V. Cohen, F. Cury, R. Dalfen, M. David, J.A. Davidson, S. del Rincon, M. Duclos, K. Esfahani, M. Evans, C. Ferrario, J. Friedmann, A. Jahani-Asl, K. Jardon, J. Kildea, N. Kopek, C. Lambert, H. Laryea, M. Lecavalier, C. Legler, I. Levesque, V. Mandilaras, D. Melnychuk, C. Mihalcioiu, T. Muanza, A. Orthwein, S. Owen, V.

Assistant Professors

Panet-Raymond, W. Parker, F. Patenaude, P. Pater, H. Patrocinio, C. Pepe, E. Poon, M. Popovic, S. Sirhan, S. Skamene, B. Stein, G. Stroian, K. Sultanem, F. Tremblay, T. Vanounou, C.A. Vasilevsky, P. Watson, A. Wong Wong K

PPHS 528	(3)	Economic Evaluation of Health Programs

If a course in the course grouping is not available in a given year, a suitable replacement will be chosen by the Graduate Program Director in consultation with the Program Committee.

3 credits from:

DENT 505	(3)	Epidemiology and Data Analysis in Primary Care 1
EPIB 507	(3)	Biostats for Health Sciences
EPIB 521	(3)	Regression Analysis for Health Sciences
EXMD 634	(3)	Quantitative Research Methods
FMED 505	(3)	Epidemiology and Data Analysis in Primary Care 1

OR

3 credits of a research design or statistics course at the 500 level or higher chosen in consultation with the student's mentor and approved by the Program Committee and the Graduate Program Director. Students who already have a very strong background in statistics may be exempt from taking a statistics course and would choose another 3-credit course. This must be approved by the Program Committee and the Graduate Program Director.

3 credits from:

EPIB 671	(3)	Cancer Epidemiology and Prevention
EXMD 614	(3)	Environmental Carcinogenesis
EXMD 620	(1)	Clinical Trials and Research 1
EXMD 625	(1)	Clinical Trials and Research 2
EXMD 626	(1)	Clinical Trials and Research 3
EXMD 640	(3)	Experimental Medicine Topic 1
EXSU 505	(3)	Trends in Precision Oncology
FMED 619	(3)	Program Management in Global Health & Primary Health Care
HGEN 690	(3)	Inherited Cancer Syndromes
NUR2 705	(3)	Palliative Care
ONCO 615	(3)	Principles and Practice of Clinical Trials
ONCO 625	(3)	Quality Improvement Principles and Methods
ONCO 635	(3)	Qualitative and Psychosocial Health Research
POTH 637	(3)	Cancer Rehabilitation
PPHS 528	(3)	Economic Evaluation of Health Programs
PSYC 507	(3)	Emotions, Stress, and Illness
SWRK 668	(3)	Living with Illness, Loss and Bereavement

The course will be chosen in consultation with the student's mentor and must be approved by the Program Committee and the Graduate Program Director.

Elective Courses (6 credits)

6 credits at the 500 level or higher can be chosen from the course list above or from other courses. The courses do no necessarily have to include cancer-related content, but must have relevance to the field. The courses will be chosen in consultation with the student's mentor and must be approved by the Program Committee and the Graduate Program Director.

12.1.7 Otolaryngology – Head and Neck Surgery

12.1.7.1 Location

Department of Otolaryngology – Head and Neck Surgery
MUHC (Royal Victoria Hospital)

1001 boul. Decarie, D05.5709
Montreal QC H4A 3J1
Canada
Telephone: 514-934-1934, ext. 36386
Website: *mcgill.ca/ent*

12.1.7.2 About Otolaryngology – Head and Neck Surgery

The Master of Science degree offered by the Department of Otolaryngology – Head and Neck Surgery provides inter-disciplinary training for clinical or basic science research in Otolaryngology. Master's programs can include research on normal function and disease of head and neck structures: otology, neuro-otology, laryngology, rhinology, oncology, surgery, auditory-vestibular sciences, middle-ear modelling, oto-toxicity, genomics, infection, thyroid disease, or genetics.

section 12.1.7.5: Master of Science (M.Sc.) Otolaryngology (Thesis) (45 credits)

The master's program is intended for those having with a strong interest in otolaryngology research (e.g., Otolaryngologists, physicians, PhDs. dentists, veterinarians, medical professionals, engineering or science undergraduates etc.). The program addresses research questions using an interdisciplinary approach, combining methodologies of both the clinical sciences and the basic sciences. The master's program is unique in Canada and rare elsewhere. Graduates of the program can better treat ear-nose-throat diseases; they are better positioned to do, and to evaluate, research in Otolaryngology. They typically obtain the most highly sought positions in their fields.

12.1.7.3 Otolaryngology Admission Requirements and Application Procedures

12.1.7.3.1 Admission Requirements

Admission to the M.Sc. program requires acceptance by a research supervisor, and the proposed program must be approved by the Department.

Applicants should be otolaryngologists, or they should be currently enrolled in a residency program leading to certification in Otolaryngology, or they should be physicians. Under exceptional circumstances, others (Ph.D.s, dentists, veterinarians, medical professionals, etc.) with a strong interest in Otolaryngology Research will be considered.

The results of the Test of English as a Foreign Language (TOEFL) (minimum of 86 on the Internet-based test [iBT] with each component score not less than 20 is required for 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).

12.1.7.3.2 Application Procedures

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

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

Prospective students should contact research supervisors individually.

12.1.7.3.2.1 Additional Requirements

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

- Curriculum Vitae
- Personal Statement
- Acceptance by a research supervisor

12.1.7.3.3 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 Department of Otolaryngology and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; pleuate and Pcete and e and Pce

12.1.7.4 Otolaryngology – Head and Neck Surgery Faculty

Chair

N. Sadeghi

Graduate Program Director and Director of Research

B. Segal

Director of Residency Training Program

K. Richardson

Director of Head and Neck Oncology Program

N. Sadeghi

Director of Undergraduate Medical Education

J. Young

Director of Fellowship Training

J. Rappaport

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Assistant Professors

J. Gurberg; M.D.C.M, F.R.C.S.(C)

Y. Lacroix; M.D.(Laval), F.R.C.S.(C)

R. Lafleur; M.D.(Ott.), F.R.C.S.(C)

A. Lehmann; B.Sc.(Franche-Comté), M.Eng.(MINES ParisTech), M.Sc.(Paris VI), Ph.D.(Collège de France)

C. Marchica; M.D.C.M.

T. Mijovic; M.D.

A. Mlynarek; M.D.,C.M., M.Sc.(Otol.)(McG.), F.R.C.S.(C)

K. Richardson; M.D., F.R.C.S.(C)

J. Schwartz; M.D., F.R.C.S.(C)

G. Sejean; M.D.(Beirut), F.R.C.S.(C)

L. Tarantino; M.D.(Naples), F.R.C.S.(C)

S.D. Wurzba; D.D.S., M.Sc., Ph.D.

J. Yeung, M.D., F.R.C.S.(C)

J. Young; M.D.,C.M.(McG.), F.R.C.S.(C)

Associate Members

H.L. Galiana; B.Eng., M.Eng., Ph.D.(McG.)

M. Henry; Ph.D.(UQAM)

N.Y.K. Li; B.Sc.(HK), M.Phil.(HK)

L. Mongeau; B.Sc., M.Sc.(Montr.), Ph.D.(Penn. St.)

M. Paliouras; B.Sc.(Hons.), M.S., Ph.D.

M. Sewitch; Ph.D.

Lecturers

C. Boucher; M.D.

S. Bouhabel; M.D.

R. Caouette; M.D.

M. Campagna-Vaillancourt; M.D.

R. Dionne; M.D.

Yalon Dolev; M.D., F.R.C.S.(C)

A. Finesilver; M.D.,C.M.(McG.), F.R.C.S.(C)

L. Himdi; M.D.C.M, F.R.C.S.(C)

O. Houle; M.D.

V. Iordanescu; M.D.

M. Lalonde; M.D.

L. Monette; M.D.

S. Nguyen; M.D.

L. Picard; M.D.(Montr.), F.R.C.S.(C)

J. Rothstein; M.D.,C.M.(McG.), F.R.C.S.(C)

R. Varshney; M.D., C.M., M.Sc., F.R.C.S.(C)

T.V.T. Vu; M.D.

R. Ywakim; M.D., F.R.C.S.(C)

Master of Science (M.Sc.) Otolar

should be aw

- Research Proposal (when appropriate)
- GRE may be required for applicants who have not completed an undergraduate or graduate degree from a recognized foreign institution

12.1.8.3.3 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 Pathology Department and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at *mcgill.ca/gps/contact/graduate-program*.

	Application Opening Dates	Application Deadlines		
	All Applicants	**Non-Canadian citizens (incl. Special, Visiting & Exchange)**	**Canadian citizens/Perm. residents of Canada (incl. Special, Visiting & Exchange)**	**Current McGill Students (any citizenship)**
Fall Term:	Sept. 15	May 1	June 21	June 21
Winter Term:	Feb. 15	Sept. 10	Nov. 10	Nov. 10
Summer Term:	May 15	Jan. 15	April 1	April 1

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

12.1.8.4 Pathology Faculty

Chair

Z. Gao

Director of Graduate Program

E. Zorychta

Professors

M. Auger; M.D.,C.M.(McG.), F.R.C.P.(C)

M.N. Burnier Jr.; M.D.(UFPR, Brazil), M.Sc., Ph.D.(São Paulo)

A. Ferenczy; B.A., B.Sc., M.D.(Montr.)

R. Fraser; B.Sc., M.D.,C.M.(McG.), M.Sc.(Glas.), F.R.C.P.(C)

Z.-H. Gao; M.D.(Qingdao), M.Sc.(Harbin Med.), Ph.D.(PUMC), F.R.C.P.(C)

D. Haegert; M.D.(Br. Col.), F.R.C.P.(C)

Q.A. Hamid; M.D.(Mosul), Ph.D.(Lond.) (*James McGill Professor*) (*joint appt. with Medicine*)

I. Hüttner; M.D.(Semmelweis), Ph.D. (McG.), F.R.C.P.(C)

R.P. Michel; B.Sc., M.D.,C.M.(McG.), F.R.C.P.(C)

A. Spatz; M.Sc.(Paris XI), M.D.(Paris VI)

C.M. Telleria; Ph.D.(UNSL, Argentina)

Associate Professors

L. Alpert; M.D., Ph.D.(Tufts)

J. Arseneau; M.D.(Laval), F.R.C.P.(C)

C. Bernard; M.D.(Sher.), F.R.C.P.(C)

F. Brimo; M.D.(Damascus), F.R.C.P.(C)

M. Blumenkrantz; M.D.,C.M.(McG.), F.R.C.P.(C)

S. Camilleri-Broët; M.D., Ph.D.(Paris VI)

B. Case; B.Sc., M.D.,C.M., M.Sc.(McG.), Dipl. Occ. Hyg., F.R.C.P.(C)

M.F. Chen; M.B.B.S.(Monash), F.R.C.P.(C)

M.-C. Guiot; B.Sc., M.D.(Bordeaux)

Associate Professors

T. Haliotis; M.D.(Athens), Ph.D.(Qu.), F.R.C.P.(C)

J. Karamchandani; M.D.(Stan.)

V.A. Marcus; M.D.,C.M.(McG.), F.R.C.P.(C)

V.-H. Nguyen; M.D.(Montr.), F.R.C.P.(C)

R. Onerheim; M.D.(Alta.), F.R.C.P.(C)

M. Pelmus; M.D., Ph.D.(UMFCD)

M. Pusztaszeri; M.D.(UNIL, Switzerland)

L. Rochon; M.D.(Sher.), F.R.C.P.(C)

I. Roy; B.Sc., M.D.,C.M.(McG.), F.R.C.P.(C)

A.K. Watters; B.Sc., M.D.,C.M.(McG.), F.R.C.P.(C)

E. Zorychta; B.Sc.(St. FX), M.Sc., Ph.D.(McG.)

Assistant Professors

O.E. Ajise; M.D.(Howard), F.C.A.P., F.R.C.P.(C)

M. Alameldin; M.D.(Alexandria), F.R.C.P.(C)

S. Albrecht; M.D.(Sher.), F.R.C.P.(C)

O. Aleynikova; M.D.(Dal.), F.R.C.P.(C)

R. Amre; M.B.,B.S.(KIMS), F.R.C.P.(C)

K. Bakdounes; M.D.(Damascus), F.R.C.P.(C)

G.D. Brandao; M.D.(UFJF)

J Burnier; B.Sc.(Qu.), Ph.D.(McG.)

D. Caglar; M.D.(Gazi)

J. Chepovetsky; M.D.(ISMMS)

P. Fiset, M.D.,C.M, Ph.D(McG.), F.R.C.P.(C)

A. Florea; M.D.(UMF Cluj)

L. Florianova, M.D., M.Sc.(Laval), F.R.C.P.(C)

L. Fu; M.D.,C.M., M.Sc.(McG.), F.R.C.P.(C)

A. Gregorieff; B.Sc.(Laval), M.Sc.(McG.), Ph.D.(Utrecht)

S.-M. Jung; M.D.(Chonnam)

Y. Kanber; M.D.(Marmara)

J. Lavoie; B.Sc., M.Sc., Ph.D.(Laval)

H.R. Lopez-Valle; M.D.(UASLP)

A.T. Marcus; B.Sc., M.D.,C.M.(McG.), F.R.C.P.(C)

A. Omeroglu; M.D.(Istanbul U)

G. Omeroglu-Altinel; M.D.(Istanbul U)

F. Razaghi; M.D.(SBUMS)

S. Sabri; Ph.D.(Paris VII)

S. Sandhu; M.B.,B.S.(N. Bengal Med.)

H. Srolovitz; B.Sc.(Pitt), M.D.(Basel)

J. St. Cyr; M.D.,C.M.(McG.), F.R.C.P.(C)

T.N. Ton Nu; M.D.(Pham Ngoc Thach), F.R.C.P.(C)

H. Wang; M.D.(AFMU, China), F.R.C.P.(C)

Associate Members

B. S. Abdulkarim; B.Sc.(Aix-Marseille), M.Sc.(Paris V), M.D., Ph.D.(Paris XI), F.R.C.P.(C)

C.J. Baglole; B.Sc., M.Sc.(PEI), Ph.D.(Calg.)

N. Braverman, B.Sc.(Cornell), M.S.(Sarah Lawrence), M.D.(Tulane), F.A.C.M.G.

S. Cellot, M.D., Ph.D.(Montr.)

P.J. Chauvin; M.Sc.(UWO), D.D.S.(McG.)

M. Divangahi; Ph.D.(McG.)

S.N.A. Hussain; M.D.(Baghdad), Ph.D.(McG.)

G.O.R. Arena; M.D.(Catania), F.R.C.S.(C)

W. Kassouf; M.D.,C.M.(McG.), F.R.C.S.(C)

P. Metrakos; M.D.,C.M.(McG.), F.R.C.S.(C)

V. Papadopoulos; Ph.D.(Paris VI)

M. Park; Ph.D.(Glas.), F.R.S.C.

A. Schwertani; M.D., Ph.D.(Lond.)

12.1.8.5 Master of Science (M.Sc.) Pathology (Thesis) (45 credits)

All students must take PATH 300 plus a course in statistics if they have not completed these requirements before admission.

Candidates with insufficient background in one of the biomedical sciences will be required to take specific courses to remedy the deficiency. These and additional courses that are relevant to the student's area of research will be chosen in consultation with the research director and Graduate Students Committee.

Thesis Courses (30 credits)

PATH 690	(9)	M.Sc. Thesis Research Project 1
PATH 691	(9)	M.Sc. Thesis Research Project 2
PATH 692	(12)	M.Sc. Thesis Research Project 3

Required Courses (6 credits)

PATH 620	(3)	Research Seminar 1
PATH 622	(3)	Research Seminar 2

Complementary Courses (9 credits)

3 credits, one of the following courses:

PATH 613	(3)	Research Topics in Pathology 1
PATH 614	(3)	Research Topics in Pathology 2

6 credits, two 500-, 600-, or 700-level courses offered by the Department; subject to approval of the research director and Graduate Students Committee, up to 3 credits of 500-, 600-, or 700-level credits may be taken in another department.

12.1.8.6 Doctor of Philosophy (Ph.D.) Pathology

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 (12 credits)

PATH 613	(3)	Research Topics in Pathology 1
PATH 614	(3)	Research Topics in Pathology 2
PATH 620	(3)	Research Seminar 1
PATH 622	(3)	Research Seminar 2

- Demonstration of financial support through a scholarship/award and/or by the student's supervisor

Doctor of Philosophy: Mental Health

- A M.Sc., or M.A. degree
- The student's statement of purpose for seeking a Ph.D.
- Confirmation of supervision, including confirmation of funding from the supervisor or from an external scholarship

12.1.9.3.2 Application Procedures

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

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

12.1.9.3.2.1 Additional Requirements

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

- Personal Statement – describing the specific reasons for seeking a Master of Science degree in Psychiatry
- Letters of Reference – with Applicant Evaluation checklist forms (see Department *website*)
- Written Confirmation of Supervision form (see Department *website*) from the proposed research supervisor

12.1.9.3.3 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 Department of Psychiatry 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 *mcgill.ca/gps/contact/graduate-program*.

	Application Opening Dates	Application Deadlines		
	All Applicants	**Non-Canadian citizens (incl. Special, Visiting & Exchange)**	**Canadian citizens/Perm. residents of Canada (incl. Special, Visiting & Exchange)**	**Current McGill Students (any citizenship)**
Fall Term:	Sept. 15	March 15	March 15	March 15
Winter Term:	Feb. 15	Sept. 10	Sept. 10	Sept. 10
Summer Term:	N/A	N/A	N/A	N/A

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

12.1.9.4 Psychiatry Faculty

Chair

G. Turecki

Director of Graduate Program

N. Mechawar

Emeritus Professors

F. Abbott; B.Sc.(McM.), M.Sc., Ph.D.(McG.)

L. Annable; B.Sc.(Liv.), Dipl. in Stat.(Edin.)

M.K. Birmingham; B.A.(Bennington), M.Sc., Ph.D.(McG.)

