Faculty of Medicine (Graduate)

Programs, Courses and University Regulations

2011-2012

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

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2. In the interpretation of academic regulations, the Senate is the final authority.
3. Students are responsible for informing themselves of the University's procedures, policies and regulations, and the specific requirements associated with the degree, diploma, or certificate sought.
4. All students registered at McGill University are considered to have agreed to act in accordance with the University procedures, policies and regulations.
5. Although advice is readily available on request, the responsibility of selecting the appropriate courses for graduation must ultimately rest with the student.
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7. The academic publication year begins at the start of the Fall semester and extends through to the end of the Winter semester of any given year. Students who begin study at any point within this period are governed by the regulations in the publication which came into effect at the start of the Fall semester.
8. Notwithstanding any other provision of the publication, it is expressly understood by all students that McGill University accepts no responsibility to provide any course of instruction, program or class, residential or other services including the normal range of academic, residential and/or other services in circumstances of utility interruptions, fire, flood, strikes, work stoppages, labour disputes, war, insurrection, the operation of law or acts of God or any other cause (whether similar or dissimilar to those enumerated) which reasonably prevent their provision.

Note: Throughout this publication, "you" refers to students newly admitted, readmitted or returning to McGill.

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1 Dean's Welcome

To Graduate Students and Postdoctoral Fellows:

I am extremely pleased to welcome you to McGill University. With over 250 doctoral and master's degree programs, McGill is committed to providing world-class graduate education and postdoctoral training in a full range of academic disciplines and professions. Graduate and Postdoctoral Studies (GPS) provides strategic leadership and works in collaboration with the Faculties and other administrative and academic units to deliver the very highest level of teaching and research across the University. GPS is responsible for the admission and registration of graduate students, disbursing graduate fellowships, supporting postdoctoral fellows, and facilitating the graduation process, including the examination of theses.

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

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

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

Martin Kr

2.3 General Statement Concerning Higher Degrees

Graduate and Postdoctoral Studies (GPS) administers all programs leading to graduate diplomas, certificates and higher degrees. It is responsible for the admission of candidates, the supervision of their work and for recommending to Senate those who may receive the degrees, diplomas and certifi

Arts

: Political Science

: Psychology

: Russian and Slavic Studies

: Social Studies of Medicine

: Social Work

: Sociology

Dentistry

: Dentistry

Desautels Faculty of Management

: Desautels Faculty of Management

Education

: Educational and Counselling Psychology

: Information Studies

: Integrated Studies in Education

: Kinesiology and Physical Education

Engineering

: Architecture

: Chemical Engineering

: Civil Engineering and Applied Mechanics

: Electrical and Computer Engineering

: Mechanical Engineering

: Mining and Materials Engineering

: Urban Planning

Law

: Law

McGill School of Environment

: Environment

Medicine

section 11.1: Anatomy and Cell Biology

section 11.2: Biochemistry

section 11.3: Bioethics

section 11.4: Biomedical Engineering

section 11.5: Communication Sciences and Disorders

section 11.6: Epidemiology and Biostatistics

Experimental Medicine, see *section 11.10: Medicine, Experimental*

section 11.8: Human Genetics

section 11.9: Medical Physics

Graduate Certificates are offered in:	
Assessing Driving Capabilities	Educational Leadership 2
Air and Space Law	Library and Information Studies
Bioresource Engineering (IWRM)	Post-M.B.A.
Biotechnology	Teaching English as a Second Language
Comparative Law	Theory in Primary Care
Educational Leadership 1	Theory in Neonatology

All graduate regulations apply to graduate diploma and certificate candidates.

4.2 Master's Degrees

Two categories of programs lead to higher degrees at McGill University, master's programs, and doctoral programs.

The following master's degrees are offered (*see below for more ines:ines:ines:*	Prerequisites:

Master of Architecture Degrees

M.Arch. programs offered:

M.Arch. (professional degree) (Non-Thesis) in Design Studio and Design Studio – Directed Research
M.Arch. (post-professional degree) (Non-Thesis); specializations in Architectural History and Theory, Cultural Mediations and Technology, Urban Design and Housing

Master of Arts Degrees

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

Anthropology (Thesis and Non-Thesis); options in Development Studies, Environment, Gender and Women's Studies, Medical Anthropology
Art History (Non-Thesis); option in Gender and Women's Studies (Non-Thesis)
Classics (Thesis and Non-Thesis)
Communication Studies (Thesis and Non-Thesis); option in Gender and Women's Studies
Economics (Thesis and Non-Thesis); options in Development Studies (Non-Thesis) and Social Statistics (Non-Thesis)
Education (Thesis and Non-Thesis)
English (Thesis and Non-Thesis)
French (Thesis and Non-Thesis); option in Gender and Women's Studies
Geography; options in Development Studies, Environment, Gender and Women's Studies, Neotropical Environment, Social Statistics
German Studies (Thesis and Non-Thesis)
Hispanic Studies (Thesis and Non-Thesis)
History (Thesis and Non-Thesis); options in Development Studies (Thesis and Non-Thesis), European Studies (Thesis and Non-Thesis), Gender and Women's Studies (Thesis and Non-Thesis), History of Medicine (Non-Thesis)
Islamic Studies; option in Gender and Women's Studies
Italian Studies (Thesis and Non-Thesis)
Jewish Studies (Thesis and Non-Thesis)
Kinesiology and Physical Education (Thesis and Non-Thesis)
Linguistics (Non-Thesis)
Mathematics and Statistics (Thesis and Non-Thesis)
Music (Thesis and Non-Thesis)
Philosophy; option in Bioethics
Political Science (Thesis and Non-Thesis); options in Development Studies (Thesis and Non-Thesis), European Studies (Thesis and Non-Thesis), Gender and Women's Studies (Non-Thesis), Social Statistics (Non-Thesis)
Psychology
Religious Studies (Thesis and Non-Thesis); options in Bioethics and Gender and Women's Studies
Russian
Sociology (Thesis and Non-Thesis); options in Development Studies (Thesis and Non-Thesis), Environment, Gender and Women's Studies (Thesis and Non-Thesis), Medical Sociology (Thesis and Non-Thesis), Social Statistics (Non-Thesis), Neotropical Environment

Master of Business Administration Degrees

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

Finance
Global Strategy and Leadership
Marketing
Technology and Innovation Management

An E.M.B.A. is also offered (joint w6 0 1 81.693 6 HEC). 67.52 219.46 Tm(A04pment StS.76 Tm 5gont StS.76 Tm 5gont Sah2381.Arch. also81.69M.D.,C is StS.76 T

Educational Psychology (Thesis and Non-Thesis)
Educational Leadership (Thesis, Non-Thesis, and Non-Thesis Coursework); option in Gender and Women's Studies (Thesis and Non-Thesis)
Kinesiology and Physical Education (Thesis and Non-Thesis)
Second Language Education (Thesis and Non-Thesis); option in Gender and Women's Studies (Thesis and Non-Thesis)
Teaching and Learning (MATL) (Non-Thesis)

The M.Ed. may be taken in the following area:

Educational Psychology

The M.Sc. may be taken in the following area:

Kinesiology and Physical Education (Thesis and Non-Thesis)

Master's Degree in Engineering

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

Aerospace Engineering (Project)
Biomedical Engineering; option in Bioinformatics
Chemical Engineering (Thesis and Project); option in Environmental Engineering (Project)
Civil Engineering and Applied Mechanics (Thesis and Project); option in Environmental Engineering (Project)
Electrical Engineering (Thesis and Project); option in Computational Science and Engineering
Mechanical Engineering (Thesis and Project); option in Computational Science and Engineering
Mining and Materials Engineering (Thesis and Non-Thesis); options in Environmental Engineering (Non-Thesis), Mining (Non-Thesis), and Metals and Materials (Non-Thesis)

Other degrees:

Master of Management (M.M.) is offered in Manufacturing Management (see Department of Mechanical Engineering and Faculty of Management).
Master of Science (M.Sc.) is offered in Chemical Engineering, Civil Engineering, Mechanical Engineering, and Mining and Materials.