F. Engelsmann; Ph.D.(Charles)

N. Frasure-Smith; B.A. Ph.D.(Johns Hop.)

A. M. Ghadirian; M.D.(Tabriz), M.Sc.(Ohio St.), Dipl. Psych(McG.)

C. Gianoulakis; B.Sc.(Sir G. Wms.), Ph.D.(Rutgers)

J.C. Negrete; M.D.(Tucuman), Dip.Psych.(McG.)

J. Paris; M.D.(McG.)

G. Pinard; B.A., M.D.(Montr.)

S. Young; B.A.(Oxf.), M.Sc.(Lond.)

Professors

V. Bohbot; Ph.D.(Ariz.)

D. Boivin; Ph.D.(Montr.)

P. Boksa; B.Sc., Ph.D.(McG.)

M. Bond; B.Sc., M.D.,C.M.(McG.)

J. Breitner; B.A.(Harv.), M.P.H.(Johns Hop.), M.D.(Penn.)

A. Brunet; Ph.D.(Montr.)

N. Cermakian; B.Sc.(UQTR), M.Sc., Ph.D.(Montr.)

S. El Mestikawy; Ph.D.(Paris VI)

F. Elgar; M.Sc (Nfld.), PhD (dal.)

M.-J. Fleury; M.A., Ph.D.(Montr.)

C. Flores; B.Sc., M.A., Ph.D.(C'dia)

S. Gauthier; B.A., M.D.(Montr.)

B. Giros; M.Sc., Ph.D.(Paris VI)

G. Gobbi; M.D. (Rome), Ph.D.(Cagliari)

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

A. Gratton; Ph.D.(C'dia)

D. Groleau; B.Sc., M.Sc., Ph.D.(Montr.)

J. Guzder; B.Sc., M.D., C.M., Dipl.Psych.(McG.)

L.T. Hechtman; B.Sc., M.D.,C.M.(McG.)

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

S. King; Ph.D.(Virg.)

L.J. Kirmayer; B.Sc., M.D.,C.M., Dipl.Psych.(McG.) (*James McGill Professor*)

E. Latimer; B.A.Sc.(Wat.), M.S., Ph.D.(Carn. Mell)

M. Lepage; B.A.(C'dia), Ph.D.(UQAM)

M. Leyton; Ph.D.(C'dia) (*William Dawson Scholar*)

G. Luheshi; Ph.D.(Newcastle, UK)

A. Malla; M.B.B.S.(Panjab)

M.J. Meaney; B.A.(Loyola), M.A., Ph.D.(C'dia) (*James McGill Professor*)

N. Mechawar; B.Sc, M.Sc., Ph.D. (Montr.)

R. Mizrahi; M.D. (Buen. Air.), Ph.D. (Tor.)

V.N.P. Nair; M.B., B.S.(Kerala), D.P.M.(Mys.)

R. Palmour; B.A., Ph.D.(Texas)

J.C. Perry; M.D.(Duke)

R.O. Pihl; B.A.(Lawrence), Ph.D.(Ariz.) (*Psychology*)

J. Poirier; Ph.D.(Montr.)

R. Quirion; M.Sc., Ph.D.(Sher.)

M. N. Rajah; B.Sc., M.A., Ph.D.(Tor.)

P. Rosa; M.D.(Rio Grande do Sul), Ph.D.(Aarhus)

C. Rousseau; M.Sc.(McG.), M.D.,C.M.(Sher.)

N. Schmitz; Sch Dipl., Ph.D. (Univ. Dortmund)

L.K. Srivastava; B.Sc., M.Sc.(Allahabad), Ph.D.(J. Nehru)

H. Steiger; Ph.D.(McG.)

Assistant Professors

L. Creti; Ph.D.(C'dia)

L. Dabby; M.D.(Tor.)

M.E. Davis; Dip.Psychol., M.D.,C.M.(McG.)

N. Deleva; B.Sc., M.D. (Montr.) F.R.C.P.C

P. Des Rosiers; M.D.(Sher.)

R. Desautels; B.Sc., M.D.,C.M.(McG.)

J. Desmarais; M.D.,C.M.(McG.)

M. Di Tomasso; M.D.(McG.)

J. Dornik; M.D.(McG.)

S. Ducharme; M.D.(Montr.)

M. Elie; B.Sc., M.D.,C.M.(McG.)

J. Errunza; M.D.(McG.)

K. Faridi; M.D.(Calg.)

N. Faridi; B.Sc.(Vic., BC), M.Sc., M.D.(McG.)

K. Fathalli; M.D.(Tunis)

M. Ferrari; M.Sc., Ph.D. (Tor)

A. Fielding; M.D.,C.M.(McG.)

J. Friedland; M.D.(Calg.)

K. Geagea; M.D.,C.M.(SJU)

J. Glass; B.A.(Boston), M.D.,C.M.(McG.)

K. Goddard; M.D.,C.M.(Manit.)

M. Grignon; B.A.(Montr./Ott.), M.A.(Ott.)

P. Habib; M.D.(Beirut Med. Sch.)

B. Hayton; B.A.(Williams), M.D.,C.M.(McG.)

L. Hoffman; M.D.(McG.)

F. Ianni; B.Sc.(McG.), M.D.,C.M.(Montr.)

H. Iskandar; Dip.Psychol.(McG.), M.B.,Ch.B.(Alexandria)

J. Joly; M.D.,C.M.(McG.)

S. Karama; Ph.D.(Montr.)

M. Koch; M.D.(McM.)

T. Kolivakis; M.D.(Athens)

R. Kronick; M.D.(McG.)

R. Kuyumjian; M.D.,C.M.(McG.)

P. Lageix; B.Sc., M.D.,C.M.(Paris IV)

S. Lamarre; M.D.(Laval), F.R.C.P.(C)

M. Laporta; Dip.Psychol., M.D.,C.M.(McG.)

L. Laporte; B.A.(McG.), M.Psychol., Ph.D.(Montr.)

M. Lashley; Ph.D.(McG.)

J.D. Leccia; M.D.(Provence Aix-Marseille)

E. Levy; Gr.Dip.Psychiat.(McG.), M.Ed.(Sher.)

E. Libman; B.A., M.Sc., Ph.D.(McG.)

N.C.P. Low; M.D., M.Sc.(McG.)

Assistant Professors

W. Ma; M.D., M.Sc.(Tongji), Ph.D.(McG.)

R. Martins; Ph.D.(Montr.)

N. Masrouha; M.D.(Sher.)

T. Measham; B.Sc., M.D.(McG.)

X. Meng; B.Sc.(Inner Mongolia), M.Sc., Ph.D.(Jilin)

M. Messier; B.A.(Montr.), M.B.A.(HEC)

G. Meterissian; Gr.Dip.Psychiat.(McG.), M.D.,C.M.(Montr.)

T.M. Milroy; B.Sc., M.D.,C.M.(Md.), Gr.Dip.Psychiat.(McG.)

M. Miresco; M.D.,C.M.(McG.)

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

A. Nakhost; B.Sc, M.Sc., Ph.D., M.D.C.M (McG.)

J.P. Near; Ph.D.(UWO)

M-C. Noel; M.D.(Sher.), F.R.C.P.(C.)

T. V. Nguyen; M.D., M.Sc.(McG.)

M. Piat; Ph.D.(Laval)

L. Pinard; M.D.(Montr.), F.R.C.P.(C)

Z. Prelevic; Dip.Psychol.(McG.), M.D.,C.M.(Belgrade)

A. Propst; B.A., M.D.(McG.)

R. Rabin; B.Sc.(McG.), M.Sc., Ph.D.(Tor.)

M. Rabinovitch; B.Sc., M.D.,C.M.(McG.)

S. Rej; M.D., M.Sc.(McG.)

S.B. Rosenbloom; B.A.(C'dia), M.A.(York)

C. Roy; B.Sc.(McG.), M.D.,C.M.(Dal.)

P. Rusjan; M.Sc., Ph.D. (Buen. Air.)

T. Said; B.Sc.(McG.), M.D.,C.M.(Sher.)

H. Schwartz; M.D.(McG.)

M. Segal; B.A.(C'dia), B.Sc.(O.T.)(McG.), M.D.,C.M.(Ott.)

J. Seguin; B.A., B.Sc., M.D.,C.M.(Ott.)

T. Semeniuk; B.Sc., M.Ed., M.D.,C.M.(Alta.)

J. Shah; M.Sc.(Lond.), M.D.(Tor.)

P.P. Silveira; M.D., M.Sc., Ph.D.(UFRGS)

I. Spector; B.A.(McG.), M.Sc., Ph.D.(Syrac.)

K.A. Steger; M.D., Ph.D.(Texas, Southwest. Med. Cent.)

A. St-Hilaire; M.Sc.(McG.), Ph.D.(Ohio)

M. St-Laurent; M.D.(Montr.)

N. Szkrumelak; B.Sc., M.D.,C.M.(McG.)

K. Tabbane; M.D., Ph.D.(Tunisia)

M. Temple; B.Sc., M.D.(Nfld.)

L. Thaler; Ph.D.(Nevada)

Z. Thomas; M.D.(McG.)

L. Tourian; M.D.(McG.)

A. Traicu; M.D.(McG.)

Assistant Professors

J. Tremblay; B.A.(Montr.), M.Sc.(McG.), M.D.,C.M.(Montr.)

M. R. Tuineag; M.D.(UMFCD), M.Sc.(Montr.)

F. Van Den Eynde;

S. Veissière; B.Sc.(Dublin), M.A., Ph.D.(McG.)

S. Vida; B.Sc.(Ott.), M.D.,C.M.(McG.)

S. Villeneuve; Ph.D.(Montr.)

J. Vogel; M.D.,C.M.(Manit.)

R. Whitley; B.S., M.S., Ph.D.(Lond.)

M.A. Wolf; M.Sc., M.D.,C.M.(Strasbourg)

Y. Wolf; M.D.(McG.)

G. Zahirney; M.D.(McG.)

T.Y. Zhang; Ph.D.(McG.)

V. Zicherman; B.Sc., M.D.,C.M.(McG.)

D. Zigman; M.D.(McG.)

E. Zikos; M.D.(Montr.)

Lecturers

F. Amdiss, F. Bensaada, I. Blais, M. Boisvert, O. Boureanu, V. Brazzini-Poisson, C.M.J. Brebion, Mioara Bunea Cotfas, A. Cadivy, E. Casimir, E. Cauchois, R. Chaala, P. Chan, D. Charest, C. Chen, M. Coward, T.-V. Dao, C. Desmarais, M.H.N. Dinh, S. S. Douyon, H.C. Dube, J.A. Farquhar, H. Goldhaar, J. Guimezap Tsopmo, P. Harden, ezap

Courses are selected on the basis of the area of research interest and the background of the student, and must include a course in statistical analysis if not presented upon admission.

12.1.9.6 Doctor of Philosophy (Ph.D.) Mental Health

The Ph.D. in Mental Health, which is rooted in a strong tradition of multidisciplinary research approaches, focuses on the development of mental health services and policy, social and cultural psychiatry, and clinical and transnational psychiatry. Students are exposed to a rich body of knowledge in psychiatry and mental health research methods by participating in regular academic activities organized by different units of the Department of Psychiatry, such as weekly research seminars, global mental health rounds, Indigenous mental health workshops, the Summer Program in Cultural Psychiatry, and the conferences and workshops organized by the Advanced Study Institute in Cultural Psychiatry.

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)

PSYT 605	(3)	History and Philosophy of Psychiatry
PSYT 606	(3)	Mental Illness: Symptoms Diagnostics and Determinants
PSYT 701	(0)	Comprehensive Exam Mental Health

Complementary Courses (3 credits)

3 credits from the following or 3 credits of 500 level or higher from another unit chosen in consultation with the student's academic advisor or supervisor:

PSYT 500	(3)	Advances: Neurobiology of Mental Disorders
PSYT 515	(3)	Advanced Studies in Addiction
PSYT 620	(3)	Trends in Clinical Psychiatry
PSYT 625	(3)	Qualitative Research in Health Care
PSYT 630	(3)	Statistics for Neurosciences
PSYT 633	(3)	Social and Cultural Research Methods
PSYT 682	(3)	Psychosocial Issues of Disease
	(3)	Special Topics in Psychiatry

with other Montreal research centres and McGill departments provide ample opportunities for collaboration. Research in the Department covers a wide spectrum, including injury, repair, recovery, tissue engineering, transplantation, fibrosis, cancer and stem cell biology, biomechanics, organ failure, surgical stimulation, surgical innovation, education, and evaluative/outcomes research.

A list of research directors and their research topics is available on our *website*.

section 12.1.10.5: Master of Science (M.Sc.) Experimental Surgery (Thesis) (45 credits)

The M.Sc. core program is intended for students wishing to pursue careers in academia, the medical field, or industry. Thesis projects available in the various laboratories of the Department are multidisciplinary and ensure that students are exposed to a broad spectrum of research projects and experimental approaches. Students who have achieved superior progress in their research have the option to transfer to the Ph.D. program, waiving the M.Sc. thesis submission.

section 12.1.10.6: Master of Science (M.Sc.) Experimental Surgery (Thesis): Digital Health Innovation (45 credits)

The M.Sc. in Experimental Surgery; Digital Health Innovation focuses on the basics of clinical epidemiology, medical artificial intelligence, clinical innovation, and applied data science, including the use and generation of digitized health and social data using specialized software. Fundamentals of current AI applications in medicine, methods to employ big data in clinical tool development, mathematical principals underpinning digital health and big data, and design thinking methodology in clinical innovation. High-volume streams of clinical and health-related data from clinical systems, wearables and social media.

section 12.1.10.7: Master of Science (M.Sc.) Experimental Surgery (Thesis): Global Surgery (45 credits)

This concentration emphasizes healthcare needs specifically within the surgical field in resource-limited settings. It comprises three main pillars: research, education, and mentorship. Through extensive.242aTm(v)Tj1 0 0 1 2orship.

section 12.1.10.13: Graduate Diploma (Gr. Dip.) Surgical Innovation (30 credits)

The cores of this program are two-fold. Firstly, two innovation courses are offered by the McGill Department of Surgery, Experimental Surgery (EXSU 620 Surgical Innovation 1 and EXSU 621 Surgical Innovation 2) and supporting courses are delivered by the McGill Department of Surgery with some sessions in those courses provided by external partners, Local Industry (Regulatory & IP), the John Molson School of Business (JMSB) (lean start-up), Concordia University (software design), and *L'École de technologie supérieure* (ETS) (prototyping). Secondly, fundamental business and management courses are taken concurrently provided by Continuing Studies (McGill) and JMSB and reinforce the innovation project team experience.

12.1.10.3 Experimental Surgery Admission Requirements and Application Procedures

12.1.10.3.1 Admission Requirements

M.Sc. Core Program

Usually a B.Sc., M.D., or D.V.M. degre 0 n6.246 666.1 Tmc.,a 666.1 Tmc.,o50 T0hE7n845 629.283 T1mPM. de

Application Opening Dates	Application Deadlines	
	Canadian citizens/Perm. r	Current McGill Students (any citizenship)

Professors

M. Tanzer; M.D.,C.M.(McG.), F.R.C.S.(C)

C.I. Tchervenkov; B.Sc., M.D.,C.M.(McG.), F.R.C.S.(C)

J.I. Tchervenkov; M.D.,C.M.(McG.), F.R.C.S.(C)

R. Turcotte; M.D.(Montr.)

Associate Professors

M. Basik; M.D.,C.M., M.Sc.(McG.)

S. Bergman; M.Sc., M.D.,C.M.(McG.), F.R.C.S.(C)

O. Blaschuk; B.Sc.(Winn.), M.Sc.(Manit.), Ph.D.(Tor.)

R. Cecere; M.D.,C.M., B.Sc.(McG.), F.R.C.S.(C), A.B.S., F.)

Assistant Professors

J. Vorstenbosch; M.D., Ph.D.(McG.)

Associate Members

M.N. Burnier

M. Cantarovich

J.C. Chen

F. Cury

C.E. Ferland-Legault

P. Goldberg

A. Gursahaney

J. Henderson

D. Juncker

S. Komarova

J.J. Lebrun

N.M. Makhoul

S. Mayrand

M. Murshed

P.H-N. Nguyen

S. Prakash

L.A. Stein

M. Tabrizian

B.M. Willie

Professor of Practice

S. Arless; B.Sc.(McG.)

12.1.10.5 Master of Science (M.Sc.) Experimental Surgery (Thesis) (45 credits)

The M.Sc. in Experimental Surgery offers a graduate-level training program in experimental surgery, leading to a Master's degree. This program allows for a hands-on learning experience for students to develop skills necessary to work within multidisciplinary teams in the creation of novel, needs driven, and marketable prototypes used in development of novel surgical and medical devices. As such participants work in multidisciplinary teams. The program offers both specialized and broad-based training through the use of the most recent techniques in molecular biology, biochemistry, pharmacology, physiology, pathology, bio-informatics, and genomics.

Thesis Courses (30 credits)

EXSU 690	(4)	M.Sc. Research 1
EXSU 691	(4)	M.Sc. Research 2
EXSU 692	(4)	M.Sc. Research 3
EXSU 693	(18)	M.Sc. Thesis

Required Courses (9 credits)

EXSU 601	(3)	Knowledge Management 1
EXSU 602	(3)	Knowledge Management 2

And:

3 credits from the following:

EDPE 575	(3)	Statistics for Practitioners
EPIB 507	(3)	Biostats for Health Sciences
EXSU 606	(3)	Statistics for Surgical Research

Complementary Courses (6 credits)

6 credits, taken from 500, 600, or 700 level courses in consultation with the Research Advisory Committee.

Depending on their individual background, students may be asked by their Research Supervisory Committee to take additional courses.

Master of Science (M.Sc.) Experimental Surg

Sur

EXSU 505	(3)	Trends in Precision Oncology
EXSU 620	(3)	Surgical Innovation 1
EXSU 621	(3)	Surgical Innovation 2
PPHS 528	(3)	Economic Evaluation of Health Programs

Note: Students either take EDPE 637 and EDPH 689; or EPIB 521 and PPHS 528; or EXSU 620 and EXSU 621.

6 credits selected from:

ANAT 690D1	(3)	Cell and Developmental Biology
ANAT 690D2	(3)	Cell and Developmental Biology
BMDE 653	(3)	Patents in Biomedical Engineering
BMDE 654	(3)	Biomedical Regulatory Affairs - Medical Devices
BMDE 655	(3)	Biomedical Clinical Trials - Medical Devices
DENT 669	(3)	Extracellular Matrix Biology
DENT 673	(3)	Biotechnology and Entrepreneurship
EDPE 637	(3)	Issues in Health Professions Education
EDPE 687	(3)	Qualitative Methods in Educational Psychology
EDPH 689	(3)	Teaching and Learning in Higher Education
EPIB 641	(1)	Substantive Epidemiology 1
EPIB 643	(1)	Substantive Epidemiology 3
EPIB 681	(3)	Global Health: Epidemiological Research
EXMD 609	(3)	Cellular Methods in Medical Research
EXMD 610	(3)	Molecular Methods in Medical Research
EXSU 605	(3)	Biomedical Research Innovation
EXSU 620	(3)	Surgical Innovation 1
EXSU 621	(3)	Surgical Innovation 2
EXSU 623	(6)	Surgery Research Project 2
EXSU 684	(3)	Signal Transduction
FMED 619	(3)	Program Management in Global Health & Primary Health Care
PHGY 517	(3)	Artificial Internal Organs
PHGY 518	(3)	Artificial Cells
PHGY 550	(3)	Molecular Physiology of Bone
PPHS 511	(3)	Fundamentals of Global Health
PPHS 529	(3)	Global Environmental Health and Burden of Disease

Electives (6 credits)

6 credits taken from 500-, 600-, or 700-level courses at the University will be taken with the approval of the director of the program/adviser.

12.1.10.11 Doctor of Philosophy (Ph.D.) Experimental Surgery

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)

EXSU 601	(3)	Knowledge Management 1
EXSU 602	(3)	Knowledge Management 2
EXSU 700	(0)	Comprehensive Examination

And:

3 credits from the following:

EDPE 575	(3)	Statistics for Practitioners
EPIB 507	(3)	Biostats for Health Sciences
EXSU 606	(3)	Statistics for Surgical Research

Complementary Courses (6 credits)

6 credits at the 500 level or higher in the student's specialty, selected in consultation with the Research Supervisory Committee.

12.1.10.12 Graduate Certificate (Gr. Cert.) Surgical Innovation (15 credits)

The core of this 15-credit graduate program consists of two innovation courses (EXSU 620 and EXSU 621) delivered by McGill Department of Surgery, with some sessions offered by e

Required Courses (15 credits)

12 credits in:

CORG 556	(3)	Managing and Engaging Teamwork
EXSU 619	(3)	The Hospital Environment
EXSU 620	(3)	Surgical Innovation 1
EXSU 621	(3)	Surgical Innovation 2

And:

3 credits from the following:

EDPE 575	(3)	Statistics for Practitioners
EPIB 507	(3)	Biostats for Health Sciences
EXSU 606	(3)	Statistics for Surgical Research

Complementary Courses (9 credits)

9 credits from the following:

CACC 520	(3)	Accounting for Management
	/rnts	Marketing Principles and Applications

12.2.2.2 About Anatomy and Cell Biology

The Department offers graduate programs leading to **M.Sc.** and **Ph.D.** degrees. Research in the Department investigates the dynamics and organization of molecules, organelles, cells, and tissues in several major systems of the body. The work makes fundamental contributions to a number of established and emerging multidisciplinary fields such as:

- cell and molecular biology;
- cellular immunology and hematology;
- reproductive biology;
- calcified tissue biology;
- tumour cell biology;
- developmental biology;
- neurobiology;
- aging.

The Department offers contemporary facilities for the wide range of techniques currently employed in research. Modern methods of cell and molecular biology, immunology, and biochemistry are used in conjunction with specialized microscopy in a variety of experimental systems.

The Department has one of the largest and best-equipped electron microscope facilities in the world. Currently in use are four modern electron microscopes which include a Tecnai F20 and a Titan Krios. Combined with some of these microscopes are computer-aided analytical equipment capable of elemental microanalysis, histomorphometry, reconstruction, and quantitation. The high-voltage microscope is particularly useful for certain analytical electron optical procedures such as electron diffraction, lattice imaging, and three-dimensional electron microscopy.

Funding

The minimum yearly stipend for Canadian Citizens and Permanent Residents is $20,000 for MSc students, and $22,000 for PhD students. MSc and PhD International students will receive a minimum yearly stipend of $24,000 to compensate for tuition fees higher than Canadian Citizens, Permanent Residents, and Quebec-resident students. The minimum stipend for International students is guaranteed for the duration of the residency period in which students pay their highest fees."

All students are financially supported either by their supervisor or through fellowships or scholarships. Prospective students are urged to make every effort to secure their own funding. Applications may be made for a variety of fellowships administered by the University or by various federal, provincial, or private agencies. For more information on fellowships and awards, see the *Graduate and Postdoctoral Studies website*.

Departmental Seminars

Nationally and internationally recognized scientists present their research findings to the Department at a regular *seminar series* throughout the academic year. On a regular basis, graduate students also present their own research progress and results to other students, postdoctoral fellows, and researchers in the Department through the Research in Progress Seminar Series.

section 12.2.2.5: Master of Science (M.Sc.) Cell Biology (Thesis) (45 credits)

Graduate research activities leading to the presentation of the M.Sc. Thesis involve original experimental work in one of the areas being actively investigated by the Department's research supervisors. Our graduate program offers training in a personal, unique, and multidisciplinary environment in a top Canadian university with worldwide recognition. The thesis-based Master's training is intended for students with a B.Sc. or B.A. degree in life sciences from a university of recognized reputation. Candidates with an M.D., D.D.S., or D.V.M. degree are also welcome. Students are trained in how to address biological problems with an integrative understanding of cell biology by conducting hypothesis-driven research projects. The training provides all the tools required for successful careers in academic settings as well as in industry or other fields.

section 12.2.2.6: Doctor of Philosophy (Ph.D.) Cell Biology

Graduate research activities leading to the presentation of the Ph.D. thesis involve original experimental work in one of the areas being actively investigated by the Department's research supervisors. Our graduate program offers training in a personal, unique, and multidisciplinary environment in a top Canadian university with worldwide recognition. The thesis-based Ph.D. training is intended for students with a B.Sc., B.A., or M.Sc. degree in life sciences from a university of recognized reputation. Candidates with an M.D., D.D.S., or D.V.M. degree are also welcome. Students are trained in how to address biological problems with an integratiat(grati)Tj1 v 192.747 552.44 5m(grati)Tj1 ding of cell biology by conducting hgrati

Master's Program (Cell Biology)

1. A B.Sc. degree in life sciences or any of M.D., D.D.S., or D.V.M. degrees from a university of recognized reputation
2. Evidence of a high academic achievement with a minimum cumulative grade point average (CGPA) of 3.0 out of 4.0 as indicated in the general guidelines set up by GPS

Ph.D. Program (Cell Biology)

1. An M.Sc. degree in life sciences or any of M.D., D.D.S., or D.V.M. degrees from a university of recognized reputation
2. Evidence of a high academic achievement with a minimum cumulative grade point average (CGPA) of 3.0 out of 4.0 as indicated in the general guidelines set up by GPS

International Applicants

Graduate studies applicants 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 the following:

TOEFL: Minimum score of 86 on the Internet-based test (iBT) with each component score 20 or higher.

or

IELTS: Minimum overall band score of 6.5.

12.2.2.3.2 Application Procedures

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

See *University Regulations & Resources* > *Graduate* > *Graduate Admissions and Application Procedures* > *: Application Pr*

Emeritus Professors

Sandra C. Miller; B.Sc.(Sir G. Wms.), M.Sc., Ph.D.(McG.)

Dennis G. Osmond; C.M., B.Sc., M.B., Ch.B., D.Sc.(Brist.), M.R.C.S., L.R.C.P., F.R.S.C.

Hershey Warshawsky; B.Sc.(Sir G. Wms.), M.Sc., Ph.D.(McG.)

Professors

Chantal Autexier; B.Sc.(C'dia), Ph.D.(McG.)

Samuel David; Ph.D.(Manit.) (*joint appt. with Neurology and Neurosurgery*)

Elaine Davis; B.Sc., M.Sc.(UWO), Ph.D.(McG.)

Timothy Kennedy; B.Sc.(McM.), M.Phil., Ph.D.(Col.) (*joint appt. with Neurology and Neurosurgery*)

Nathalie Lamarche-Vane; B.Sc., Ph.D.(Montr.)

Marc D. McKee; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with Dentistry*)

Peter McPherson; B.Sc.(Manit.), Ph.D.(Iowa) (*joint appt. with Neurology and Neurosurgery*)

Carlos R. Morales; D.V.M.(UNNE, Argentina), Ph.D.(McG.)

Joaquin Ortega; B.Sc.(Zaragoza), Ph.D.(Autonoma, Madrid)

Barry I. Posner; M.D.(Manit.), F.R.C.P.(C) (*joint appt. with Medicine*)

5.D. 21nd Neur

Associate Members

Jean-François Cloutier (*Neurology and Neurosurgery*)

Claudio Cuello (*Pharmacology and Therapeutics*)

Giovanni Di Battista (*Medicine*)

Allen Ehrlicher (*Bioengineering*)

Alyson Fournier (*Neurology and Neurosurg*

Adjunct Professors

Elitza Tocheva; B.Sc., Ph.D.(Br. Col.)

Javier Vargas; Ph.D. (UCM, Spain)

12.2.2.5 Master of Science (M.Sc.) Cell Biology (Thesis) (45 credits)

Thesis Course (24 credits)

ANAT 698	(24)	M.Sc. Thesis Research 1

Required Course (12 credits)

ANAT 601	(3)	MSc Seminar Examination
ANAT 695	(3)	Seminars in Cell Biology 1
ANAT 696	(3)	Seminars in Cell Biology 2
ANAT 697	(3)	Seminars in Cell Biology 3

Complementary Courses (9 credits)

6 credits from one of two streams: Cell Developmental Biology Stream or Human Systems Biology Stream

Cell Developmental Biology Stream

ANAT 663D1	(3)	Histology
ANAT 663D2	(3)	Histology
ANAT 690D1	(3)	Cell and Developmental Biology
ANAT 690D2	(3)	Cell and Developmental Biology

Human Systems Biology Stream

** This stream is currently under review. **

6 credits required:

ANAT 690D1	(3)	Cell and Developmental Biology
ANAT 690D2	(3)	Cell and Developmental Biology

3 credits selected from:

BMDE 502	(3)	BME Modelling and Identification
BMDE 519	(3)	Biomedical Signals and Systems
BTEC 501	(3)	Bioinformatics
COMP 564	(3)	Advanced Computational Biology Methods and Research
COMP 680	(4)	Mining Biological Sequences
EXMD 602	(3)	Techniques in Molecular Genetics
MIMM 613	(3)	Current Topics 1
MIMM 614	(3)	Current Topics 2
MIMM 615	(3)	Current Topics 3
NEUR 502	(3)	Basic and Clinical Aspects of Neuroimmunology

Upon consultation with the supervisor, students may select a 3-credit course outside of this list from Biomedical Science courses at the 500-600 level.

12.2.2.6 Doctor of Philosophy (Ph.D.) Cell 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

ANAT 690D1	(3)	Cell and Developmental Biology
ANAT 690D2	(3)	Cell and Developmental Biology
ANAT 695	(3)	Seminars in Cell Biology 1
ANAT 696	(3)	Seminars in Cell Biology 2
ANAT 697	(3)	Seminars in Cell Biology 3
ANAT 701	(0)	Ph.D. Comprehensive Examination

12.2.3 Biochemistry

12.2.3.1 Location

Department of Biochemistry
McIntyre Medical Sciences Building
3655 Promenade Sir-William-Osler
Montreal QC H3G 1Y6
Canada
Christine Laberge: Student Affairs Officer/Graduate Program Coordinator
Telephone: 514-398-2423
Email: *christine.laberge@mcgill.ca*
Website: *mcgill.ca/biochemistry*

12.2.3.2 About Biochemistry

The Department of Biochemistry offers M.Sc. and Ph.D. programs, which emphasize laboratory research. Our research interests include:

- molecular and cell biology;
- the regulation of gene and protein expression;
- signal transduction;
- protein structure and function;
- membrane biology;
- cell death and differentiation;
- embryonic development;
- neurobiology;
- bioinformatics;
- cancer.

Specialized graduate training programs in Chemical Biology, Human Systems Biology (Bioinformatics), *Cancer Research/Oncology*, and *Structural Biology* are available. Laboratories are located in the new Bellini Life Sciences Building and Rosalind and Morris Goodman Cancer Research Centre, and the renovated McIntyre Medical Sciences Building, together comprising one of the best-equipped research facilities in Canada. The outstanding quality of our research has been recognized by recent awards including a Gairdner Award, two Killam Prizes, and eight Canada Research Chairs.

Funding

Master's students receive a minimum stipend of $20,000 annually; doctoral students receive $22,000. The Department is committed to helping graduate students secure adequate funding for their research. All students are financially supported either by their supervisor or through fellowships or scholarships. Prospective students are urged to make every effort to secure their own funding. Applications may be made for a variety of fellowships administered by the University or by various federal, provincial, or private agencies. For more information on fellowships and awards, see the *Graduate and Postdoctoral Studies website*.

Departmental Seminars

Visiting scientists and senior doctoral students present their research findings to the Department at a regular seminar series throughout the academic year. All graduate students are required to attend the regular seminars and additional special lectures, and are encouraged to attend scientific conferences and symposia.

section 12.2.3.5: Master of Science (M.Sc.) Biochemistry (Thesis) (45 credits)

The M.Sc. in Biochemistry introduces students to laboratory-based research at an advanced level. The M.Sc. program offers core courses in advanced biochemistry topics, but focuses on laboratory research. The program provides sophisticated training in the technical as well as theoretical aspects of biochemistry, at one of the leading Biochemistry departments in Canada. The M.Sc. program is an excellent preparation for skilled positions in the biomedical sciences, in industry or the public sector, or for superior research in a Ph.D. program.

section 12.2.3.6: Master of Science (M.Sc.) Biochemistry (Thesis): Bioinformatics (45 credits)

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 analyse 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.

Students successfully completing the Bioinformatics option at the M.Sc. level will be fluent in the concepts, language, approaches, and limitations of the field.

The option consists of a number of interdisciplinary courses and a seminar designed to bring students from many backgrounds together and to provide a thorough overview of research in this field.

section 12.2.3.7: Master of Science (M.Sc.) Biochemistry (Thesis): Chemical Biology (47 credits)

The Chemical Biology Thematic Group is engaged in a diverse range of research topics, which span structural biology, enzymology, nucleic acid research, signalling pathways, single molecule biophysics, and biophysical chemistry of living tissues. Among the themes that unite the research being performed in this group is the attempt to learn new chemistry and physics from biological systems. We have projects relating to pharmaceutically relevant enzymes such as those involved in drug metabolism and antibiotic resistance; development of therapeutic agents in the control of inflammation, cancer, and viral infections; the chemical biology of NO; quantification of bioenergetic markers of metabolism; self-assembly mechanisms of the HIV-1 virion capsid; liposome microarray systems to address membrane protein dynamics and recognition; studies on reactive oxygen species translocation across the aqueous/lipid membrane interface; RNAi/antisense technologies; dynamic combinatorial chemistry; protein dynamics and function; mechanistic aspects involved in cellular adhesion and transport in membrane and zeolite channels; and cutting-edge microscopes used to examine transport, motility, and reactivity in cells.

The Chemical Biology graduate option is centred on the pursuit of an original research project under the direction of one or more mentors. The program is supported by McGill University and by the Canadian Institutes of Health Research (CIHR) through its Strategic Training Initiatives program.

The program of training incorporates several important features, including a diverse curriculum and programs of seminars, workshops, and discussion groups designed to provide students with a well-rounded exposure to both the chemical and biological aspects of the discipline. The M.Sc. option provides a foundation in the concepts and approaches of Chemical Biology.

section 12.2.3.8: Doctor of Philosophy (Ph.D.) Biochemistry

The Ph.D. in Biochemistry trains students in laboratory-based research at the highest level. The Ph.D. program is streamlined to emphasize independent research, and the many areas of biochemistry studied in our Department offer a wide choice of specialties. Students gain in-depth e

in this group is trying to learn new chemistry and physics from biological systems. We have projects relating to pharmaceutically relevant enzymes such as those involved in drug metabolism and antibiotic resistance; development of therapeutic agents in the control of inflammation, cancer and viral infections; the chemical biology of NO; quantification of bioenergetic markers of metabolism; self-assembly mechanisms of the HIV-1 virion capsid; liposome microarray systems to address membrane protein dynamics and recognition; studies on reactive oxygen species translocation across the aqueous/lipid membrane interface; RNAi/antisense technologies; dynamic combinatorial chemistry; protein dynamics and function; mechanistic aspects involved in cellular adhesion and transport in membrane and zeolite channels; and cutting-edge microscopes used to examine transport, motility, and reactivity in cells.