Master's Degrees in Law

The degree of Master of La

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

Master of Science Degrees

Programs leading to the degree of Master of Science are provided in the following areas:

Agricultural Economics
Animal Science
Atmospheric and Oceanic Science; options in Computational Science and Engineering, and Environment
Biochemistry; options in Bioinformatics, and Chemical Biology
Biology; options in Bioinformatics, Environment, and Neotropical Environment
Bioresource Engineering; options in Environment, Integrated Water Resource Management (Non-Thesis), and Neotropical Environment
Cell Biology and Anatomy
Chemical Engineering
Chemistry; option in Chemical Biology
Civil Engineering and Applied Mechanics
Communication Sciences and Disorders
Computer Science (Thesis and Non-Thesis); options in Bioinformatics, and Computational Science and Engineering
Dental Science (Thesis and Non-Thesis); option in Oral and Maxillofacial Surgery
Earth and Planetary Sciences; option in Environment
Entomology; options in Environment, and Neotropical Environment
Epidemiology and Biostatistics (Thesis and Non-Thesis); option in Environment (Non-Thesis)
Food Science and Agricultural Chemistry (Thesis and Non-Thesis)
Geography; options in Environment, and Neotropical Environment
Genetic Counselling (Non-Thesis)
Human Genetics; option in Bioinformatics
Human Nutrition
Kinesiology and Physical Education (Thesis and Non-Thesis)
Mathematics and Statistics (Thesis and Non-Thesis); options in Bioinformatics, and Computational Science and Engineering
Mechanical Engineering
Medical Radiation Physics
Medicine, Experimental; options in Bioethics, Environment, and Family Medicine
Microbiology and Immunology
Microbiology (Macdonald Campus); option in Environment
Mining and Materials Engineering
Neuroscience
Nursing
Otolaryngology
Parasitology; options in Bioinformatics, and Environment
Pathology
Pharmacology and Therapeutics; option in Chemical Biology
Physics
Physiology; option in Bioinformatics
Plant Science; options in Bioinformatics, Environment, and Neotropical Environment
Psychiatry
Psychology
Rehabilitation Sciences (Thesis and Non-Thesis)
Renewable Resources; options in Environment, Environmental Assessment (Non-Thesis), and Neotropical Environment
Surgery, Experimental

Master of Science, Applied, Degrees

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

Programs are available in:

Animal Science
Bioresource Engineering; options in Environment, Environmental Engineering, and Neotropical Environment
Biotechnology
Chemistry

Communication Sciences and Disorders
Human Nutrition
Nursing
Occupational Health
Occupational Therapy
Plant Science
Physical Therapy

Other degrees:

Master of Science, Applied (OT)
Master of Science, Applied (PT)

Master of Social Work Degrees

The M.S.W. degree (Thesis and Non-Thesis oT)

Biology; options in Bioinformatics, Developmental Biology, Environment, and Neotropical Environment
Biomedical Engineering; option in Bioinformatics
Bioresource Engineering; options in Environment, and Neotropical Environment
Chemical Engineering
Chemistry; option in Chemical Biology

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

4.4 Postdoctoral Research

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

5 Program Requirements

5.1 Master's Degrees

Residence Requirements – Master's Degrees

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

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

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

Coursework – Master's Degrees

Program requirements are outlined in the relevant departmental sections of the Graduate and Postdoctoral Studies Calendar available at *www.mcgill.ca/study*.

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

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

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

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

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

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

Research and Thesis – Master's Degrees

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

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

5.3 Ad Hoc Programs

In exceptional cases , an applicant who wishes to pursue a master's (Thesis option only) or Ph.D. program in an academic department which is not currently authorized by the *Ministère de l'Éducation, du Loisir et du Sport* (MELS) to offer graduate programs, may be admitted to an *Ad Hoc* program. The application, including a research proposal, is examined by an Admissions Committee in the department which has familiarity with the proposed research area and experience in directing graduate studies.

Once the Admissions Committee makes a favourable recommendation, Graduate and Postdoctoral Studies confirms an Advisory Committee (recommended by the academic unit) to be responsible for program planning and monitoring of research progress. The regulations are fully described in the document "Procedures for Admission in *Ad Hoc* Master's and Doctoral Programs", available from GPS.

5.4 Ad Personam Programs (Thesis Option only)

In very rare circumstances, an applicant who wishes to engage in master's (Thesis option only) or Ph.D. studies of an interdisciplinary nature involving joint supervision by two departments, each of which is authorized by the *Ministère de l'Éducation, du Loisir et du Sport* (MELS) to offer its own graduate programs, may be admitted to an *Ad Personam* program. The regulations are fully described in a document available from GPS.

5.5 Coursework for Graduate Programs, Diplomas, and Certificates

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

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

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

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

6 General Admission for Graduate Studies

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

Website: *www.mcgill.ca/gradapplicants*
Email: *servicepoint@mcgill.ca*

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

6.1 Application for Admission

Application information and the online application form are available at *www.mcgill.ca/gradapplicants/apply*. Applicants (with some exceptions) are required to ask two instructors familiar with their work to send letters of recommendation. All applicants must themselves send, or ask the appropriate university authorities to send, two official or certified copies of their complete academic record from each university-level institution attended to date. McGill graduates do not need to submit McGill transcripts. Letters of recommendation and official transcripts must be sent **directly** to the department concerned. Please note

that all documents submitted to McGill University in support of an application to be admitted, including, but not limited to transcripts, diplomas, letters of reference and test scores, become the property of McGill University and will not be returned to the applicant or issuing institution under any circumstance.

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

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

Completed applications, with supporting documents, must reach departmental offices according to individual department dates for guaranteed consideration. Applicants should contact the department concerned, or see: *www.mcgill.ca/gradapplicants/programs*. International students are advised to apply well in advance of the date for guaranteed consideration as immigration procedures may be lengthy. Applications received after the prescribed dates for guaranteed consideration may or may not be considered, at the discretion of the department. Candidates will be notified of acceptance or refusal by Graduate and Postdoctoral Studies as quickly as possible.

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

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

Applicants should be graduates of a university of recognized reputation and hold a bachelor's degree equivalent to a McGill degree in a subject closely related to the one selected for graduate work. This implies that about one-third of all undergraduate courses should have been devoted to the subject itself and another third to cognate subjects.

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

See *www.mcgill.ca/gradapplicants/apply/prepare/requirements/international-degree-equivalency* for information on mark/grade equivalencies and degree requirements from countries in Europe and around the world.

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

6.3 Admission Tests

Graduate Record Examination (GRE)

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

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

Graduate Management Admissions Test (GMAT)

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

6.4 Competency in English

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

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

1. Mother tongue (language first learned and still used on a daily basis) is English.
2. Has obtained (or is about to obtain) an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction.
3. Has obtained (or is about to obtain) an undergraduate or graduate degree from a recognized institution in Canada or the United States of America (anglophone or francophone).

4. Has lived and attended university, or been employed, for at least four consecutive years, in a country where English is the acknowledged primary language.

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

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

Competency in English		
iBT (Internet-based test)	PBT (paper-based test)	CBT (computer-based test)*
86 overall, (no less than 20 in each of the four component scores) N.B. an institutional version of the TOEFL is not acceptable.	550	* The CBT is no longer being offered and CBT results are no longer considered valid, or being reported by ETS.

2. IELTS (International English Language Testing System): a band score of 6.5 or greater.
3. MELAB (Michigan English Language Assessment Battery): a mark of 85% or higher.
4. University of Cambridge ESOL Certificate in Advanced English (CAE): a grade of “B” (Good) or higher.
5. University of Cambridge ESOL Certificate of Proficiency in English (CPE): a grade of “C” (Pass) or higher.
6. Edexcel London Test of English - Level 5 - with an overall grade of at least “Pass”.
7. McGill Certificate of Proficiency in English or McGill Certificate of Proficiency - English for Professional Communication: Certificate of Proficiency awarded. McGill Certificate of Proficiency in English or McGill Certificate of Proficiency - English for Professional Communication: Certificate of Proficiency awarded.

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

Revised – July 2008

6.5 Admission to a Qualifying Program

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

Qualifying students are registered in graduate studies, **but not as candidates for a degree**. Only one qualifying year (i.e., two full-time terms) is permitted.

In all cases, after the completion of a qualifying year or term, an applicant interested in commencing a degree program must apply for admission by the dates for guaranteed consideration. Successful completion of the work in the Qualifying Program (B- in all courses) does not automatically entitle the student to proceed tofor guarae Qualifying 1 67.50m(42.guarae Qualresne uaranteed 1 8ed consideration. SucI9e Tmr qualifying ye76 selet239 whr)T.4l 59y57 385an2Tj/5Ohich

6.8 Admission to an Ad Personam Joint Program

Ad Personam joint graduate programs are restricted to master's Thesis option and Ph.D. programs. Students shall be admitted and registered by one department, to be known as the “first department”. Approval for the joint program must be obtained from Graduate and Postdoctoral Studies. The request shall be signed by the Chairs of both departments involved and shall explicitly list the conditions imposed by the second department. The student shall undertake research under the joint supervision of both departments.

Students shall fulfil the degree requirements of the first department and shall complete all the requirements specified by the second department in the request for admission. This program is described in more detail in a document available from GPS.

6.9 Admission to an Ad Hoc Program (Thesis)

In exceptional cases, admission to an *Ad Hoc* program (Thesis) may be considered. Before Graduate and Postdoctoral Studies will authorize the admission of a student into an *Ad Hoc* program, it must receive a favourable report from a departmental committee constituted to examine [redacted]ram in question.

Candidates, through the supervisor designated by the academic department most closely related to their research field, must sub[redacted]earch proposal, an outline of the coursework needed including a comprehensive examination (for doctoral programs) in the relevant field, and the l[redacted]r supervisory committee members.

Once the request has been approved, the candidate may register following all the regular procedures. A fuller description of the [redacted]n procedure is available from GPS.

6.10 Reinstatement and Admission of Former Students

Students who have not been registered for a period of less than two years and who have not officially withdrawn from the Unive[redacted]ubmitting a Withdrawal Form to Graduate and Postdoctoral Studies are eligible to be considered for reinstatement into their program. The s[redacted]department recommend, in writing, that the student be reinstated, stipulating any conditions for reinstatement that it deems appropriate. The[redacted]cision rests GPS. Normally, GPS will approve the departmental recommendation. If the student's department chooses not to recommend rei[redacted]nt, the stud appeal to the Associate Dean (Graduate and Postdoctoral Studies). The decision of the Associate Dean (Graduate and Postdocto[redacted]es) shall be and not subject to further appeal.

Reinstatement fees will be charged in addition to the fees due for the academic session into which the student has been reinstate[redacted]mount of the reinstatement fees is the tuition portion of fees owed for all unregistered terms, up to a maximum of two years just prior to the t[redacted]einstatement.

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

Email: *graduate.fellowships@mcgill.ca*
Website: *www.mcgill.ca/gps/students* (under Fellowships and Awards)

Graduate Fellowships and Awards Calendar: *http://coursecalendar.mcgill.ca/fellowships201112/wwhelp/wwhimpl/js/html/wwhelp.htm*

The Fellowships and Aw

i. Appointments may not exceed your registration eligibility status.

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

iii. At the outset of a postdoctoral appointment, a written Letter of Agreement for Postdoctoral Education should be drawn up and signed by the Postdoc, the supervisor, and the department head or delegate (see template Letter of Agreement on the web at *www.mcgill.ca/gps/postdocs* and supporting document – commitments for Postdoctoral Scholars and Supervisors at *www.mcgill.ca/files/gps/Commitments_of_Postdoctoral_Scholars_and_Supervisors_July_09.pdf*). This should stipulate, for example, the purpose of the postdoctoral appointment (research training and the advancement of knowledge), the duration of the fellowship/financial support, the modality of pay, the work space, travel funds, and expectations and compensation for teaching and student research supervision. Leaves from postdoctoral education must comply with the Graduate and Postdoctoral Studies Policies for Vacation, Parental/Familial, and Health Leave (see Graduate and Postdoctoral Studies General Information *section 8.3: Vacation Policy for Graduate Students and Postdocs* and *section 9.6: Health and Parental/Familial Leave* of the Graduate and Postdoctoral Studies General Information). Any breach of these conditions may result in the cessation of payments for the postdoctoral appointment.

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

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

4. Privileges

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

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

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

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

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

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

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

– to uphold and transmit to their Postdocs the highest professional standards of research and/or scholarship;

– to provide research guidance;

– to meet regularly with their Postdocs;

– to provide feedback on research submitted by the Postdocs;

– to clarify expectations regarding intellectual property rights in accordance with the University's policy;

– to provide mentorship for career development;

– to prepare, sign, and adhere to a Letter of Agreement for Postdoctoral Education.

vi. Some examples of responsibilities of Postdocs are:

– to inform themselves of and adhere to the University's policies and/or regulations for Postdocs for leaves, for research, and for student conduct as outlined in the *Handbook on Student Rights and Responsibilities* and the *General Information, Regulations and Research Guidelines* Calendar of Graduate and Postdoctoral Studies;

– to submit a complete file for registration to Graduate and Postdoctoral Studies;

– 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 Univ

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

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

Category 3: An individual who holds a professional degree (or equivalent) in a regulated health profession (as defined under CIHR-eligible health profession)

a particular program and should be made clear to incoming students. Thesis supervisors must be chosen from academic staff in tenure-track positions. Faculty Lecturers and Research Assistants may not act as supervisors but in exceptional cases, may be co-supervisors. Emeritus Professors and Adjunct Professors may co-supervise. Certain non-tenure track professors appointed in the Faculty of Medicine may be eligible to supervise or co-supervise graduate students with the approval of the unit and Graduate and Postdoctoral Studies. In the case of supervision, the academic unit in question must ensure continuity of appropriate supervision of their graduate students.