[redacted]

is supported by McGill University and by the Canadian Institutes of Health Research (CIHR) through its Strategic Training Initiatives program.

The program of training incorporates several important features, including a diverse curriculum and programs of seminars, workshops, and discussion groups designed to provide students with a well-rounded exposure to both the chemical and biological aspects of the discipline. The Ph.D. option provides advanced training in Chemical Biology based on independent research.

Financial support for students in the program is available from a variety of sources, including competitively awarded CIHR-funded Chemical Biology Scholarship awards.

12.2.3.3 Biochemistry Admission Requirements and Application Procedures

[redacted]

supervisor and adequate financial support. Financial support should be in the form of a stipend from the supervisor's research grant or a fellowship held by the student.

Master's Program

Candidates for the M.Sc. degree must hold a B.Sc. degree or its equivalent in Biochemistry or in related disciplines (e.g., biology, chemistry, physiology, microbiology).

Doctoral Program

Candidates who have completed their M.Sc. de**ogram**

[redacted]

All applicants are advised to contact potential research supervisors during or before the application process since supervisor acceptance is required. Information

Professors

Philippe Gros; B.Sc., M.Sc.(Montr.), Ph.D.(McG.), F.R.S.C. (*James McGill Professor*)

Alba Guarné; B.Sc., M.Sc., Ph.D.(Barcelona)

Roderick R. McInnes; B.Sc., M.D.(Dal.), Ph.D.(McG.)

William Muller; B.Sc., Ph.D.(McG.) (*Canada Research Chair in Molecular Oncology*)

Bhushan Nagar; B.Sc., Ph.D.(Tor.)

Alain Nepveu; B.Sc., M.Sc.(Montr.), Ph.D.(Sher.) (*James McGill Professor*) (*joint appt. with Oncology and Medicine and Health Science*)

Morag Park; B.Sc., Ph.D.(Glas.), F.R.S.C. (*Diane and Sal Guerrera Chair in Cancer Genetics*) (

Associate Members

Josie Ursini-Siegel (*Dept. of Oncology*)

Simon Wing (*Dept. of Medicine* and Health Science)

Xiang-Jiao Yang (*Rosalind and Morris Goodman Cancer Research Centre, Dept. of Medicine and Health Science*)

Adjunct Professors

Jacques Drouin; B.Sc., D.Sc.(Laval) (*IRCM*)

Enrico Purisima; B.Sc.(Ateneo de Manila), M.Sc., Ph.D.(Cornell) (*NRC/BRI*)

Julie St-Pierre; B.Sc., M.Sc.(Laval), Ph.D.(Trin. Coll., Cambridge) (*Ott.*)

12.2.3.5 Master of Science (M.Sc.) Biochemistry (Thesis) (45 credits)

Thesis Courses (36 credits)

BIOC 697	(9)	Thesis Research 1
		Thesis Research 2

Required Courses (6 credits)

BIOC 696	(3)	Seminars in Biochemistry Bioinformatics Seminar

BIOC 690	(1)	Seminars in Chemical Biology 4

At least 3 credits from the following:

CHEM 502	(3)	Advanced Bio-Organic Chemistry
CHEM 503	(3)	Drug Discovery
PHAR 503	(3)	Drug Discovery and Development 1

and at least 3 credits from the following:

BIOC 600	(3)	Advanced Strategies in Genetics and Genomics
BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
BIOC 605	(3)	Protein Biology and Proteomics
BIOC 670	(3)	Biochemistry of Lipoproteins
EXMD 615	(3)	Essentials of Glycobiology
EXMD 635D1	(3)	Experimental/Clinical Oncology
EXMD 635D2	(3)	Experimental/Clinical Oncology

Plus additional credits, to a total of at least 11 complementary course credits from the following list:

CHEM 504	(3)	Drug Design
CHEM 522	(3)	Stereochemistry
CHEM 582	(3)	Supramolecular Chemistry
CHEM 591	(3)	Bioinorganic Chemistry
CHEM 621	(5)	Reaction Mechanisms in Organic Chemistry
CHEM 629	(5)	Organic Synthesis
CHEM 655	(4)	Advanced NMR Spectroscopy
EXMD 510	(3)	Bioanalytical Separation Methods
EXMD 602	(3)	Techniques in Molecular Genetics
PHAR 504	(3)	Drug Discovery and Development 2
PHAR 562	(3)	Neuropharmacology
PHAR 563	(3)	Endocrine Pharmacology
PHAR 707	(3)	Topics in Pharmacology 6

* Complementary courses are chosen in consultation with the Research Director.

The Graduate Advisory Committee may stipulate additional coursework depending on the background of the candidate. BIOC 450 (Protein Structure and Function) and BIOC 454 (Nucleic Acids) are additional requirements for those who have not previously completed equivalent courses in their prior training.

12.2.3.8 Doctor of Philosophy (Ph.D.) Biochemistry

Thesis

A thesis for the doctoral de

Required Courses (3 credits)

BIOC 696*	(3)	Seminars in Biochemistry
BIOC 701**	(0)	Research Seminar 1
BIOC 702**	(0)	Ph.D. Thesis Proposal
BIOC 703**	(0)	Ph.D. Seminar

*Students promoted directly from the M.Sc. to the Ph.D. program, and who registered for and passed BIOC 696 at the M.Sc. level, do not register for BIOC 696 at the Ph.D. level.

** NOTE: Students DO NOT register for these courses until notified by the Student Affairs Officer.

Students must complete BIOC 701 in the third term after admission to the program, BIOC 702 in the fifth or sixth term, and BIOC 703 approximately six months prior to submission of the Ph.D. thesis.

Complementary Courses*** (6 credits)

At least 3 credits selected from:

BIOC 600	(3)	Advanced Strategies in Genetics and Genomics
BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
BIOC 605	(3)	Protein Biology and Proteomics
BIOC 670	(3)	Biochemistry of Lipoproteins
EXMD 615	(3)	Essentials of Glycobiology
EXMD 635D1	(3)	Experimental/Clinical Oncology
EXMD 635D2	(3)	Experimental/Clinical Oncology

Plus additional credits to a minimum of 6 total complementary course credits of 500- or higher-level courses in the biomedical and allied sciences.

*** Complementary courses are chosen in consultation with the Research Director.

The Graduate Advisory Committee may stipulate additional course work depending on the background of the candidate. BIOC 450 (Protein Structure and Function) and BIOC 454 (Nucleic Acids) are additional requirements for those who have not previously completed equivalent courses in their prior training.

12.2.3.9 Doctor of Philosophy (Ph.D.) Biochemistry: 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 (6 credits)

BIOC 696*	(3)	Seminars in Biochemistry
BIOC 701**	(0)	Research Seminar 1
BIOC 702**	(0)	Ph.D. Thesis Proposal
BIOC 703**	(0)	Ph.D. Seminar
COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar

* Students promoted directly from the M.Sc. to the Ph.D. program, and who registered for and passed BIOC 696 at the M.Sc. level, do not register for BIOC 696 at the Ph.D. level.

** NOTE: Students DO NOT register for these courses until notified by the Student Affairs Officer

12.2.4 Biomedical Engineering

12.2.4.1 Location

Department of Biomedical Engineering
Duff Medical Building
3775 University Street, Room 316
Montreal QC H3A 2B4
Canada
Telephone: 514-398-6736
Fax: 514-398-7461
Website: *mcgill.ca/bme*

12.2.4.2 About Biomedical Engineering

Excellent laboratory facilities for basic and applied research are available in the Department and in the laboratories of associated staff located elsewhere on campus. The Department operates a network of high-performance workstations and well-equipped mechanical and electronics workshops.

Basic research in the Department concentrates on the application of quantitative engineering analysis methods to basic biomedical research problems. Currently active areas of research include:

- neuromuscular and postural control;
- muscle mechanics;
- the vestibular system;
- oculomotor control;
- the auditory system;
- joint prosthetics;
- biomaterials;
- artificial cells and organs;
- cell and tissue engineering;
- drug delivery;
- microencapsulation;
- microbiome and probiotics;
- functional food and neutraceuticals;
- medical imaging;
- microfluidics;
- nanomedicine and nanotechnology;
- bioinformatics in genomics and proteomics.

Staff members are also active in more applied research related to the development of quantitative analysis tools and instruments for biomedical research. Areas of activity here include: signal analysis, system identification, modelling, simulation and parameter estimation, image processing, pattern recognition, ultrasound, and biorobotics.

section 12.2.4.5: Graduate Certificate (Gr. Cert.) Translational Biomedical Engineering (15 credits)

This program will enable students to translate advances in biomedical engineering research to clinical and commercial solutions. Students will learn the complementary skills needed to take early-stage research results from the bench to the bedside and bridge the gap between invention and product innovation.

The graduate certificate responds to the demand from students for such training and addresses the needs of the biomedical industry for such highly qualified personnel.

For additional information, see the *Biomedical Engineering website*.

12.2.4.3 Biomedical Engineering Admission Requirements and Application Procedures

12.2.4.3.1 Admission Requirements

See *University Regulations & Resources* > *Graduate* > *Graduate Admissions and Application Procedures* > *: Admission Requirements (Minimum Requirements to be Considered for Admission)*. In addition, please see the Department's website:

12.2.4.3.2 Application Procedures

McGill's online application form for graduate program candidates is available at *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 the Department.

12.2.4.3.3 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 Department of Biomedical Engineering 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

Associate Members

M. Baudet (*Neurology and Neurosurgery*)

C. Baker (*Ophthalmology*)

S. Blain-Moraes (*Physical and Occupational Therapy*)

M. Chacron (*Physiology*)

X. Chai (*Neurology and Neurosurgery*)

M. Chakravarty (*Psychiatry*)

M. Driscoll (*Mechanical Engineering*)

A. Ehrlicher (*Bioengineering*)

S. Enger (*Oncology*)

A. Evans (*Neurology and Neurosurgery*)

J. Gotman (*Neurology and Neurosurgery*)

D. Guitton (*Neurology and Neurosurgery*)

A. Hendricks (*Bioengineering*)

C. Hoesli (*Chemical Engineering*)

R. Hoge (*Neurology and Neurosurgery*)

Y. Iturria-Medina (*Neurology and Neurosurgery*)

A. Kamen (*Bioengineering*)

A. Katsarkas (*Otolaryngology*)

J. Kildea (*Medical Physics*)

J. Kinsella (*Bioengineering*)

S. Komarova (*Dentistry*)

A.-M. Lauzon (*Medicine*)

R. Leask (*Chemical Engineering*)

I. Levesque (*Medical Physics and Oncology*)

J. Li (*Mechanical Engineering*)

N. Li-Jessen (*Communications and Science*)

G. Mitsis (*Bioengineering*)

L. Mongeau (*Mechanical Engineering*)

R. Mongrain (*Mechanical Engineering*)

C. Moraes (*Chemical Engineering*)

J. Near (*Psychiatry*)

D. Nicolau (*Bioengineering*)

C. Pack (*Neurology and Neurosurgery*)

D. Pasini (*Mechanical Engineering*)

W. Reisner (*Physics*)

A. Shmuel (*Neurology and Neurosurgery*)

BMDE 610	(3)	Functional Neuroimaging Fusion
BMDE 650	(3)	Advanced Medical Imaging
MDPH 607	(3)	Medical Imaging

Biomaterials and Tissue Engineering

BIEN 510	(3)	Engineered Nanomaterials for Biomedical Applications
BMDE 504	(3)	Biomaterials and Bioperformance
BMDE 505	(3)	Cell and Tissue Engineering

Biosensors and Devices

BIEN 550	(3)	Biomolecular Devices
BIEN 560	(3)	Design of Biosensors
BMDE 503	(3)	Biomedical Instrumentation
BMDE 508	(3)	Introduction to Micro and Nano-Bioengineering

Translational Biomedical Engineering

BMDE 656	(3)	Medical Device Reimbursement

12.2.5 Human Genetics

12.2.5.1 Location

Department of Human Genetics
Strathcona Anatomy & Dentistry Building
3640 University Street, Room W-315
Montreal QC H3A 0C7
Canada
Telephone: 514-398-4198
Fax: 514-398-2430
Email:

Most of the faculty members of the Human Genetics Department are located in McGill teaching hospitals, reflecting the medically learned knowledge at the core of human genetic studies.

Faculty members have a wide variety of research interests, which embrace:

- cancer genetics;
- cytogenetics;
- reproductive biology;
- neurogenetics;
- genomic and genetic basis of human diseases.

Detailed information regarding faculty research interests can be found on the *Department website*.

The Graduate Training Committee requires that students who have been accepted into the M.Sc. or Ph.D. in Human Genetics research graduate program have a guaranteed minimum stipend of $15,000, plus the full amount of tuition and fees. Detailed information regarding financial matters can be found on the *Student Funding webpage*.

Tuition Assistance Packages

A certain number of tuition assistance packages will be offered to incoming out-of-province/international students for the M.Sc. or Ph.D. in Human Genetics thesis program who have demonstrated outstanding academic achievement. Students who have a **CGPA of 3.5 out of 4.0 or above** (as converted by the McGill GPS guidelines) and who submit online application and documents by **March 31 (Fall), or Sept. 10 (Winter)** will automatically be considered eligible for assistance. Once applications have been received by the deadline, the Graduate Training Committee will review all eligible applications and award tuition assistance to certain top eligible candidates at the time of admission into the program.

section 12.2.5.5: Master of Science (M.Sc.) Human Genetics (Thesis) (45 credits)

The Department of Human Genetics provides a unified curriculum of study in genetics. Areas of specialization include:

- biochemical genetics
- genetics of development
- animal models of human diseases
- cancer genetics
- molecular pathology
- gene therapy
- genetic dissection of complex traits
- genetics of infectious and inflammatory diseases
- non-mendelian genetics
- bioinformatics
- behavioural genetics
- neurogenetics
- bioethics
- genomics

Many of our faculty hold cross-appointments in various departments (including: biochemistry, biology, cardiology, medicine, microbiology, immunology, neurology, pathology, pediatrics, pharmacology, psychiatry, etc.) within the Faculties of Science and Medicine. This enables numerous opportunities for interdisciplinary research and collaboration. The Department conducts research on all sites of the McGill University Health Centre (MUHC), the Montreal Neurological Institute and Hospital, the McGill Life Sciences Complex, the *McGill University & Genome Quebec Innovation Centre*, the Biomedical Ethics Unit, and the *Centre for Genomics and Policy*.

section 12.2.5.7: Master of Science (M.Sc.) Human Genetics (Thesis): Bioethics (45 credits)

McGill University offers specialized education in bioethics to graduate students in the Faculties of Medicine and Law, the School of Religious Studies, and the Department of Philosophy. The Master's degree Specialization in Bioethics is an interdisciplinary academic program that emphasizes both the conceptual and the practical aspects of bioethics.

section 12.2.5.6: Master of Science (M.Sc.) Human Genetics (Thesis): Bioinformatics (45 credits)

This program is currently not offered.**

Students successfully completing the Bioinformatics option at the M.Sc. level will be fluent in the concepts, language, approaches, and limitations of the field. 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.

section 12.2.5.6: Master of Science (M.Sc.) Human Genetics (Thesis): Bioinformatics (45 credits)

Enrolment in the Bioinformatics option can only be approved after a student has been admitted into the Department. There is an agreement for the option that must be signed by the student, supervisor, and Department, and enrolment in the option is subject to space availability and other constraints that the Department cannot assess at the time of admission. For more information, please contact the Graduate Program Coordinator.

Admission is based on acceptance by a *research supervisor*, confirmed *funding* for the duration of the academic program, and an online application form evaluated by the Graduate Training Committee.

Prospective graduate students should complete the online application form and indicate the name of the secured research supervisor.

For detailed information, visit the *Human Genetics program website*.

Language Requirements

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 a *TOEFL* or *IETLS* test score to McGill University. Minimum scores of 600 on the TOEFL paper-based test, 250 on the computer-based test or 100 on the Internet-based test are required. Each component or subsection score requires a minimum score of 20. On the IELTS the minimum standard for consideration is 7.

Note: TOEFL scores must be sent electronically by the testing agency to McGill University using our institution code of 0935. Scanned copies of results or hard copies sent in the mail will not be entered as received in your application. IELTS scores also must be submitted electronically by the test centre to McGill University.

12.2.5.3.2 Application Procedures

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

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

12.2.5.3.3 Application Dates and Deadlines

Program Directors

J. Fitzpatrick – *M.Sc. in Genetic Counselling*

A. Naumova – *M.Sc. and Ph.D. in Human Genetics*

Emeritus Professors

F. Kaplan; B.A.(Col.), Ph.D.(McG.)

K. Morgan; Ph.D.(Mich.)

L. Pinsky; M.D.(McG.)

C. Scriver; B.A., M.D.,C.M.(McG.)

Professors

E. Andermann; M.Sc., Ph.D., M.D.,C.M.(McG.) (*Neurology and Neurosurgery*)

B. Brais; M.D.,C.M., Ph.D.(McG.) (*Neurology and Neurosurgery*)

W. Foulkes; B.Sc., MB.BS., Ph.D.(Lond.) (*Medicine*)

B. Knoppers; Ph.D.(Paris IV), Ad.E., O.C. (*Director, Centre of Genomics and Policy*)

M. Lathrop; B.Sc., M.Sc.(Alta.), Ph.D.(Wash.) (*Director, McGill University-Genome Quebec Innovation Centre*)

D. Malo; D.V.M., M.Sc.(Montr.), Ph.D.(McG.) (*William Dawson Scholar*) (*Medicine*)

R. McInnes; C.M.,M.D., Ph.D.(McG.) F.R.S.C. (*Alva Chair in Human Genetics*) (*Director, Lady Davis Research Institute*)

R. Palmour; B.A.(Texas W.), Ph.D.(Texas-Austin) (*Psychiatry and Biology*)

D. Radzioch; M.Sc., Ph.D.(Jagiellonian) (*Medicine*)

D.S. Rosenblatt; M.D.,C.M.(McG.) (*Medicine, Pediatrics, and Biology*)

R. Rozen; B.Sc., Ph.D.(McG.) (*Pediatrics and Biology*)

E. Schurr; M.Sc., Ph.D.(Freiburg) (*Medicine*)

E.A. Shoubridge; B.Sc., M.Sc.(McG.), Ph.D.(Br. Col.) (*Neurogenetics*)

R. St-Arnaud; B.Sc.(Montr.), Ph.D.(Laval) (*Surgery*)

P. Tonin; B.Sc., M.Sc., Ph.D.(Tor.) (*Medicine*)

J. Trasler; M.D.,C.M., Ph.D.(McG.) (*William Dawson Scholar*) (*Pathology and Pediatrics*)

S. Vidal; Ph.D.(Geneva) (*Medicine*)

Associate Professors

A. Ao; Ph.D.(UCL)

G. Bourque; B.Sc.(Montr.), M.A., Ph.D.(USC) (*Genome Quebec*)

N. Braverman; B.Sc.(Cornell), M.Sc.(Sarah Lawrence), M.D.(Tulane) (*Pediatrics*)

K. Dewar; Ph.D.(Laval) (*Genome Quebec*)

R. Hernandez; Ph.D.(Cornell) (*Genome Innovation Centre*)

Y. Joly; Ph.D.(McG.) (*Centre of Genomics and Policy*)

J. Majewski; B.Sc., M.Sc.(Stan.), Ph.D.(Wesl.)

P. Moffatt; M.Sc.(UQAM), Ph.D.(Montr.) (*Pharmacology*)

R. Nadon; B.A., M.A., Ph.D.(C'dia)

I. Ragoussis; Ph.D.(Tübingen)

L. Russell; B.A., M.D.(Ind.) (*Pediatrics*)

A. Ryan; Ph.D.(Qu.)

R. Sladek; B.A.Sc., M.D.(Tor.)

R. Slim; M.Sc.(Lebanese), M.Sc., Ph.D.(Paris VII)

Y. Yamanaka; Ph.D.(Osaka) (*Rosalind and Morris Goodman Cancer Research Centre*)

Adjunct Professors

D. Gauguier (*Cordeliers Research Centre*)

C. Goldsmith (*Children's Hospital of Eastern Ontario*)

B. Gottleib (*Medicine*)

E-L. Grundberg (*The Children's Mercy Hospital*)

V.A. Hastings (*Children's Hospital of Eastern Ontario*)

C. Honeywell (*Children's Hospital of Eastern Ontario*)

T-M. Pastinen (*The Children's Mercy Hospital*)

J. Rutberg (*Children's Hospital of Eastern Ontario*)

Adjunct Member

D. Vinh; M.D. (*Dept. of Medical Microbiology; Medicine*)

Associate Members

Biochemistry: P. Gros, D. Thomas

Bioethics

HGEN 661	(3)	Population Genetics
HGEN 663	(3)	Beyond the Human Genome
HGEN 670	(3)	Advances in Human Genetics 1
HGEN 671	(3)	Advances in Human Genetics 2
HGEN 690	(3)	Inherited Cancer Syndromes
HGEN 691	(3)	Host Responses to Pathogens
HGEN 693	(3)	Using Bioinformatics Resources
HGEN 695	(3)	Psychiatric Genetics
HGEN 696	(3)	Advanced Readings in Genetics 1
HGEN 697	(3)	Advanced Readings in Genetics 2
HGEN 698	(3)	Advanced Readings in Genetics 3
HGEN 699	(3)	Advanced Readings in Genetics 4

Note: The Graduate Advisory Committee may stipulate additional coursework at the 500, 600, or 700 level depending on the background of the candidate.

12.2.5.6 Master of Science (M.Sc.) Human Genetics (Thesis): Bioinformatics (45 credits)

** This program is currently not offered. **

Thesis Courses (33 credits)

HGEN 680	(9)	M.Sc. Thesis Research 1
HGEN 681	(12)	M.Sc. Thesis Research 2
HGEN 682	(12)	M.Sc. Thesis Research 3

Required Courses (6 credits)

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar
HGEN 692	(3)	Human Genetics

Complementary Courses (6 credits)

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

Note: The Graduate Advisory Committee may stipulate additional coursework at the 500, 600, or 700 level depending on the background of the candidate.

12.2.5.7 Master of Science (M.Sc.) Human Genetics (Thesis): Bioethics (45 credits)

Thesis Courses (30 credits)

30 credits selected as follows:

HGEN 681	(12)	M.Sc. Thesis Research 2
HGEN 682	(12)	M.Sc. Thesis Research 3
HGEN 683	(6)	M.Sc. Thesis Research 4

Required Courses (12 credits)

12 credits from:

BIOE 680	(3)	Bioethical Theory
BIOE 681	(3)	Bioethics Practicum
HGEN 662	(3)	Laboratory Research Techniques
HGEN 692	(3)	Human Genetics

Complementary Courses (3 credits)

3 credits from the following:

BIOE 682	(3)	Medical Basis of Bioethics
CMPL 642	(3)	Law and Health Care
PHIL 643	(3)	Seminar: Medical Ethics
RELG 571	(3)	Ethics, Medicine and Religion

12.2.5.8 Master of Science (M.Sc.) Genetic Counselling (Non-Thesis) (48 credits)

Required Courses (48 credits)

HGEN 600D1	(3)	Genetic Counselling Practicum
HGEN 600D2	(3)	Genetic Counselling Practicum
HGEN 601	(3)	Genetic Counselling Principles
HGEN 610D1	(3)	Genetic Counselling: Independent Studies
HGEN 610D2	(3)	Genetic Counselling: Independent Studies
HGEN 617	(3)	Principles of Medical Genetics
HGEN 620	(3)	Introductory Field Work Rotations 1
HGEN 621	(6)	Intro Field Work Rotations 2
HGEN 630D1	(6)	Advanced Field Work Rotations
HGEN 630D2	(6)	Advanced Field Work Rotations
HGEN 640	(3)	Second Year Practicum 1
HGEN 641	(3)	Second Year Practicum 2
IPEA 503	(0)	Managing Interprofessional Conflict
PATH 653	(3)	Reading and Conference

12.2.5.9 Doctor of Philosophy (Ph.D.) Human Genetics

Candidates entering Ph.D. 1 must complete at least three years of full-time resident study (six terms). The normal and expected duration of the Ph.D. program is four to five years. A student who has obtained a master's degree at McGill in a related field, or at an approved institution elsewhere, and is proceeding in the same subject toward a Ph.D. degree may, upon the recommendation of the Graduate Training Committee, enter at the Ph.D. 2 level.

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 (3 credits)

HGEN 692	(3)	Human Genetics

HGEN 701	(0)	Ph.D. Comprehensive Examination

Complementary Courses (15 credits)

(15 credits or 6 credits depending on admission status as described above.)

Courses are to be chosen from the list below and/or from among 500-, 600-, or 700-level courses offered in the Faculties of Medicine and Science.

HGEN 660	(3)	Genetics and Bioethics
HGEN 661	(3)	Population Genetics
HGEN 663	(3)	Beyond the Human Genome
HGEN 690	(3)	Inherited Cancer Syndromes
HGEN 691	(3)	Host Responses to Pathogens
HGEN 693	(3)	Using Bioinformatics Resources
HGEN 695	(3)	Psychiatric Genetics
HGEN 696	(3)	Advanced Readings in Genetics 1
HGEN 697	(3)	Advanced Readings in Genetics 2
HGEN 698	(3)	Advanced Readings in Genetics 3
HGEN 699	(3)	Advanced Readings in Genetics 4

Students are restricted to taking the following courses:

HGEN 670	(3)	Advances in Human Genetics 1
HGEN 671	(3)	Advances in Human Genetics 2

Note: The Graduate Advisory Committee may stipulate additional coursework depending on the background of the candidate.

Doctor of Philosophy (Ph.D.) Human Genetics:

PHGY 603	(3)	Systems Biology and Biophysics

* Note: Students who enter in Ph.D. 1 will need to take an additional 6 credits of complementary courses chosen from the departmental offerings listed for the Ph.D. in Human Genetics and/or from among 500-, 600-, or 700-level courses in the Faculties of Medicine or Science.

12.2.6 Microbiology and Immunology

12.2.6.1 Location

Department of Microbiology and Immunology
Duff Medical Building, Room 511
3775 University Street
Montreal QC H3A 2B4
Canada
Telephone: 514-398-3061
Fax: 514-398-7052
Email: *grad.microimm@mcgill.ca*
Website: *mcgill.ca/microimm*

12.2.6.2 About Microbiology and Immunology

The Department offers graduate programs leading to the degrees of **M.Sc.** and **Ph.D.**. Each program is tailored to fit the needs and backgrounds of individual students. The graduate program is designed to offer students state-of-the-art training, concentrating on four key areas of research:

- cellular and molecular immunology;
- microbial physiology and genetics;
- molecular biology of viruses;
- medical microbiology.

Basic research discoveries in microbiology may lead to improved drug design and vaccine development to treat and prev73.1nTj3are

Candidates are required to hold a B.Sc. degree in microbiology and immunology, biology, biochemistry, or another related discipline; those with the M.D., D.D.S., or D.V.M. degrees are also eligible to apply. The minimum cumulative grade point average (CGPA) for acceptance into the program is 3.2 out of 4.0.

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. Before acceptance, appropriate exam results must be submitted directly from the

Adjunct Professors

A. Petronela; M.Sc., Ph.D.(Paris XI)

K. Pike; Ph.D.(Tor.)

W-K. Suh; Ph.D.(Tor.)

12.2.6.5 Master of Science (M.Sc.) Microbiology and Immunology (Thesis) (45 credits)

Thesis Courses (33 credits)

MIMM 697	(11)	Master's Research 1
MIMM 698	(11)	Master's Research 2
MIMM 699	(11)	Master's Research 3

Required Courses (6 credits)

MIMM 611	(3)	Graduate Seminars 1
MIMM 612	(3)	Graduate Seminars 2

Complementary Courses (6 credits)

Minimum 6 credits from:

	(3)	Biochemical Pathology

MIMM 616	(3)	Reading and Conference 1
MIMM 617	(3)	Reading and Conference 2
MIMM 618	(3)	Reading and Conference 3
MIMM 619	(3)	Reading and Conference 4

OR

Any life sciences-related courses at the 500 level or higher. Departmental approval is required.

12.2.7 Pharmacology and Therapeutics

12.2.7.1 Location

Department of Pharmacology and Therapeutics
McIntyre Medical Sciences Building
3655 Promenade Sir-William-Osler, Room 1325
Montreal QC H3G 1Y6
Canada
Telephone: 514-398-3623
Fax: 514-398-2045
Email: *gradstudies.pharmacology@mcgill.ca*
Website: *mcgill.ca/pharma*

12.2.7.2 About Pharmacology and Therapeutics

The Department of Pharmacology and Therapeutics offers training leading to **M.Sc.** (Thesis) and **Ph.D.** degrees.

Pharmacology is a multidisciplinary science that deals with all aspects of drugs and their interactions with living organisms. Thus, pharmacologists study the physical and chemical properties of drugs, their biochemical and physiological effects, mechanisms of action, pharmacokinetics, and therapeutic and other uses. The Department offers broad exposure and training in both basic and clinical research in a range of areas of specialty, including:

- neuropharmacology;
- reproductive pharmacology;
- endocrine pharmacology;
- receptor pharmacology;
- cardiovascular pharmacology;
- cancer;
- developmental pharmacology;
- autonomic pharmacology;
- clinical pharmacology;
- biochemical pharmacology;
- molecular biology;
- toxicology.

The present 51 full and affiliate members of the Department have research laboratories located in the McIntyre Medical Sciences Building and in a variety of hospitals, institutes, and industry including the Douglas Hospital Research Centre, Allan Memorial Institute, Montreal Children's Hospital, Montreal General Hospital, Montreal Heart Institute, Lady Davis Research Institute, Pfizer Canada, and MUHC Research Institute. The participation of researchers from both industry and government ensures the relevance of the Department's applications-oriented training programs.

section 12.2.7.5: Master of Science (M.Sc.) Pharmacology (Thesis) (45 credits)

The objective of the M.Sc. (Thesis) and Ph.D. degree training programs is to provide in-depth independent research experience in a specific area of pharmacology. The program leading to a master’s degree is designed to provide students the opportunity to acquire knowledge in pharmacology, to conduct a research project, to analyze data, and to write a thesis. Students will also receive essential training in research professionalism and scientific communication.

section 12.2.7.6: Master of Science (M.Sc.) Pharmacology (Thesis): Environmental Health Sciences (45 credits)

The M.Sc. in Pharmacology; Environmental Health Sciences focuses on the interplay between the environment and health. Environmental health research is highly interdisciplinary; students will be given the opportunity to acquire a broad environmental perspective on exposure sciences, hazard screening methodologies, epidemiological approaches, health implications of environmental quality, and policy approaches.

section 12.2.7.7: Doctor of Philosophy (Ph.D.) Pharmacology

The objective of the M.Sc. (Thesis) and Ph.D. degree training programs is to provide in-depth independent research experience in a specific area of pharmacology. The program leading to a doctoral degree is designed to provide students the opportunity to acquire knowledge in pharmacology, to conduct an original research project, to analyze data, and to write a thesis. Students will also receive essential training in research professionalism and scientific communication.

section 12.2.7.8: Doctor of Philosophy (Ph.D.) Pharmacology: Environmental Health Sciences

The Ph.D. in Pharmacology; Environmental Health Sciences program is designed to train professionals for advanced research, teaching, and leadership positions in environmental health sciences. The Option will add a distinct focus on the interplay between the environment and health research. Students will acquire a broad environmental perspective, including exposure sciences, hazard screening methodologies, epidemiological approaches, health implications of environmental quality, and policy approaches.

12.2.7.3 Pharmacology and Therapeutics Admission Requirements and Application Procedures

12.2.7.3.1 Admission Requirements

Candidates are required to hold a B.Sc. degree in a discipline relevant to the proposed field of study; those with the M.D., D.D.S., or D.V.M. degrees are also eligible to apply. A background in the health sciences is recommended, but programs in biology, chemistry, mathematics, and physical sciences may be acceptable.

Admission is based on a student's academic record, letters of assessment, and, whenever possible, interviews with staff members. Students are required to take the Graduate Record Examination Aptitude Test (*GRE*) and the Test of English as a Foreign Language (*TOEFL*) or the equivalent, except as follows: in accordance with McGill policy, only those whose mother tongue is English, who graduated from a recognized Canadian institution (anglophone or francophone), or who completed an undergraduate or graduate degree at a recognized foreign institution where English is the language of instruction are exempt from providing proof of competency in English.

Inquiries relating to all aspects of graduate study should be directed to the *Graduate Coordinator*, Department of Pharmacology and Therapeutics, as early as possible in each academic year.

12.2.7.3.2 Application Procedures

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

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

12.2.7.3.2.1 Additional Requirements

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

- Curriculum Vitae
- Personal Statement
- GRE – required for degrees from outside North America

12.2.7.3.3 Application Dates and Deadlines

Application opening dates are set by Enrolment Serviaches1hty Re

12.2.7.4 Pharmacology and Therapeutics Faculty

Chair

G. Multhaup

Graduate Program Director

T. Hébert

Emeritus Professors

R. Capek; M.D., Ph.D.(Prague)

B. Collier; Ph.D.

P. McLeod, M.D., Ph.D. (Manit.)

H.H. Zingg; M.D., Ph.D.(McG.)

Professors

D. Bernard; Ph.D.(Johns Hop.)

D. Bowie; B.Sc., Ph.D.(Lond.)

P.B.S. Clarke; M.A.(Camb.), Ph.D.(Lond.)

A.C. Cuello; M.D.(Buenos Aires), M.A., D.Sc.(Oxf.), F.R.S.C.

B.F. Hales; Ph.D.(McG.)

T. Hébert; Ph.D.(Tor.)

D. Maysinger; Ph.D.(USC)

A. McKinney; Ph.D.(Ulster)

G. Multhaup; Ph.D.(Cologne)

A. Ribeiro-da-Silva; M.D., Ph.D.(Oporto)

B. Robaire; Ph.D.(McG.)

H. Saragovi; Ph.D.(Miami)

M. Szyf; Ph.D.(Hebrew)

J. Trasler; M.D.,C.M., Ph.D.(McG.)

Associate Professors

B. Castagner; Ph.D.(Col.)

L. Münter; Ph.D.(Free Univ., Berlin)

J. Tanny; Ph.D.(Harv.)

J.F. Trempe; Ph.D.(Oxf.)

Assistant Professors

M. McKeague; Ph.D. (Car.)

A. Thanabalasuriar; Ph.D. (McG.)

Associate Members

C. Baglole; Ph.D.(Calg.)

S. Gauthier; M.D.(Montr.)

S. Laporte; Ph.D.(Sher.)

N. Luedtke; Ph.D. (Calif.-San Diego)

K. Mann; Ph.D. (Boston)

S. Nattel; M.D.,C.M.(McG.)

Associate Members

C. O'Flaherty; Ph.D.(Buenos Aires)

S. Rousseau; Ph.D.(Laval)

E. Zorychta; Ph.D.(McG.)

Adjunct Professors

B. Allen, S. Chemtob, Y. De Koninck, G. FitzHarris, J. S. Joyal, F. Le Boeuf, T. Sanderson, L. Stone

Affiliate Members

M. Boucher; Ph.D.(Montr.)

L. Breton; Ph.D.(Paris)

L. Garolalo; Ph.D.(McG.)

J. Gillard; Ph.D.(Tasmania)

J. Mancini; M.Sc., Ph.D.(McG.)

K. Meerovitch; Ph.D.(McG.)

C. Wright; M.D. (Harv.), PhD (Vrije)

12.2.7.5 Master of Science (M.Sc.) Pharmacology (Thesis) (45 credits)

The M.Sc. in Pharmacology focuses on research methodology, conducting a research project, analyzing data, and writing a thesis. It involves training in research professionalism, scientific communication, and statistics, critically analyzing scientific literature, and developing and conducting an original research project for scientific publication.