2. Program

i. Early in their program, students should be informed of the phases through which they must pass toward the achievement of the graduate degree, the approximate amount of time each phase should take, the criteria for its successful completion, and any deadlines relating to these phases.

ii. It is important that students are made aware of whatever courses are required to complete their programs, that these courses are available, and that they relate to students' proposed areas of research or to the development of related areas of scholarship.

iii. Where relevant, students should also be informed early in their program of language requirements or comprehensive examinations. The guidelines, criteria and procedures for comprehensive examinations must be explicit and consistently applied in each program. Academic units should consider the rationale for language and comprehensive examinations and how they relate to the objectives of the graduate program.

iv. Every effort should be taken to ensure that students choose, as soon as possible, realistic and appropriate areas of research commensurate with degree requirements.

v. There must be clear procedures established in every unit by which students receive guidance and constructive criticism on their progress on a regular basis through the program (e.g., regular meetings and/or email communication with supervisors and committees, attendance at research seminars, semester or annual reviews of student progress). In addition to regular meetings between the student and supervisor or advisory/thesis committee, each unit must establish a procedure to provide feedback to thesis students regarding their research progress. At least annually, there must be a meeting between the student, supervisor and advisory/thesis committee or, in the case where there is no such advisory/thesis committee, there must be a meeting between the supervisor and a departmental representative, at which objectives for the upcoming year are established and the prior year's research progress recorded and evaluated. A written record of such meetings must include the signature of the student, supervisor, and the advisory/thesis committee member or a departmental representative, and this record must be retained in the student's departmental file. (The Graduate Student Research Objectives Report Form, the Graduate Student Research Progress Record, and the Graduate Student Research Progress Report Form are to be utilized to keep a record of these meetings.) In the case where the student does not make expected progress, the advisory or thesis committee or, in the case where there is no such advisory or thesis committee, the student, supervisor and a departmental representative must meet at least once per semester for the subsequent twelve months to review progress and if appropriate to set new objectives. On the occasion of a second unsatisfactory progress report, the student may be required to withdraw from the program of study.

vi. Students should be made aware of the cost of living in Montreal and of sources of financial support (e.g., teaching or research assistantships, fellowships) and of the facilities available to them (e.g., study space, computers).

vii. Students should receive guidance and encouragement in areas relating to their growth in scholarship, professional development and career planning. Examples may include, where appropriate, reporting research, writing abstracts, preparing papers for conference presentation or for publication, writing grant and fellowship applications, conducting a job search, and preparing for job interviews.

viii. Units should be sensitive to special academic needs and concerns that may arise in the case of certain students, such as international students or students who undertake graduate studies after a long absence from university.

3. Responsibilities

Each unit should clearly identify the student's supervisory needs at each phase and the means by which these needs will be met. Some functions will be fulfilled by the Chair, some by the graduate program director, some by the supervisor and some by the committee. Each unit should clearly identify the specific responsibilities of each of these, as well as the responsibilities of students themselves.

i. Each unit should consider the availability of student support, research facilities, space, and availability of potential supervisors in determining the number of students admitted into the program.

ii. Some examples of the responsibilities of the graduate program director are to be knowledgeable about program requirements, the composition of committees, the procedures for comprehensive and oral defense examinations, and other policies relating to graduate studies; to maintain a dossier on each student's progress; and to be sensitive to graduation deadlines and students' career plans.

iii. Some examples of the responsibilities of a supervisor are to uphold and to transmit to students the highest professional standards of research and/or scholarship; to provide guidance in all phases of the student's research; to meet with their students regularly; to provide prompt feedback when work is submitted including drafts of the thesis; and to clarify expectations regarding collaborative work, authorship, publication and conference presentations.

iv. Some examples of the responsibilities of the students are to inform themselves of program requirements and deadlines; to work within these deadlines; to communicate regularly with the supervisor and committee; and to submit progress reports to the supervisor and committee.

v. The Chair of the unit should ensure that procedures are in place to address serious disagreements that may arise, for example, between a student and a supervisor or between a supervisor and committee members. Such procedures should involve a neutral mediator who will ensure that all sides of a dispute are heard before any decision is made.

4. Quality of Supervision and Teaching

i. Academic units and Graduate and Postdoctoral Studies should consider ways to assess and improve the quality of supervision and to help new supervisors, e.g., through workshops or mentoring m81 81.6o0 arcommitd0.693 107.56 Th51 0.llity of potentp1 0 0 and luality of Supeor are to be 1 j1tlv

iii. Academic units should establish criteria of excellence in supervision and graduate teaching appropriate to their disciplines and should suitably reward those who meet these criteria, e.g., in decisions concerning tenure and promotion, or merit pay awards.

iv. The maximum number of students under the direction of a single supervisor should be consistent with the ability of the supervisor to provide quality supervision, taking into account the workload of the supervisor and norms of the discipline.

v. Procedures should be established for ensuring continuity in supervision when a student is separated from a supervisor – for example, when the supervisor takes a sabbatical leave, retires from McGill or changes universities or when the student leaves to complete field work or takes a job before submitting a thesis.

Revised by Council of FGSR, April 23, 1999 and October 6, 2003

9.2 Policy on Graduate Student Research Progress Tracking

This is a new mandatory policy and procedure to track the research progress of graduate students. The policy is referred to in the amended *section 9.1: Guidelines and Regulations for Academic Units on Graduate Student Advising and Supervision* in bold print. Documents to record progress can be found on the GPS website: *www.mcgill.ca/gps/staff/forms*.

The following is a summary of the main elements of the new **mandatory** policy. The following steps must be followed for each graduate student in a thesis program:

1. Annually, the student must meet with, at minimum, their supervisor(s) and a departmental representative. This meeting can occur in the context of an annual thesis or advisory committee in those departments that have thesis committees
2. At the first such meeting (to be held shortly after thesis students begin their programs), written objectives/expectations for the year must be recorded on the first of the three forms, Form #1 (Graduate Student Research Objectives Report Form). All three people at the meeting must sign this form. A student who does not agree to sign the form must write a statement detailing his/her objections to the expectations recorded on the form.
3. Approximately one year later, and every year thereafter, the student, supervisor(s) and the departmental representative should meet again to review the progress that has been achieved toward the recorded objectives. Prior to the meeting, the student should record his/her accomplishments and progress for the year by completing Form #2 (Graduate Student Research Progress Record). This completed form is then evaluated by the supervisor and the departmental representative on Form #3 (Graduate Student Research Progress Report F

The majority of doctoral programs at McGill require candidates to pass a comprehensive examination or set of examinations or equivalent, such as qualifying examinations, preliminary examinations, candidacy paper, comprehensive evaluation, thesis proposal, etc. The Calendar of Graduate and Postdoctoral Studies (GPS) includes the following statement:

> A comprehensive examination or its equivalent is usually held near the end of Ph.D. 2. The results of this examination determine whether or not students will be permitted to continue in their programs. The methods adopted for examination and evaluation and the areas to be examined are specified by departmental regulations and approved by Graduate and Postdoctoral Studies. It is the responsibility of students to inform themselves of these details at the commencement of their programs.

It is recognized that expectations for the Ph.D. comprehensive will vary according to the needs of the discipline. It is important to make it clear to doctoral candidates what the expectations and procedures are for their Ph.D. comprehensive, and to maintain consistency within a given program.

1. **General Policy**

   At the beginning of the relevant academic year, units must provide doctoral students with a written description of the Ph.D. comprehensive, covering the following issues: objectives and content, format, timing, assessment, grading and reporting, failures. (See below for details.)

2. All units that have a Ph.D. comprehensive must adopt an administrative course number for it, usually XXXX 701. One of the following forms of grading must be adopted and used consistently within the program: Pass/Fail or letter grades. (“Mixed” modes of grading are not permitted, i.e., some students within a program reported on a Pass/Fail basis and others by means of letter grades.)

Specific Issues

Objectives and Content

Units must specify the objectives of the Ph.D. comprehensiv

The assessment and reasons for the decision must be documented and provided to the student in sufficient detail to allow the student to understand the decision, including identifying strengths and weaknesses. (A number of units have developed short forms specifically for this purpose.) In the case of oral examinations, the student should also be given feedback on presentation, logical exposition, ability to answer questions, etc.

In the case of oral exams, units may wish to consider the following: ensure that there is a reasonably detailed written assessment of the student's performance; tape the oral examination; allow the student to select a faculty member to act as a neutral observer; have one faculty member serve as a neutral chair (equivalent to a Pro-Dean); have an "outside" committee member; have the oral examination open to other students and faculty members.

Plagiarism

McGill University values academic integrity, which is fundamental to achieving our mission of the advancement of learning. Therefore, all students must understand the issues associated with **academic integrity** (see *www.mcgill.ca/students/srr/honest* for more information).

Plagiarism in a Ph.D. comprehensive examination contravenes McGill University's academic goals and standards. Consequently, any student found guilty of plagiarism under the Code of Student conduct and Disciplinary Procedures (see the *Handbook on Students Rights and Responsibilities* available at *www.mcgill.ca/secretariat/policies/students*) in a Ph.D. comprehensive examination may face very serious penalties, even expulsion from the University without the degree.

Failures

i. Repeats

In the event of a failure, units must allow, without prejudice, one repeat of the comprehensive (in whole or in part). The first time a student fails, the student must be informed in writing by the department that he/she has failed the comprehensive and must be informed of conditions relating to a repeat of the examination. In such circumstances, the grade of HH (continuing) will be used. In the event of a second failure, a grade of F will be reported to Graduate and Postdoctoral Studies and the student will be asked to withdraw from the Ph.D. program.

Conditions for retaking the examination must be clearly stated, including the time frame, potential dates, nature of the re-examination, committee membership, etc.

Units have the right to specify further requirements in the event of failure (e.g., requiring students to take an additional course or courses in areas where they have shown weakness on the comprehensive).

ii. Plagiarism

If plagiarism is suspected, the case will be referred directly to the committee on Student Discipline in accordance with the code of Student Conduct, Part III (article 15) and Part V (A). If plagiarism is established by due University process, the student is considered to have failed the examination, with no possibility of repeat.

iii. Review and Reassessment

Rereads. In the case of written comprehensives, the Graduate Studies Reread Policy applies.

A student who fails an oral examination may request a review. In such cases, Graduate and Postdoctoral Studies will conduct a review of the examination process and procedures.

Other Relevant Policies/Offices

Charter of Student Rights
Graduate Studies Reread Policy
Office for Students with Disabilities

Approved by Executive of Faculty of Graduate Studies and Research (FGSR) February 17, 1997 and Council of FGSR March 7, 1997

9.5 Graduate Studies Reread Policy

This policy applies only in the case of marks given for written work in 600- and 700-level courses. For 500-level courses and below, the reread policy of the appropriate undergraduate faculty applies.

Consultation

In accordance with the Charter of Student Rights, and subject to the conditions stated therein, graduate students have the right, subject to reasonable administrative arrangements, "to consult any written submission for which they have received a mark and to discuss this submission with the examiner". U88n th.726 1ee2 684.82 Tm(er1 511.62le and pro)llo

At the time the request for a reread is made, the student should have already met with the faculty member responsible for the course to review the mark, or made a reasonable attempt to do so. Rereads can only be requested if a change upwards in the letter grade for the course is possible as a result of the reread. Assignments can only be reread if, together, they account for more than 20% of the course grade.

The reread by a second reader is a review of the mark, not the work assigned. It is the second reader's task to determine whether the original mark is fair and reasonable, not to give the work a totally new assessment.

1. The time limit for requesting a reread is within 30 days after posting of the final marks for the course. However, in the case of work which has been graded during the course and returned to the student, students must indicate in writing to Graduate and Postdoctoral Studies within 5 working days of receiving the graded work their intention to request a reread. This intention must be confirmed within 30 days of the posting of the final marks for the course.

   (Note: Material that is returned to a student **cannot be reread** unless arrangements have been made to ensure that the material has not been changed subsequent to the original grading; for example, the student can make a copy for the professor to retain either before handing the material in or immediately upon receiving it back from the instructor or at the point where the professor and student review the work together.

   Instructors are strongly advised to write their corrections in red pen and to write comments which help the student to understand the mark assigned.)

2. The request for a formal reread must be made by the student in writing to Graduate and Postdoctoral Studies and should specify the reasons for the request. It should include a statement indicating that the student has already met with the faculty member responsible for the course to review the mark or indicating why this has not been possible. The reread fee ($35 for an exam, $35 for a paper, $35 for one or more assignments, to a maximum of $105 per course) will be charged directly to the student’s fee account after the result of the reread is received. No fee will be charged if there is a change upwards in the letter grade for the course.
3. Administration of the reread is handled by Graduate and Postdoctoral Studies, not by the department. GPS will contact the department to obtain the work to be reread, a list of potential readers, and details of the marking. The list of potential readers must be approved by the Department Chair or Graduate Program Director. The Chair or Director must, as well, vouch for the impartiality of these readers. All communication with the second reader is conducted by GPS.

   The second reader is given the original assignment, with marginalia, corrections, summary comments and mark intact, as well as any notes from the instructor pertinent to the general nature of the course or the assignment and grading schemes, etc.

4. The student's and the instructor's names are blanked out to reduce the possibility of prejudice and to help meet the requirement of the Charter of Students' Rights that the review be impartial. The rereader's name will not be made known to the student or instructor at any time; the student's name will not be made known to the rereader at any time.
5. The second reader should support his or her assessment with a brief memorandum to Graduate and Postdoctoral Studies. As a result of the reread process, the grade may become **higher or lower or remain unchanged**. The grade submitted by the second reader shall replace the original grade. The reread grade cannot be challenged.

   In the case of requests for rereads of group work, all members of the group must sign the request, indicating that they agree to the reread. In the event that members of the group are not in agreement, the written request should indicate which students are requesting the reread and which students do not wish for a reread. In such cases, the outcome of the reread (whether positive or negative) will affect only the students in favour of the reread. Neither the reread grade nor the decision to opt in or out of the reread can be challenged.

6. The new grade resulting from the review will be communicated to the student in a letter from Graduate and Postdoctoral Studies, with a copy to the academic unit.

Prepared by the Committee on Graduate Programs, Supervision and Teaching

Approved by Council of the Faculty of Graduate Studies and Research, May 12th 1995

9.6 Health and Parental/Familial Leave of Absence Policy

A leave of absence may be granted by Graduate and Postdoctoral Studies for maternity or parenting (interpreted according to McGill's “Parental Leave Policy” for non-academic staff) reasons or for health reasons.