Thesis Courses (30 credits)

PHAR 696	(3)	Thesis Preparation
PHAR 697	(6)	Thesis Preparation 1
PHAR 698	(9)	Thesis Preparation 2
PHAR 699	(12)	Thesis Preparation 3

Required Courses (15 credits)

PHAR 601	(6)	Research Seminar
PHAR 602	(3)	Principles of Pharmacology
PHAR 609	(1)	Research Professionalism for Pharmacologists
PHAR 610	(2)	Scientific Communication for Pharmacologists
PHAR 712	(3)	Statistics for Pharmacologists

12.2.7.6 Master of Science (M.Sc.) Pharmacology (Thesis): Environmental Health Sciences (45 credits)

The M.Sc. in Pharmacology; Environmental Health Sciences program is designed to train professionals for advanced basic research, teaching, and leadership positions in environmental health sciences. The Option will add a distinct focus on the interplay between the environment and health research, including a broad environmental perspective, exposure sciences, hazard screening methodologies, epidemiological approaches, health implications of environmental quality, and policy approaches.

Thesis Courses (24 credits)

PHAR 696	(3)	Thesis Preparation
PHAR 698	(9)	Thesis Preparation 2
PHAR 699	(12)	Thesis Preparation 3

Required Courses (21 credits)

PHAR 601	(6)	Research Seminar
PHAR 602	(3)	Principles of Pharmacology
PHAR 609	(1)	Research Professionalism for Pharmacologists
PHAR 610	(2)	Scientific Communication for Pharmacologists
PHAR 670	(3)	Principles of Environmental Health Sciences 1
PHAR 671	(3)	Principles of Environmental Health Sciences 2
PHAR 712	(3)	Statistics for Pharmacologists

12.2.7.7 Doctor of Philosophy (Ph.D.) Pharmacology

The Ph.D. in Pharmacology focuses on research methodology, conducting a research project, analyzing data, and writing a thesis. It involves training in research professionalism, scientific communication, and statistics, critically analyzing scientific literature, and developing and conducting an original research project for scientific publication.

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)

PHAR 602	(3)	Principles of Pharmacology
PHAR 609	(1)	Research Professionalism for Pharmacologists
PHAR 610	(2)	Scientific Communication for Pharmacologists
PHAR 701	(0)	Ph.D. Comprehensive Exam
PHAR 712	(3)	Statistics for Pharmacologists

Complementary Courses (3 credits)

3 credits from the following:

PHAR 702	(3)	Topics in Pharmacology 1
PHAR 703	(3)	Topics in Pharmacology 2
PHAR 704	(3)	Topics in Pharmacology 3
PHAR 705	(3)	Topics in Pharmacology 4
PHAR 706	(3)	Topics in Pharmacology 5
PHAR 707	(3)	Topics in Pharmacology 6

or the equivalent, upon approval by the Graduate Training Committee (GTC.)

12.2.7.8 Doctor of Philosophy (Ph.D.) Pharmacology: Environmental Health Sciences

The Ph.D. in Pharmacology; Environmental Health Sciences program is designed to train professionals for advanced basic research, teaching, and leadership positions in environmental health sciences. The Option will add a distinct focus on the interplay between the environment and health research, including a broad environmental perspective, exposure sciences, hazard screening methodologies, epidemiological approaches, health implications of environmental quality, and policy approaches.

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.

section 12.2.8.6: Master of Science (M.Sc.) Physiology (Thesis): Bioinformatics (45 credits)

The intention of the Bioinformatics option is to train M.Sc. 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 of bioinformatics data, the integration of biological databases, and the use of algorithms and statistics. Students successfully completing the Bioinformatics option will be fluent in the concepts, language, approaches, and limitations of the field. The option consists of a number of interdisciplinary courses and a seminar designed to bring students from many backgrounds together and to provide a thorough overview of research in this field.

section 12.2.8.7: Master of Science (M.Sc.) Physiology (Thesis): Chemical Biology (45 credits)

The Chemical Biology option is designed to expose students to aspects of drug design and development, as well as their application to the study of physiological and pathophysiological processes. In addition to thesis work with appropriate mentors, students will participate in lectures, seminar courses, and thematic workshops; all of which are designed to familiarize students with the current state of the field. This interdisciplinary approach will develop researchers interested in academic careers or in the pharmaceutical and biotechnology industries.

section 12.2.8.8: Doctor of Philosophy (Ph.D.) Physiology

The doctoral program is intended for students from a strong academic background wishing to pursue research-intensive careers in academia, industry, orph

Professors

Phil Gold; C.C., B.Sc., M.Sc., Ph.D., M.D.,C.M.(McG.), F.R.C.P.(C), F.R.S.C. (*Douglas G. Cameron Professor of Medicine*) (*joint appt. with Medicine and Health Science*)

John Hanrahan; B.Sc.(Dal.), Ph.D.(Br. Col.)

David Goltzman; B.Sc., M.D.,C.M.(McG.) (*Antoine G. Massabki Professor of Medicine*) (*joint appt. with Medicine and Health Science*)

Steve Lomber; B.Sc.(Roch.), Ph.D.(Boston)

Gergely Lukacs; M.D., Ph.D.(Semmelweis)

Sheldon Magder; M.D.(Tor.) (*joint appt. with Medicine and Health Science*)

John Orlowski; B.Sc.(McG.), M.Sc., Ph.D.(Qu.) (*James McGill Professor*)

Alvin Shrier; B.Sc.(C'dia), Ph.D.(Dal.) (*Hosmer Professor of Physiology*)

John White; B.Sc., M.Sc.(Car.), Ph.D.(Harv.) (*joint appt. with Medicine and Health Science*)

Associate Professors

Claire Brown; B.Sc.(St. Mary's), Ph.D.(UWO)

Gil Bub; B.Sc., Ph.D.(McG.)

Erik Cook; B.Sc.E.E., M.E.E.(Rice), Ph.D.(Baylor Coll.)

Mladen Glavinovic; B.Sc.(Zagreb), M.Sc.(Tor.), Ph.D.(McG.)

Michael Guevara; B.Sc., B.Eng., Ph.D.(McG.)

Suresh Krishna; Ph.D. (New York University)

Anmar Khadra; B.Sc.(C'dia), M.Sc., Ph.D.(Wat.)

Reza Sharif-Naeini; B.Sc.(Montr.), M.Sc., Ph.D.(McG.)

Ursula Stochaj; Ph.D.(Cologne)

Associate Professor (Part-time)

Nicole Bernard; B.Sc.(McG.), Ph.D.(Duke)

Assistant Professors

Pouya Bashivan; B.Sc., M.Sc.(Iran), Ph.D.(Memp.)

Arjun Krishnaswamy; B.Sc. Ph.D.(McG.)

Judith Mandl; B.Sc.(Warw.), Ph.D.(Emory)

Anastasia Nijnik; M.Biochem., Ph.D.(Oxf.)

Masha Prager-Khoutorsky; B.Sc., Ph.D.(Hebrew)

Daniela Quail; B.Sc., Ph.D.(UWO)

Melissa Vollrath; B.Sc.(Wisc.), Ph.D.(BCM)

Associate Members

Anaesthesia: Steven Backman

Biomedical Engineering: Satya Prakash

Mathematics: Anthony Humphries

Medicine: Volker Blank, Mark Blostein, Andrey Cybulsky, Anne-Marie Lauzon, James Martin, Shafaat Rabbani, Simon Rousseau, Benjamin M. Smith, Mary Stevenson, Tomoko Takano, Elena Torban, Simon Wing

Microbiology and Immunology: Jörg Fritz

Neurology and Neurosurgery: Jack Antel, Daniel Guitton, Christopher Pack, Ed Ruthazer, Amir Shmuel, Jesper Sjöström, Jo Anne Stratton

Ophthalmology: Curtis Baker

Pharmacoloon, Chr0 0uuh6lw 0 0 1 110.485 8 Prr

Associate Members

Research in Neuroscience: Charles Bourque

Adjunct Professors

M. Craig, K. Cullen, P. Haghighi, J. Martinez-Trujillo

Associate Professor Post-Retirement

Ann Wechsler; B.A.(Tor.), M.Sc., Ph.D.(McG.)

Faculty Lecturer

Céline Aguer; M.Sc., Ph.D.(France), Outaouais campus

12.2.8.5 Master of Science (M.Sc.) Physiology (Thesis) (45 credits)

Thesis Courses (27 credits)

PHGY 621	(12)	Thesis 1
PHGY 622	(12)	Thesis 2
PHGY 623	(3)	M.Sc. Final Seminar

Required Courses (12 credits)

PHGY 601	(1)	M.Sc. Proposal Seminar
PHGY 602	(2)	Literature Search and Research Proposal
PHGY 604	(0)	Responsible Conduct in Research
PHGY 607	(3)	Laboratory Research 1
PHGY 608	(3)	Laboratory Research 2
PHGY 620	(3)	Progress in Research

Elective Courses (6 credits)

Students must select 6 approved credits in Physiology or Science at the 500 level or c2(Progror Science at the 500 l)bn61r2.e or Science at the 500 leM.Sc.) PhThesis)

PHGY 608	(3)	Laboratory Research 2

Complementary Courses (6 credits)

6 credits to be chosen from the following:

BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics

12.2.8.7 Master of Science (M.Sc.) Physiology (Thesis): Chemical Biology (45 credits)

** This program is currently not offered. **

The Graduate Option in Chemical Biology is centered on the pursuit of an original research project under the direction of one or more program mentors. This research training is augmented by student participation in lecture and seminar courses and in a series of thematic workshops, all of which are designed to expose students to the diverse approaches and research issues that characterize the current state of the field. Students with training in this interdisciplinary approach will be highly qualified to seek careers in academic research as well as the pharmaceutical and biotechnology industries.

Thesis Courses (27 credits)

PHGY 621	(12)	Thesis 1
PHGY 622	(12)	Thesis 2
PHGY 623	(3)	M.Sc. Final Seminar

Required Courses (12 credits)

PHGY 601	(1)	M.Sc. Proposal Seminar
PHGY 602	(2)	Literature Search and Research Proposal
PHGY 604	(0)	Responsible Conduct in Research
PHGY 607	(3)	Laboratory Research 1
PHGY 608	(3)	Laboratory Research 2
PHGY 620	(3)	Progress in Research

Complementary Courses (6 credits)

3 credits from the following Chemical Biology seminars:

BIOC 610	(1)	Seminars in Chemical Biology 1
BIOC 611	(1)	Seminars in Chemical Biology 3
BIOC 689	(1)	Seminars in Chemical Biology 2
BIOC 690	(1)	Seminars in Chemical Biology 4

3 credits from the following:

CHEM 502	(3)	Advanced Bio-Organic Chemistry
CHEM 503	(3)	Drug Discovery
PHAR 503	(3)	Drug Discovery and Development 1

12.2.8.8 Doctor of Philosophy (Ph.D.) Physiology

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 (8 credits)

PHGY 604	(0)	Responsible Conduct in Research
PHGY 701	(0)	Ph.D. Comprehensive Examination
PHGY 703	(1)	Ph.D. Progress Seminar 1
PHGY 704	(1)	Ph.D. Progress Seminar 2
PHGY 720	(1)	Ph.D. Seminar Course 1
PHGY 721	(1)	Ph.D. Seminar Course 2
PHGY 722	(1)	Ph.D. Seminar Course 3
PHGY 723	(1)	Ph.D. Seminar Course 4
PHGY 724	(1)	Ph.D. Seminar Course 5
PHGY 725	(1)	Ph.D. Seminar Course 6

Elective Courses (9 credits)

9 credits of Physiology or Science at the 500 level or above, in consultation with the GSAAC and the candidate's supervisor.

12.2.8.9 Doctor of Philosophy (Ph.D.) Physiology: Bioinformatics

** This program is currently not offered. **

Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the 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 (11 credits)

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar
PHGY 604	(0)	Responsible Conduct in Research
PHGY 701	(0)	Ph.D. Comprehensive Examination
PHGY 703	(1)	Ph.D. Progress Seminar 1
PHGY 704	(1)	Ph.D. Progress Seminar 2
PHGY 720	(1)	Ph.D. Seminar Course 1
PHGY 721	(1)	Ph.D. Seminar Course 2
PHGY 722	(1)	Ph.D. Seminar Course 3
PHGY 723	(1)	Ph.D. Seminar Course 4
PHGY 724	(1)	Ph.D. Seminar Course 5
PHGY 725	(1)	Ph.D. Seminar Course 6

Complementary Courses (6 credits)

6 credits to be chosen 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

12.2.8.10 Doctor of Philosophy (Ph.D.) Physiology: Chemical Biology

** This program is currently not offered. **

The Graduate Option in Chemical Biology is centered on the pursuit of an original research project under the direction of one or more program mentors. This research training is augmented by student participation in lecture and seminar courses and in a series of thematic workshops, all of which are designed to expose students to the diverse approaches and research issues that characterize the current state of the field. Students with training in this interdisciplinary approach will be highly qualified to seek careers in academic research as well as the pharmaceutical and biotechnology industries.

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 (11 credits)

BIOC 610	(1)	Seminars in Chemical Biology 1
BIOC 611	(1)	Seminars in Chemical Biology 3
BIOC 689	(1)	Seminars in Chemical Biology 2
BIOC 690	(1)	Seminars in Chemical Biology 4
PHGY 604	(0)	Responsible Conduct in Research
PHGY 701	(0)	Ph.D. Comprehensive Examination
PHGY 703	(1)	Ph.D. Progress Seminar 1
PHGY 704	(1)	Ph.D. Progress Seminar 2
PHGY 720	(1)	Ph.D. Seminar Course 1
PHGY 721	(1)	Ph.D. Seminar Course 2
PHGY 722	(1)	Ph.D. Seminar Course 3
PHGY 723	(1)	Ph.D. Seminar Course 4
PHGY 724	(1)	Ph.D. Seminar Course 5

Complementary Courses (6 credits)

6 credits from the following:

CHEM 502	(3)	Advanced Bio-Organic Chemistry
CHEM 503	(3)	Drug Discovery
PHAR 503	(3)	Drug Discovery and Development 1

12.3 Communication Sciences and Disorders

12.3.1 Location

School of Communication Sciences and Disorders
2001 McGill College

Email: *scsd@mcgill.ca*
Website: *mcgill.ca/scsd*

12.3.2 About Communication Sciences and Disorders

The School provides both professional and research training in communication sciences and disorders at the graduate level through its **M.Sc. (Applied)**, **M.Sc.**, and **Ph.D.** degrees. We were the first department in Canada to provide both clinical and research degrees. Our M.Sc.A. program aims to educate the next generation of well-prepared and innovative speech-language pathology professionals by providing enriched classroom training, clinical laboratory activities that enhance the transition from theory to practice, and outstanding clinical practicum experiences. Our research degrees are designed to develop leading researchers and scholars, who will go on to train future investigators in the field of communication sciences and disorders and who, through their research, will advance our understanding of the processes of human communication and its breakdown.

Our applied and research degrees may lead to employment in healthcare or educational facilities, academic settings, or private industry.

Interdisciplinary interactions are at the core of our research training approach, which includes preparation to conduct both fundamental and clinically applied investigations. Our professors have collaborative ties with many departments and institutes at McGill, including:

- psychology
- linguistics
- neuroscience
- otolaryngology
- biomedical engineering
- Montreal Neurological Institute and Hospital
- other Montreal universities

They also maintain national and international collaborations. Students can access this rich collaborative network via the *McGill Centre for Research on Brain, Language and Music*, a world-class interdisciplinary research centre established by the School. The multilingual context in which we reside provides a unique environment for language research.

The School offers:

- a professional degree in Communication Sciences and Disorders at the M.Sc. (Applied) level with specialization in Speech Language Pathology
- two research degrees: an M.Sc. (Research) and a Ph.D. in Communication Sciences and Disorders

Requirements for Licensure

The majority of provinces in Canada and certain states in the U.S. require that those intending to practise as speech-language pathologists within their borders comply with special provincial or state licensing regulations. Graduates wishing to practise in the province of Quebec must be members of the *Ordre des Orthophonistes et Audiologistes du Québec*

section 12.3.6: Master of Science, Applied (M.Sc.A.) Communication Sciences & Disorders (Non-Thesis): Speech-Language Pathology (82 credits)

Students pursuing the M.Sc.A. complete the basic academic content and clinical practica required in preparation for clinical practice as outlined by *Speech-Language and Audiology Canada* (SAC). [illegible] is very strong in our program. Our admission requirements emphasize basic sciences and do not require completion of a specific undergraduate degree. This flexible entry accommodates students with undergraduate degrees in different fields and promotes diversity within our student body. Our goal is to recruit and train skillful therapists and problem-solvers who can rely on a strong foundation in theory to address challenging clinical issues. Our M.Sc.A. graduates typically pursue professional careers working in schools, hospitals, rehabilitation centres, or in private practices. A subset of our graduates will enter a doctoral program (immediately or after a period of clinical employment) to pursue a research career.

Research Degrees – M.Sc. and Ph.D.

section 12.3.5: Master of Science (M.Sc.) Communication Sciences and Disorders (Thesis) (45 credits)

Selected candidates may be accepted into the M.Sc. research degree program. Each student's Advisory Committee designs an individualized program of study in collaboration with the student. The program can include graduate courses offered by the School and by other departments at McGill.