Such a leave must be requested on a term by term basis and may be granted for a period of up to 52 weeks. Students must make a request for such a leave in writing to their department and submit a medical certificate. The department shall forward the request to GPS.

During a **leave of absence for parental or familial reasons**, a student will not be eligible to take courses but he/she may request and expect guidance on thesis and research work and will have free access to the University's academic facilities. Library services will continue to be available by registering at the Circulation Desk of the Humanities and Social Sciences Library (McLennan-Redpath). In special circumstances, familial leave may be considered by GPS for a student when a close family member is ill.

During a **leave of absence for health reasons**, a student will not be eligible to request guidance on thesis and research work or to take courses. He/she will not have access to the University's academic facilities but Library services will normally continue to be available by registering at the Circulation Desk of the Humanities and Social Sciences Library (McLennan-Redpath).

A medical certificate must accompany such leave requests.

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All requests for a leave of absence for health reasons should be accompanied by the following:

- a duly completed *Leave of Absence/Non-Resident Request Form* available from *www.mcgill.ca/gps/staff/registration*;
- a written request from the student;
- a Minerva form to drop all courses for all relevant terms;
- a medical certifi

Fax: 514-398-5047
Website: *www*

2. Evidence of a high academic achievement with a minimum cumulative grade point average (CGPA) of 3.0 on 4.0 as is indicated in the general guidelines set up by GPS at McGill.
3. Students must follow the guidelines for English Language Proficiency at *www.mcgill.ca/gradapplicants/apply/prepare/requirements/proficiency*.
4. M.Sc. and Ph.D. students are supported financially, at a minimum of $15,000 and $17,000 respectively, per year.

Graduate students are also expected to apply for the various internal and external fellowships. Detailed information is available at *www.mcgill.ca/anatomy/graduate/fellowships/*. Graduate students are responsible for the payment of tuition fees to McGill University. Detailed information about these can be found at *www.mcgill.ca/student-accounts/fees/grad*. For international students registered in the M.Sc. and Ph.D. programs, differential fee waivers up to $5,000 will be allocated to a maximum of eight students through the Department of Anatomy and Cell Biology, for the first year, with a possibility of renewal.

11.1.3.2 Application Procedures

Application for admission to graduate studies for the degrees of M.Sc. or Ph.D. in Cell Biology and Anatomy should be made to the Chair of Graduate Studies, Department of Anatomy and Cell Biology.

Application forms are available at *www.mcgill.ca/gradapplicants/apply* and program guidelines are detailed at *www.mcgill.ca/anatomy/graduate*.

All applicants must first make arrangements with a faculty member of the Department for acceptance into his/her laboratory to carry out the thesis research (*www.mcgill.ca/anatomy/graduate/appproc/*).

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the follo

Professors

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 & Neurosurgery*)

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

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

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

Alfredo Ribeiro-da-Silva; M.D., Ph.D.(Oporto) (*joint appt. with Pharmacology and Therapeutics*)

Wayne Sossin; S.B.(MIT), Ph.D.(Stan.) (*joint appt. with Neurology & Neurosurgery*)

Stefano Stifani; Ph.D.(Rome), Ph.D.(Alta.) (*joint appt. with Neurology & Neurosurgery*)

Dominique Walker; B.Sc., Ph.D.(Geneva) (*joint appt. with Psychiatry*)

Associate Professors

Orest W. Blaschuk; B.Sc.(Winn.), M.Sc.(Manit.), Ph.D.(Tor.) (*joint appt. with Surgery*)

Eugene Daniels; M.Sc., Ph.D.(Manit.)

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

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

M.F. Lalli; B.Sc., M.Sc.(Bowling Green), Ph.D.(McG.)

Craig Mandato; B.Sc., Ph.D.(Wat.)

John F. Presley; B.A., Ph.D.(Texas)

Dieter Reinhardt; M.S.(Kaiserslautern), Ph.D.(Munich) (*joint appt. with Dentistry*)

Hojatollah Vali; B.Sc., M.Sc., Ph.D.(Munich) (*joint appt. with Earth and Planetary Sciences*)

Assistant Professors

Fiona Bedford; B.Sc.(Birm.), Ph.D.(Lond.)

Isabelle Rouiller; Ph.D.(UK)

Associate Members

John J.M. Bergeron; B.Sc.(McG.), D.Phil.(Oxf.)

Albert Berghuis (*Biochemistry*)

Colin Chalk (*Neurology & Neurosurgery*)

Jean-François Cloutier (*Neurology & Neurosurgery*)

Claudio Cuello (*Pharmacology & Therapeutics*)

Giovanni DiBattista (*Medicine*)

Alyson Fournier (*Neurology & Neurosurgery*)

Janet Henderson (*Medicine*)

Robert Scott Kiss (

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ANAT 663D1	(4.5)	Histology
ANAT 663D2	(4.5)	Histology

Cell Developmental Biology Stream

ANAT 663D1	(4.5)	Histology
ANAT 663D2	(4.5)	Histology
ANAT 690D1	(3)	Cell and Developmental Biology
ANAT 690D2	(3)	Cell and Developmental Biology

Human Systems Biology Stream

6 credits required:

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

9 credits selected from:

BMDE 502	(3)	BME Modelling and Identification
BMDE 519	(3)	Biomedical Signals and Systems
BTEC 501	(3)	Bioinformatics
COMP 564	(3)	Computational Gene Regulation
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

11.1.6 Doctor of Philosophy (Ph.D.); Cell Biology and Anatomy

Thesis

Required Courses

Note: Students choose between ANAT 663D1 and ANAT 663D2 OR ANAT 690D1 and ANAT 690D2.

ANAT 663D1	(4.5)	Histology
ANAT 663D2	(4.5)	Histology
ANAT 690D1	(3)	Cell and Developmental Biology
ANAT 690D2	(3)	Cell and Developmental Biology
ANAT 701	(0)	Ph.D. Comprehensive Examination

11.2 Biochemistry

11.2.1 Location

Department of Biochemistry
McIntyre Medical Sciences Building

3655 Promenade Sir-William-Osler
Montreal, QC H3G 1Y6
Canada

Christine Laberge: Student Affairs Administrator
Telephone: 514-398-2423
Fax: 514-398-4866
Email: *admissions.biochemistry@mcgill.ca*
Website: *www.mcgill.ca/biochemistry*
Website: *www.mcgill.ca/biochemistry/chemicalbiology*
Website: *www.mcgill.ca/biochemistry/bioinformatics*

11.2.2 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, and many aspects of cancer. Specialized graduate training programs in Chemical Biology, Human Systems Biology (Bioinformatics), Cancer Research/Oncology (*http://cancercentre.mcgill.ca/research*), and Structural Biology (*http://grasp.mcgill.ca*) are available. Laboratories are located in the new Bellini Life Sciences Building and Goodman Cancer 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 five 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, *www.mcgill.ca/gps*.

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 11.2.5: 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 11.2.7: Master of Science (M.Sc.); Biochemistry (Thesis) — Bioinformatics (45 credits)

M.Sc. level – 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 11.2.8: 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 expertise in biochemistry and the biomedical sciences, with the opportunity to carry out research projects at a world-class level and build collaborations with other leading research groups. Graduates of the Ph.D. program are outstandingly prepared for leadership careers in the basic health sciences in industry, the public sector, or academia.

section 11.2.9: Doctor of Philosophy (Ph.D.); Biochemistry — Chemical Biology

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 which unite the research being performed 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.

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 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.

section 11.2.10: Doctor of Philosophy (Ph.D.); Biochemistry — Bioinformatics

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 modeling techniques, the creation of tools for manipulating Bioinformatics data, the integration of biological databases, and the use of algorithms and statistics.

Ph.D. level – Students successfully completing the Bioinformatics option at the Ph.D. level will be fluent in the concepts, language, approaches, and limitations of the field, and have the capability of developing an independent Bioinformatics research program.

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.

11.2.3 Biochemistry Admission Requirements and Application Procedures

11.2.3.1 Admission Requirements

Admission is based on the candidate’s academic record, letters of recommendation, curriculum vitae, and personal statement. A minimum grade point average of 3.2/4.0 (B+) is required. Once a student has submitted all the required documents, the applicant’s file will be reviewed by the Graduate Admission Committee. Files that do not meet the minimum requirement will not be considered. Applicants must also be accepted by a research supervisor who is a Faculty member or Associate member of the Department of Biochemistry. Recommendation for admission will be made once the applicant has secured a supervisor and adequate financial support. Financial support should be in the form of a stipend from the supervisor'the elr633os (4pervisor who is aThe prog.51 Tw/F1 8

Professors

Nicole Beauchemin; B.Sc., M.Sc., Ph.D.(Montr.) (*joint appt. with Oncology and Medicine*)

Albert Berghuis; B.Sc., M.Sc.(Rijks Univ. Groningen, The Netherlands), Ph.D.(Br. Col.) (*Canada Research Chair in Structural Biology*)

Philip E. Branton; B.Sc., M.Sc., Ph.D.(Tor.), F.R.S.C. (*Gilman Cheney Professor of Biochemistry*)

Kalle Gehring; B.A.(Brown), M.Sc.(Mich.), Ph.D.(Calif., Berk.) (*Chercheur National du FRSQ*)

Vincent Giguère; B.Sc., Ph.D.(Laval) (*joint appt. with Oncology & Medicine*)

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

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

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

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

Morag Park; B.Sc., Ph.D.(Glas.), F.R.S.C. (*Diane & Sal Guerrera Chair in Cancer Genetics*) (*James McGill Professor*) (*joint appt. with Oncology & Medicine*)

Jerry Pelletier; B.Sc., Ph.D.(McG.) (*James McGill Professor*)

Gordon C. Shore; B.Sc.(Guelph), Ph.D.(McG.)

Joseph Shuster; B.Sc.(McG.), Ph.D.(Calif.), M.D.(Alta.)

John R. Silvius; B.Sc., Ph.D.(Alta.)

Nahum Sonenberg; M.Sc., Ph.D.(Weizmann Inst.), F.R.S.C., F.R.S. (*James McGill Professor*)

David Y. Thomas; B.Sc.(Brist.), M.Sc., Ph.D.(Univ. College, Lond.), F.R.S.C. (*Canada Research Chair in Molecular Genetics*)

Michel L. Tremblay; B.Sc., M.Sc.(Sher.), Ph.D.(McM.), F.R.S.C. (*Jeanne & Jean-Louis Levesque Chair in Cancer Research*)

Maria Zannis-Hadjopoulos; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with Oncology & Medicine*)

Associate Professors

Maxime Bouchard; B.Sc., Ph.D.(Laval) (*Canada Research Chair in Developmental Genetics*)

Imed Gallouzi; Maitrise, DEA, Ph.D.(Montpellier, France) (*Canada Research Chair in Cellular Information Systems*)

Arnim Pause; B.Sc., M.Sc.(U. Konstanz, Germ.), Ph.D.(McG.) (*Canada Research Chair in Molecular Oncology*)

Jason C. Young; B.Sc.(Tor.), Ph.D.(McM.) (*Canada Research Chair in Molecular Chaperones*)

Assistant Professors

Josée Dostie; B.Sc.(Sher.), Ph.D.(McG.) (*CIHR New Investigators Award; Chercheur Boursier du FRSQ*)

Thomas Duchaine; B.Sc., Ph.D.(Montr.) (*Chercheur Boursier du FRSQ*)

Bhushan Nagar; B.Sc., Ph.D.(Tor.) (*Canada Research Chair in the Structural Biology of Signal Transduction*)

Martin Schmeing; B.Sc.(McG.), Ph.D.(Yale)

Julie St-Pierre; B.Sc., M.Sc.(Laval), Ph.D.(Camb.)

Jose G. Teodoro; B.Sc.(W. Ont.), Ph.D.(McG.) (*CIHR New Investigators Award; Chercheur Boursier du FRSQ*)

Associate Members

Karine Auclair (*Chemistry*), Jacques Genest (*Dept. of Medicine*), Matthias Götte (*Micro. & Immunol.*), Michael Hallett (*McGill Centre for Bioinformatics*), Qutayba Hamid (*Meakins-Christie Labs*), Robert S. Kiss (*Dept. of Medicine*), Gregory Miller (*Pharm. & Therapeutics*), Vassilios Papadopoulos (*Dept. of Medicine*), Janusz Rak (*Mtl. Children's Hospital*), Reza Salavati (*Inst. of Parasitology*), Maya Saleh (*Dept. of Medicine*), Erwin Schurr (*Ctr. For Host Resistance, MGH*), Charles Scriver (*Pediatrics, MCH*), Peter Siegel (*Dept. of Medicine*), Youla S. Tsantrizos (*Dept. of Chemistry*), Bernard Turcotte (*Dept. of Medicine, Goodman Cancer Ctr.*), Simon Wing (*Dept. of Medicine*), Xiang-Jiao Yang (*Mol. Oncol., RVH*)

Adjunct Professors

Mirek Cygler (*NRC/BRI*), Jacques Drouin (*Clin. Res. Inst.*), Anny Fortin (*Dafra Pharma Res. & Deve. Bvba*), Tarik Möröy (*IRCM*), Donald Nicholson (*Merck Frosst*), Maureen O'Connor (*NRC/BRI*), Enrico Purisima (*NRC/BRI*), René Roy (*PharmaQAM*), Alex Therien (*Merck Frosst Canada*)

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

Thesis Courses (36 credits)

BIOC 697	(9)	Thesis Research 1
BIOC 698	(12)	Thesis Research 2
BIOC 699	(15)	Thesis Research 3

Required Course (3 credits)

BIOC 696	(3)	Seminars in Biochemistry

Complementary Courses* (6 credits)

At least 3 credits must be chosen from the following:

BIOC 570	(3)	Biochemistry of Lipoproteins
BIOC 600	(3)	Advanced Strategies in Genetics and Genomics
BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
BIOC 605	(3)	Structural Biology and Proteomics
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 biomedical and allied sciences.

* 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.