This program is designed for students who wish to combine research training with their clinical (M.Sc.A.) program or students from related fields who wish to gain research experience in communication sciences to prepare for doctoral studies. Students are required to take two semesters (6 credits) of statistics and complete a thesis. Admission to the M.Sc. research program requires identification of an SCSD professor(s) with relevant expertise to mentor the student through the thesis process. Graduates of our M.Sc. research program follow diverse career paths, some working in clinical settings (if they also have a clinical degree) or settings that combine clinical and research activities, and others continuing their research training at the doctoral level.

section 12.3.7: Doctor of Philosophy (Ph.D.) Communication Sciences and Disorders

Selected candidates may be accepted into the Ph.D. research degree program. Each student's Advisory Committee designs an individualized program of study in collaboration with the student. The program can include graduate courses offered by the School and by other departments at McGill.

Students pursuing a Ph.D. in SCSD have varied educational backgrounds, including both clinical and related non-clinical fields. Students who enter the program from a related field (e.g., Psychology, Linguistics) or without a master's thesis complete a Qualifying year, which includes coursework and a research project. This flexible entry attracts independent scholars with diverse backgrounds and interests, which creates a stimulating and enriched training environment. The main component of the Ph.D. program (beyond the Qualifying year) has minimal required coursework and is structured to support students as they develop and pursue an innovative, individualized program of doctoral studies. Admission to the doctoral program requires identification of a SCSD professor(s) with relevant expertise to mentor the student in this process. Ph.D. students have the opportunity to pursue an interdisciplinary specialization in language acquisition through the McGill Language Acquisition Program, which intersects with McGill departments of Linguistics, Psychology, and Education. Our Ph.D. graduates typically pursue academic careers in universities or research institutes, but some work in settings that combine research and professional activities.

section 12.3.8: Doctor of Philosophy (Ph.D.) Communication Sciences and Disorders: Language Acquisition

This unique interdisciplinary Ph.D. program is available for doctoral students across four departments at McGill including SCSD, Linguistics, Psychology, and Integrated Studies in Education. The program is designed to provide enriched training focused on the scientific exploration of language acquisition by different kinds of learners in diverse contexts. Students in the Language Acquisition Program are introduced to theoretical and methodological issues on language acquisition from the perspectives of cognitive neuroscience, theoretical linguistics, psycholinguistics, education, communication sciences and disorders, and neuropsychology. In addition to the SCSD Ph.D. requirements, students in this program must complete 3 credits of coursework in language acquisition outside their home department, and three interdisciplinary seminars (2 credits each) and must include a faculty member in the Language Acquisition Program on their thesis committee. More information about this program can be found at *mcgill.ca/linguistics/graduate/lap*.

12.3.3 Communication Sciences and Disorders Admission Requirements and Applications Procedures

12.3.3.1 Admission Requirements

McGill University Graduate and Postdoctoral Studies requires that applicants to graduate programs hold an undergraduate degree with a minimum B average (3.0 on a 4.0 point scale) or better, however as admission is highly competitive the mean GPA of admitted students is generally much higher. Please note that incomplete or late applications will not be considered.

English Language Requirement for non-Canadian Students

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

An applicant must hold an undergraduate degree in any discipline. The program is highly competitive and we have space for fewer than 10% of applicants; the mean cumulative undergraduate GPA for admitted students falls at around 3.8 on a 4.0 scale. There are 21 credits of prerequisite coursework, including 3 credits in statistics, and a total of 18 credits across the disciplines of Linguistics and Psychology or related areas (with a minimum of 6 credits each in Linguistics and Psychology). Please refer to *mcgill.ca/scsd/programs/slp/how-apply/prerequisite-courses* for important details on the nature of these prerequisites.

M.Sc. in Communication Sciences and Disorders

The M.Sc. provides research training for:

1. students who are also taking courses for professional qualification;
2. students who have a non-thesis professional degree in Communication Sciences and Disorders; and
3. students with degrees in related fields who wish to do research but not obtain professional qualification in Communication Sciences and Disorders.

Ph.D. in Communication Sciences and Disorders

Applicants should normally have a master's degree with thesis or its equivalent in Communication Sciences and Disorders or a related field (e.g., psychology, linguistics).

Students who possess an appropriate bachelor’s degree or master’s degree without thesis will also be considered for the Ph.D. program, but, if admitted, must first complete a Qualifying year of coursework and a research project. All applications received by the application deadlines are automatically considered for any internal funding or awards made available to the Department for recruitment purposes. Students who apply for Fall admission generally have the most options with respect to applying for external funding as well as for being considered for internal support.

12.3.3.2 Application Procedures

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

See *Univer*

12.3.4 Communication Sciences and Disorders Faculty

Director and Associate Dean

Susan Rvachew

Graduate Program Director

Linda Polka

Professors

Shari R. Baum; B.A.(Cornell), M.S.(Vermont), M.A., Ph.D.(Brown)

Marc D. Pell; B.A.(Ott.), M.Sc., Ph.D.(McG.)

Linda Polka; B.A.(Slippery Rock), M.A.(Minn.), Ph.D.(USF)

Susan Rvachew; B.Sc.(Alta.), M.Sc., Ph.D.(Calg.)

Karsten Steinhauer; M.Sc., Ph.D.(Dr.rer.nat)(Free Univ., Berlin)

Elin Thordardottir; B.A., M.Sc., Ph.D.(Wisc. Madison)

Associate Professors

Meghan Clayards; B.Sc.(Vic., BC), M.A., Ph.D.(Roch.)

Laura Gonnerman; B.A.(Boston), M.A.(Middlebury), Ph.D.(USC)

Aparna Nadig; B.A.(Reed), M.S., Ph.D.(Brown)

Nicole Yee-Key Li-Jessen; B.Sc., M.Phil.(HK), Ph.D.(Pitt.)

Assistant Professors

Noémie Auclair-Ouellet; B.A., M.Sc., Ph.D.(Laval)

Assistant Professors (Professional)

Kelly Root; B.A.(Ott.), M.Sc.(Dal.)

Sophie Vaillancourt; B.Sc., M.O.A.(Montr.), M.B.A.(McG.)

Faculty Lecturers

Mariska Burger; B.Sc.(Zuyd)

Lauren Tittley; B.Sc.(McG.), M.H.Sc.(Tor.)

Assistant Professors (Part-Time)

Christina Lattermann; Staatlich anerkannte Logopaedin(WWU Münster), M.Sc.(McG.), Ph.D.(Kassel)

Rosalee Shenker; B.Sc.(Syrac.), M.A.(Calif.), Ph.D.(McG.)

Faculty Lecturers (Part-Time)

Mary Jane Blais; B.Sc., M.Sc.(McG.)

Liliane Brunetti; B.Sc.(C'dia), M.Cl.Sc.(UWO)

Ariana Fraid; B.A., M.Sc.A.(McG.)

Suzanne Lalonde; B.A.(Montr.), M.Sc.A.(McG.)

Maia Masuda, B.Mus., M.Sc.(McG.)

Lisa Massaro; B.A.(York), M.Sc.A.(McG.)

Tanya Matthews; B.A.(N. Carolina St.), M.A.(Hampton), Ph.D.(McG.)

Gina Mills; B.Sc.(Acad.), M.Sc.(Dal.)

Chelsea Osei, B.A.(Queens), M.Sc.A.(McG.)

Amanda Ovadia; B.Sc., M.Sc.A.(McG.)

Faculty Lecturers (Part-Time)

Eve Julie Rioux; B.A.(Montr.), M.Sc.A.(McG.)

Jordan Scholl, BSc., MSc. (Guelph), MHSc. (Toronto)

Part-Time Professor

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SCSD 609	(3)	Neuromotor Disorders
SCSD 616	(3)	Audiology
SCSD 617	(3)	Anatomy and Physiology: Speech and Hearing
SCSD 618	(3)	Research and Measurement Methodologies 1
SCSD 619	(3)	Phonological Development
SCSD 624	(3)	Language Processes
SCSD 631	(3)	Speech Science
SCSD 632	(3)	Phonological Disorders: Children
SCSD 633	(3)	Language Development
SCSD 636	(3)	Fluency Disorders
SCSD 637	(3)	Developmental Language Disorders 1
SCSD 638	(3)	Neurolinguistics
SCSD 639	(3)	Voice Disorders
SCSD 642	(3)	Aural Rehabilitation
SCSD 643	(3)	Developmental Language Disorders 2
SCSD 644	(3)	Applied Neurolinguistics
SCSD 646	(4)	Introductory Clinical Practicum
SCSD 664	(3)	Augmentative and Alternative Communication
SCSD 669	(3)	ASD and Neurodevelopmental Disorders
SCSD 679	(12)	Advanced Clinical Practicum
SCSD 680	(3)	Deglutition and Dysphagia
SCSD 681	(1)	Practicum and Seminar 1
SCSD 682	(1)	Practicum and Seminar 2
SCSD 683	(1)	Practicum and Seminar 3
SCSD 684	(1)	Practicum and Seminar 4
SCSD 688	(1)	Genetics in Speech-Language Pathology Practice
SCSD 689	(1)	Management Cranio-Facial Disorders

Complementary Courses (3 credits)

3 credits from the following:

SCSD 666	(3)	Communication Sciences and Disorders 3
SCSD 667	(3)	Communication Sciences and Disorders 4
SCSD 670	(3)	Communication Sciences and Disorders 2
SCSD 678	(3)	Special Topics 4

12.3.7 Doctor of Philosophy (Ph.D.) Communication Sciences and Disorders

The Ph.D. program provides a foundation for creative research and scientific problem-solving in communication sciences (speech, language, hearing, voice) in typical and atypical populations. The program structure is flexible to encourage students to customize their program through the selection of coursework, seminars, comprehensive topics, research experiences, and thesis topic. The School's doctoral program follows a mentor model and students work closely with faculty supervisors who have international reputations in their respective areas.

Students who have completed a Master’s degree with research thesis in Communication Sciences and Disorders or a related area are admitted at level PhD 2. High-caliber students who have not completed a research thesis at the Master’s level can enter the Qualifying Year Program (admitted at level PhD 1), which includes extra requirements (coursework and a research project) at the onset of the program.

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)

For both PhD 1 and PhD 2:

SCSD 652	(3)	Advanced Research Seminar 1
SCSD 653	(3)	Advanced Research Seminar 2
SCSD 701	(0)	Doctoral Comprehensive

Complementary Courses (6 or 21 credits)

For both PhD 1 and PhD 2: 6 credits of statistics courses at the 500 level or higher, pre-approved by the supervisor and the graduate program director.

In addition to the above, students entering at PhD 1 must take the following 15 credits:

SCSD 654	(3)	Advanced Research Seminar 3
SCSD 685	(3)	Research Project 1
SCSD 686	(3)	Research Project 2

Plus 6 credits, of graduate-level courses, pre-approved by the supervisor and the graduate program director.

12.3.8 Doctor of Philosophy (Ph.D.) Communication Sciences and Disorders: Language Acquisition

This unique interdisciplinary program focuses on the scientific

EDSL 711	(2)	Language Acquisition Issues 3

In addition to the above, students entering at PhD 1 must take the following 15 credits:

SCSD 654	(3)	Advanced Research Seminar 3
SCSD 685	(3)	Research Project 1
SCSD 686	(3)	Research Project 2

Plus 6 credits, of graduate-level courses pre-approved by the supervisor and the graduate program director.

12.4 Population and Global Health

12.4.1 Location

School of Population and Global Health
772 Sherbrooke Street West, 3rd floor
Montreal QC H3A 1G1
Telephone: 514-398-5776
Email: *spgh.med@mcgill.ca*
Website: *mcgill.ca/spgh*

12.4.2 Bioethics

12.4.2.1 Location

Biomedical Ethics Unit
3647 Peel Street
Montreal QC H3A 1X1
Canada
Telephone: 514-398-6668
Website: *mcgill.ca/biomedicalethicsunit/teaching/masters*

For information, contact the Graduate Program Director:

Jennifer Fishman – *jennifer.fishman@mcgill.ca*

12.4.2.2 About Bioethics

The Biomedical Ethics Unit was established in 1996 with the aim of supporting scholarly research, clinical services, teaching, and public outreach. Members of the unit have backgrounds in law, sociology, molecular genetics, history, medicine, and philosophy. We offer a master's degree specialization in biomedical ethics for selected master's students in the Division of Experimental Medicine, the Department of Family Medicine, Department of Human Genetics, Department of Philosophy, School of Religious Studies, and Faculty of Law.

Master's Specialization in Bioethics

The Master's Specialization in Bioethics is sponsored by the:

- Faculty of Medicine and Health Sciences, Division of Experimental Medicine, Department of Human Genetics, Department of Family Medicine;
- Faculty of Law; and
- Faculty of Arts, Department of Philosophy, School of Religious Studies.

Students receive an **M.A.**, **LL.M.**, or **M.Sc.** degree in the discipline chosen with a specialization in Bioethics.

Some applicants are mid-career professionals currently working as physicians, nurses, social workers, other health care providers, or lawyers. Other applicants have recently completed their undergraduate degrees in science, philosophy, law, religious studies, or other disciplines, and wish to pursue specialized master's le

12.4.2.3 Bioethics Admission Requirements and Application Procedures

12.4.2.3.1 Admission Requirements

M.D., professional training in a health science, or bachelor's degree in the sciences, social sciences, law, philosophy, or religious studies. Other students may be considered on an individual basis.

Enrolment is limited to 12 students.

12.4.2.3.2 Application Procedures

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

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

Applications for the Master's Specialization in Bioethics are made initially through the Faculties of Law, Medicine and Health Sciences (Division of Experimental Medicine, Department of Human Genetics, Department of Family Medicine), and Arts (Department of Philosophy, School of Religious Studies).

Applicants must satisfy the admission criteria for their chosen discipline and those of the Bioethics Unit, which administers the program and teaches the core courses; see *mcgill.ca/biomedicalethicsunit/teaching/masters/apply*.

Applicants must be accepted by the appropriate Faculty, the Bioethics Graduate Studies Advisory Committee, and Graduate and Postdoctoral Studies.

Associate Members

B. Thombs (*Psychiatry*)

D. Weinstock (*Institute for Health and Social Policy*)

M.H. Zawati (*Human Genetics*)

K. Voigt (*Department of Philosophy*)

12.4.3 Epidemiology and Biostatistics

12.4.3.1 Location

Department of Epidemiology, Biostatistics and Occupational Health
1020 Pine Avenue West
Montreal QC H3A 1A2
Canada
Telephone: 514-398-6258
Email: *graduate.eboh@mcgill.ca*
Website: *mcgill.ca/epi-biostat-occh*

12.4.3.2 About Epidemiology and Biostatistics

The Department offers **master's and doctoral programs in both Epidemiology and Biostatistics**, as well as a **Master's of Science in Public Health**. The methods learned in these fields are used not only in the study of diseases, but also in clinical research; health services research; public health; program planning and evaluation; and policy development. Our faculty members are at the forefront of their research domains and include epidemiologists, biostatisticians, clinician scientists, medical informatics specialists, public health specialists, health economists, medical sociologists, and health geographers.

Research in the Department spans a broad range of areas, including:

- biostatistics;
- clinical and public health informatics;
- environmental and occupational health;
- health care delivery and organization;
- infectious diseases;
- pharmacoepidemiology;
- population and public health;
- social epidemiology;
- epidemiologic methods;
- chronic diseases;
- reproductive and perinatal epidemiology;
- genetic epidemiology;
- global health;
- causal inference;
- and many cross-disciplinary activities.

Faculty members may have funding available for students through their research grants. We provide rich research environments at five university-affiliated hospitals, public health agencies, and university research centres. Graduates pursue careers in academia, clinical settings, government agencies, NGOs, and industry.

12.4.3.3 Epidemiology, Biostatistics and Occupational Health Faculty

Chair

R. Platt - Interim Chair

Emeritus Professors

J.-F. Boivin; M.D.(Laval), S.M., Sc.D.(Harv.)

L. Joseph; M.Sc., Ph.D.(McG.)

Emeritus Professors

M.S. Kramer; B.A.(Chic.), M.D.(Yale)

J. McCusker; M.D.,C.M.(McG.), M.P.H., Ph.D.(Col.)

O.S. Miettinen; M.D.(Helsinki), M.P.H., M.S., Ph.D.(Minn.)

I.B. Pless; B.A., M.D.(UWO)

S.H. Shapiro; B.S.(Bucknell), M.S., Ph.D.(Stan.)

G. Thériault; M.D.(Laval), M.I.H., Dr.P.H.(Harv.) - In Memoriam

S. Wood-Dauphinee; B.Sc.(Phys.Ther.), Dip.Ed., M.Sc.(A.), Ph.D.(McG.)

Professors Post-Retirement

L. Joseph; M.Sc., Ph.D.(McG.)

I.B. Pless; B.A., M.D.(UWO)

Associate Professors Post-Retirement

B. Case; B.Sc., M.D.,C.M., M.Sc.(McG.), Dip.Occ.Hyg., F.R.C.P.(C)

A. Ciampi; M.Sc., Ph.D.(Qu.), Ph.D.(Rome)

Professors

M. Abrahamowicz; Ph.D.(Cracow) (*James McGill Professor*)

J. Brophy; B.Eng.(McG.), M.Eng., M.D.(McM.), Ph.D.(McG.) (*joint appt. with Medicine*)

D. Buckeridge; M.D.(Qu.), M.Sc.(Tor.), Ph.D.(Stan.) (*CIHR Applied Public Health Chair*)

T. Evans; B.Sc.(Ott.), D.Phil.(Oxf.), M.D.(McM.)

E.L.F. Franco; M.P.H., Dr.P.H.(UNC-Chapel Hill) (*joint appt. with Oncology*) (*James McGill Professor*)

R. Fuhrer; B.A.(Brooklyn Coll., CUNY), M.Sc., Ph.D.(Calif., San Francisco)

C. Greenwood; B.Sc.(McG.), M.Sc.(Wat.), Ph.D.(Tor.) (*joint appt. with Oncology*)

T.W. Gyorkos; B.Sc.(McG.), M.Sc.(Bishop's), Ph.D.(McG.)

C. Hankins; B.A., M.D.(Calg.), M.Sc.(Lond.), Ph.D.(Amster.), C.C.F.P., F.R.C.P.(C)

J.A. Hanley; B.Sc., M.Sc.(NUI), Ph.D.(Wat.) (*joint appt. with Medicine*)

C. Infante-Rivard; M.D.(Montr.), M.P.H.(Calif.-LA), Ph.D.(McG.), F.R.C.P.(C) (*James McGill Professor*)

J. Kaufman; B.A.(Johns Hop.), Ph.D.(Mich.)

R. Menzies; M.D.,C.M., M.Sc.(McG.) (*joint appt. with Medicine*)

E.E.M. Moodie; B.A.(Winn.), M.Phil.(Camb.), Ph.D.(Wash.) (*William Dawson Scholar*)

M. Pai; M.B.B.S.(Stanley Med. Coll.), M.D.(Christian Med. Coll.), Ph.D.(Calif., Berk.) (*Canada Research Chair*)

G. Paradis; M.D.(Montr.), M.Sc.(McG.), F.R.C.P.(C) (*Strathcona Prof. in Epidemiology*)

R.W. Platt; B.Sc.(McG.), M.Sc.(Manit.), Ph.D.(Wash.) (*joint. appt. with Pediatrics*) (*Albert Boehringer 1st Chair in Pharmacoepidemiology*)

A. Quesnel-Vallée; B.A., M.Sc.(Montr.), M.A., Ph.D.(Duke) (*joint appt. with Sociology*) (*Canada Research Chair*)

A. Schmidt; B.Sc., M.Sc.(UFRJ, Brazil), Ph.D.(Sheff.)

S. Suissa; M.Sc.(McG.), Ph.D.(Flor.) (*joint appt. with Medicine*) (*James McGill Professor*)

R. Tamblyn; M.Sc.(McM.), Ph.D.(McG.) (*joint appt. with Medicine*) (*James McGill Professor*)

C. Wolfson; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with Medicine*)

Associate Professors

A. Adrien; M.D., M.Sc.(McG.)

R. Allard; B.A.(Montr.), M.D.,C.M., M.Sc.(McG.)

L. Azoulay; B.Sc.(Montr.), M.Sc.(McG.), Ph.D.(Montr.) (*joint appt. with Oncology*) (*FRQ-S CB Jr 2*) (*William Dawson Scholar*)

Associate Professors

O. Basso; Ph.D.(Milan) (*joint appt. with Obstetrics and Gynecology*)

N. Basta; B.A.(Princ.), M.Phil. (Camb. IPH), Ph.D.(Wash. SPH)

J. Baumg

Associate Members

N. Mayo, S. Morin, S. Pamidi, N. Pant Pai, L. Pilote, E. Rahme, B. Richards, R. Sapir-Pichhadze, K. Schwartzman, G. Sebastiani, M. Sewitch, J. Shahin, I. Shrier, B. M. Smith, V. Tagalakis, G. Thanassoulis, E. Vinet

Neurology and Neurosurgery: C, Renoux

Ob/Gyn: H. Abenhaim, R. Gagnon

Pediatrics: G. Altit, M. Beltempo, M. Ben Shoshan, B. Burstein, E. Constantin, G. Dougherty, P. Fontela, B. Foster, P.T-S. Lee, M. Nakhla, M. Oskoui, J. Papenburg

Physical and Occupational Therapy: S. Ahmed

Psychiatry: S.N. Iyer, E. Latimer, A. Malla, X. Meng, N. Schmitz, J. Shah, B. Thombs

Sociology: S. Clark

Surgery: A. Andalib, D. Deckelbaum, S. Dumitra, F-H. (L) Lee, A. N. Merguerditchian

Lecturers

J.P. Courteau, C. Fuller, M. Kafka, E. Manthorp, C. Kom Mogto, S.-A. Mercure, C. Paquette, B. Pinard, N. Savard

Adjunct Professors

- clinical and public health informatics;
- environmental and occupational health;
- health care delivery and organization;
- infectious diseases;
- pharmacoepidemiology;
- population and public health;
- social epidemiology;
- epidemiologic methods;
- chronic diseases;
- reproductive and perinatal epidemiology;
- genetic epidemiology;
- global health;
- causal inference;
- and many cross-disciplinary activities.

Faculty members may have funding available for students through their research grants. We provide rich research environments at five university-affiliated hospitals, public health agencies, and university research centres. Graduates pursue careers in academia, clinical settings, government agencies, NGOs, and industry.

section 12.4.3.4.3: Master of Science (M.Sc.) Epidemiology (Thesis) (45 credits)

Applicants to the M.Sc. program should preferably hold a bachelor's degree in the natural sciences (e.g., chemistry, microbiology, human genetics), quantitative sciences (e.g., computer science, statistics), or social sciences (e.g., sociology, psychology, economics, geography), or hold a degree in one of the health professional sciences (e.g., medicine, nursing, social work, nutrition). Applicants must have an interest in health research, along with strong conceptual, analytic, and quantitative skills (e.g., differential and integral calculus, statistics) at the undergraduate level.

The program leading to a master's degree is designed to provide training in both theory and practice in the selected discipline. Courses require intellectual and academic rigour, and the program provides students with an opportunity to synthesize the training in the form of a thesis. Students will study the foundations and principles of epidemiology and applied biostatistics, in order to design, conduct, and analyze clinical, population-based, environmental, pharmaco-epidemiological, policy, and methodological health-related research. Graduates of the program often go on to do doctoral work or become research associates in public, private, and academic settings. McGill graduates are known for methodological and quantitative rigour, and quantitative analytic independence. While their core training is in methods, rather than specific substantive areas, students learn about substantive areas in the context of their research and through elective courses.

section 12.4.3.4.4: Master of Science (M.Sc.) Epidemiology (Non-Thesis): Environmental & Occupational Health (48 credits)

This program provides in-depth training in methods used in Environmental and Occupational Health (EOH) and the application of these methods to study the effects of environmental and occupational exposures on human health. Students will be provided with tools to critically evaluate studies in EOH and be able to participate in these studies; learn how to apply specific methods to environmental and occupational problems; and understand how to apply research results to public health or policy. Career opportunities exist in academia, industry, and the public health sectors. Each student will be assigned a supervisor to provide guidance for their project. Research topics must relate to environmental and occupational health and receive approval from the program coordinating committee.

section 12.4.3.4.5: Master of Science (M.Sc.) Epidemiology (Non-Thesis): Pharmacoepidemiology (48 credits)

Applicants to the Pharmacoepidemiology Option of the M.Sc. (Non-Thesis) program should hold a bachelor's degree in the natural or quantitative sciences (e.g., chemistry, microbiology, computer science, statistics, economics) or hold a degree in one of the health professional sciences (e.g., medicine, pharmacy). Applicants must have an interest in the epidemiology of medications, along with strong conceptual, analytic, and quantitative skills (e.g., differential and integral calculus, statistics) at the undergraduate level. The Pharmacoepidemiology Option is designed to provide training in both theory and practice of pharmacoepidemiology. Students will study the foundations and principles of epidemiology and applied biostatistics in order to design, conduct, and analyze pharmacoepidemiological research. Courses require intellectual and academic rigour, and the program provides students with an opportunity to obtain specialized training in pharmacoepidemiology, including pharmacoepidemiologic methods, pharmacology for pharmacoepidemiologists, and practical experience in the form of a research project. Graduates of the program often go on to do doctoral work or become research associates in public, private, and academic settings. McGill has a world-renowned reputation for excellence in pharmacoepidemiology, and McGill-trained pharmacoepidemiologists are known for methodological and quantitative rigour, and quantitative analytic independence.

section 12.4.3.4.7: Doctor of Philosophy (Ph.D.) Epidemiology

This program may be of interest to students from the natural or quantitative sciences (e.g., microbiology, computer science, statistics, economics, geography), quantitative social sciences (e.g., sociology, psychology), or the health professions (e.g., medicine, nursing, social work, nutrition). Applicants must have an interest in health research, along with strong conceptual, analytic, and quantitati

section 12.4.3.4.7: Doctor of Philosophy (Ph.D.) Epidemiology

The Ph.D. program prepares students with the advanced epidemiological research skills needed to undertake original contributions to new knowledge related to the determinants of health and disease, prevention, prognosis, treatment, and outcomes. The program is generally completed in four to five years. Graduates will be prepared to engage in scientific collaboration, and communicate results to other scientists and diverse audiences. They will go on to careers in public health, health planning, and quality monitoring in local, regional, federal, and international health authorities, statistical and technology assessment agencies, the pharmaceutical industry, and in clinical and academic research organizations. McGill graduates are known for their methodological and quantitative rigour and quantitative analytic independence. While their core training is methodological, rather than specific substantive areas, students learn about substantive areas in the context of their research and through elective courses.

section 12.4.3.4.8: Doctor of Philosophy (Ph.D.) Epidemiology: Global Health

Students admitted to the Ph.D. degree in Epidemiology who have an interest in global health can receive additional recognition for completing the Global Health Option within their degree program. Students can fulfill the requirements for both the Ph.D. and the Global Health Option within the normal Ph.D. timeline. Over and above the core Ph.D. training, students in the Global Health Option will undertake global health-dedicated coursework and their thesis will be of relevance to global health. This additional global health training will provide students with insight into the major global health challenges of today's world. This area of study, research, and practice prioritizes improving health and achieving equity in health for all people worldwide. McGill and its affiliated hospitals have close to 200 researchers involved in global health work, from basic biomedical research on tropical diseases to large-scale population studies on the social determinants of health. Students at McGill can be exposed to the work of 20 teams working in all major areas of global health, including Infectious and Tropical Diseases; Global Environmental Health; and Global Mental Health, among others. For more information, visit *mcgill.ca/globalhealth*. With this additional Global Health qualification, Ph.D. graduates will benefit from opportunities for future training or work in those institutions or organizations that are active in global health.

*section 12.4.3.4.9: Doctor of Philosophy (Ph.D.) Epidemiology: Pharmacoepidemiology*The Ph.D. poepidemiologyThe P1 0 0 1 403.986 52(o Tm94(The Pentistscr f

- infectious diseases;
- maternal and child health;
- aboriginal health;
- global health.

Graduates are highly sought after for careers in government agencies, NGOs, clinical settings, research, and industry.

section 12.4.3.4.6

	Application Opening Dates	Application Deadlines			
Fall Term:	Sept. 15	Dec. 15	Dec. 15	Dec. 15	April 30
Winter Term:	Feb. 15	N/A	N/A	N/A	Sept. 10
Summer Term:	N/A	N/A	N/A	N/A	N/A

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

12.4.3.4.3 Master of Science (M.Sc.) Epidemiology (Thesis) (45 credits)

Students will study the foundations and principles of epidemiology and applied biostatistics, in order to design, conduct, and analyze clinical, population-based, environmental, policy, and methodological health-related research. Graduates will be prepared to engage in scientific collaboration, and communicate results to other scientists and diverse audiences.

Thesis Course (21 credits)

EPIB 690	(21)	M.Sc. Thesis

Required Courses (21 credits)

Students exempted from any of the courses listed below must replace them with additional complementary course credits.

EPIB 601	(4)	Fundamentals of Epidemiology
EPIB 603	(4)	Intermediate Epidemiology
EPIB 605	(1)	Critical Appraisal in Epidemiology
EPIB 607	(4)	Inferential Statistics
EPIB 613	(1)	Introduction to Statistical Software
EPIB 621	(4)	Data Analysis in Health Sciences
		F

3 credits in:

PPHS 613	(3)	The Practice of Global Health

6 credits from:

EPIB 681	(3)	Global Health: Epidemiological Research
PPHS 511	(3)	Fundamentals of Global Health
		Health Care Systems in Comparative Perspective

6 credits from:

EPIB 654	(2)	Pharmacoepidemiology 4
EPIB 661	(2)	Pharmacoepidemiology 3
EPIB 662	(1)	Pharmacological Basis of Pharmacoepidemiology
EPIB 701	(0)	Ph.D. Comprehensive Examination
EPIB 702	(0)	Ph.D. Proposal
EPIB 703	(2)	Principles of Study Design
EPIB 704	(4)	Doctoral Level Epidemiologic Methods 1
EPIB 705	(4)	Doctoral Level Epidemiologic Methods 2
EPIB 706	(3)	Doctoral Seminar in Epidemiology
EPIB 707	(3)	Research Design in Health Sciences

Complementary Courses (3 credits)

3 credits of coursework in biostatistics at the 500 level or higher. Courses must be chosen in consultation with the student's supervisor and/or the degree program's director or adviser.

12.4.3.4.10 Doctor of Philosophy (Ph.D.) Epidemiology: Population Dynamics

The Ph.D. in Epidemiology; Population Dynamics program focuses on training in demographic methods (including life table analyese) and critical population dynamic issues such as population health, migration, aging, family dynamics, and labour markets.

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 (22 credits)

EPIB 701	(0)	Ph.D. Comprehensive Examination
EPIB 702	(0)	Ph.D. Proposal
EPIB 703	(2)	Principles of Study Design
EPIB 704	(4)	Doctoral Level Epidemiologic Methods 1
EPIB 705	(4)	Doctoral Level Epidemiologic Methods 2
EPIB 706	(3)	Doctoral Seminar in Epidemiology
EPIB 707	(3)	Research Design in Health Sciences
SOCI 545	(3)	Sociology of Population
SOCI 626	(3)	Demographic Methods

Complementary Courses (9 credits)

9 credits of coursework, at the 500 level or higher, with a minimum of 3 credits in biostatistics, 3 credits in epidemiology, and 3 credits from courses approved for the Population Dynamics Option from the list below:

ECON 622	(3)	Public Finance
ECON 634	(3)	Economic Development 3
ECON 641	(3)	Labour Economics
ECON 734	(3)	Economic Development 4
ECON 741	(3)	Advanced Labour Economics
ECON 742	(3)	Empirical Microeconomics
ECON 744	(3)	Health Economics
EPIB 648	(3)	Methods in Social Epidemiology

EPIB 681	(3)	Global Health: Epidemiological Research
PPHS 525	(3)	Health Care Systems in Comparative Perspective
PPHS 528	(3)	Economic Evaluation of Health Programs
PPHS 529	(3)	Global Environmental Health and Burden of Disease
PPHS 615	(3)	Introduction to Infectious Disease Epidemiology
SOCI 502	(3)	Sociology of Fertility
SOCI 512	(3)	Ethnicity & Public Policy
SOCI 513	(3)	Social Aspects HIV/AIDS in Africa
SOCI 520	(3)	Migration and Immigrant Groups
SOCI 525	(3)	Health Care Systems in Comparative Perspective
SOCI 535	(3)	Sociology of the Family
SOCI 588	(3)	Biosociology/Biodemography

Courses must be chosen in consultation with the student's supervisor and/or the degree program's director or adviser.

12.4.3.5 Biostatistics

Biostatistics involves the dev

12.4.3.5.3 Master of Science (M.Sc.) Biostatistics (Non-Thesis) (48 credits)

Training in statistical theory and methods, applied data analysis, scientific collaboration, communication, and report writing by coursework and project.

Research Project (6 credits)

BIOS 630	(6)	Research Project/Practicum in Biostatistics

Required Courses (24 credits)

Students exempted from any of the courses listed below must replace them with additional complementary course credits.

BIOS 601	(4)	Epidemiology: Introduction and Statistical Models
BIOS 602	(4)	Epidemiology: Regression Models
MATH 523	(4)	Generalized Linear Models
MATH 533	(4)	Regression and Analysis of Variance
MATH 556	(4)	Mathematical Statistics 1
MATH 557	(4)	Mathematical Statistics 2

Complementary Courses (18 credits)

18 credits of coursew

6 credits (chosen and approved in consultation with the student's academic adviser), at the 500 level or higher, in related fields (e.g., epidemiology, social sciences, biomedical sciences).

12.4.4 Occupational Health

12.4.4.1 Location

Department of Epidemiology, Biostatistics and Occupational Health
Purvis Hall
1020 Pine Avenue West
Montreal QC H3A 1A2
Canada
Telephone: 514-398-6258
Email: *graduate.eboh@mcgill.ca*
Website: *mcgill.ca/epi-biostat-occh*

12.4.4.2 About Occupational Health

The Department offers two graduate degree programs: a **master's** (M.Sc.A.) and **doctoral** (Ph.D.) in occupational health sciences. The master's program is available on campus or in distance education format. Special Student status is encouraged for students who wish to take only specific courses from our M.Sc. program, but there is a maximum of 12 credits overall, with a maximum of 6 credits per semester, for those with Special Student status.

Students are required to have access to a computer and the Internet, as some of the course material is most readily available online.

Note: We are not accepting applications for the Occupational Health M.Sc.A. (Distance) or Ph.D. programs until further notice.

section 12.4.4.5: Master of Science, Applied (M.Sc.A.) Occupational Health (Non-Thesis) (Resident) (46 credits)

A three-term program leading to the degree of Master of Science (Applied) (M.Sc.A.) in Occupational Health Sciences, appropriate for graduates from engineering and basic sciences, physicians, and nurses. Occupational health training allo

Note: We are not accepting applications for the Occupational Health Distance program until further notice.

Candidates should have completed, with a standing equivalent to a minimum cumulative grade point average (CGPA) of 3.0 out of 4.0, one of the requisites below:

- a Bachelor of Science degree, or its equiits equi

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