11.2.6 Master of Science (M.Sc.); Biochemistry (Thesis) — Chemical Biology (47 credits)

Thesis Courses (33 credits)

BIOC 695	(6)	Thesis Research 1 (Chemical - Biology)
BIOC 698	(12)	Thesis Research 2
BIOC 699	(15)	Thesis Research 3

Required Course (3 credits)

BIOC 696	(3)	Seminars in Biochemistry

Complementary Courses* (11 credits)

Two of the following courses:

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

At least 3 credits from the following:

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

Note: Students may select either CHEM 503 or PHAR 503.

and at least 3 credits from the following:

BIOC 570	(3)	Biochemistry of Lipoproteins
BIOC 600	(3)	Advanced Strategies in Genetics and Genomics
BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
BIOC 605	(3)	Structural Biology and Proteomics
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 and Development 2
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 Design and Development 2
PHAR 562	(3)	General Pharmacology 1
PHAR 563	(3)	General Pharmacology 2
PHAR 707	(3)	Topics in Pharmacology 6

Note: Students may select either CHEM 504 or PHAR 504.

* 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.

11.2.7 Master of Science (M.Sc.); Biochemistry (Thesis) — Bioinformatics (45 credits)

Thesis Courses (30 credits)

BIOC 694	(3)	Thesis Research 4

BIOC 698	(12)	Thesis Research 2
BIOC 699	(15)	Thesis Research 3

Required Courses (6 credits)

BIOC 696	(3)	Seminars in Biochemistry
COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar

Complementary Courses* (9 credits)

3 credits to be chosen from the following courses:

BIOC 570	(3)	Biochemistry of Lipoproteins
BIOC 600	(3)	Advanced Strategies in Genetics and Genomics
BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure

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 570	(3)	Biochemistry of Lipoproteins
BIOC 600	(3)	Advanced Strategies in Genetics and Genomics
BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
BIOC 605	(3)	Structural Biology and Proteomics
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.

11.2.9 Doctor of Philosophy (Ph.D.); Biochemistry — Chemical Biology

Thesis

Required Courses (7 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
BIOC 696*	(3)	Seminars in Biochemistry
BIOC 701**	(0)	Research Seminar 1
BIOC 702**	(0)	Ph.D. Thesis Proposal
BIOC 703**	(0)	Research Seminar 2

* 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* (9 credits)**

At least 3 credits from the following:

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

Students can take either CHEM 503 or PHAR 503.

At least 3 credits from the following:

BIOC 570	(3)	Biochemistry of Lipoproteins
BIOC 600	(3)	Advanced Strategies in Genetics and Genomics
BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
BIOC 605	(3)	Structural Biology and Proteomics
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 courses credits from the following list:

Drug Design and Dev

* 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* (9 credits)**

3 credits from the following:

BIOC 570	(3)	Biochemistry of Lipoproteins
BIOC 600	(3)	Advanced Strategies in Genetics and Genomics
BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
BIOC 605	(3)	Structural Biology and Proteomics
EXMD 615	(3)	Essentials of Glycobiology
EXMD 635D1	(3)	Experimental/Clinical Oncology
EXMD 635D2	(3)	Experimental/Clinical Oncology

Plus 6 credits from the following:

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

*** 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.

11.3 Bioethics

11.3.1 Location

For information, write to:
Jennifer Fishman, Graduate Program Director
Biomedical Ethics Unit
3647 Peel Street
Montreal, QC H3A 1X1
Canada

Telephone: 514-398-6980
Fax: 514-398-8349
Website: *www.mcgill.ca/biomedicalethicsunit/masters*

11.3.2 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 anthropology, history, law, medicine, molecular genetics, philosophy, and sociology. Wel, d0 24Tm3 cm8 l569755.5 TjET42.755.5 ljET42.

in biomedical ethics for selected master's students in the Division of Experimental Medicine, Genetics Department, Philosophy Department, Faculty of Religious Studies, and Faculty of Law.

Master's Specialization in Bioethics

Fax: 514-398-7461
Website: *www.bmed.mcgill.ca*

11.4.2 About Biomedical Engineering

The Department offers a graduate training program leading to master's (M.Eng.) and Ph.D. de

Associate Members

Milner (*Kinesiology & Physical Education*), L. Mongeau (*Mechanical Engineering*), R. Mongrain (*Mechanical Engineering*), I. El Naqa (*Oncology*), S.N. Nazhat (*Mining, Metals and Materials Engineering*), A. Reader (*Neurology and Neurosurgery*), A. Shmuel (*Neurology and Neurosurgery*),

Adjunct Professor

P.G. Charette (Sher.)

11.4.5 Master of Engineering (M.Eng.); Biomedical Engineering (Thesis) (45 credits)

Thesis Courses (24 credits)

BMDE 695	(12)	Thesis Submission

12 credits selected from the following courses:

BMDE 690	(3)	Thesis Research 1
BMDE 691	(3)	Thesis Research 2
BMDE 692	(3)	Thesis Research 3
BMDE 693	(6)	Thesis Research 4
BMDE 694	(6)	Thesis Research 5

Complementary Courses (21 credits)

12 credits of courses which have both biomedical content and content from the physical sciences, engineering, or computer science selected from the following:

BIOT 505	(3)	Selected Topics in Biotechnology
BMDE 500D1	(1.5)	Seminars in Biomedical Engineering
BMDE 500D2	(1.5)	Seminars in Biomedical Engineering
BMDE 501	(3)	Selected Topics in Biomedical Engineering
BMDE 502	(3)	BME Modelling and Identification
BMDE 503	(3)	Biomedical Instrumentation
BMDE 504	(3)	Biomaterials and Bioperformance
BMDE 505	(3)	Cell and Tissue Engineering
BMDE 506	(3)	Molecular Biology Techniques
BMDE 508	(3)	Introduction to Micro and Nano-Bioengineering
BMDE 519	(3)	Biomedical Signals and Systems
BMDE 650	(3)	Advanced Medical Imaging
BMDE 651	(3)	Orthopaedic Engineering
BMDE 652	(3)	Bioinformatics: Proteomics
COMP 526	(3)	Probabilistic Reasoning and AI
COMP 558	(3)	Fundamentals of Computer Vision
COMP 646	(4)	Computational Perception
COMP 761	(4)	Advanced Topics Theory 2
ECSE 523	(3)	Speech Communications
ECSE 526	(3)	Artificial Intelligence
ECSE 529	(3)	Computer and Biological Vision
ECSE 626	(4)	Statistical Computer Vision

ECSE 681	(4)	Colloquium in Electrical Engineering
EXMD 610	(3)	Biomedical Methods in Medical Research
MDPH 607	(3)	Introduction to Medical Imaging
MDPH 611	(2)	Medical Electronics
MDPH 612	(2)	Computers in Medical Imaging
MECH 500	(3)	Selected Topics in Mechanical Engineering
MECH 561	(3)	Biomechanics of Musculoskeletal Systems
PHGY 517	(3)	Artificial Internal Organs
PHGY 518	(3)	Artificial Cells

or, with the approval of the student's Graduate Advisory Committee and the Graduate Program Chair, other graduate-level courses with content of interest to biomedical engineering students.

9 credits selected from the courses listed above, or with approval of the Graduate Chair and Supervisor.

11.4.6 Master of Engineering (M.Eng.); Biomedical Engineering (Thesis) — Bioinformatics (45 credits)

Thesis Courses (24 credits)

BMDE 693	(6)	Thesis Research 4
BMDE 694	(6)	Thesis Research 5
BMDE 695	(12)	Thesis Submission

Required Courses (3 credits)

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

Complementary Courses (18 credits)

12 credits of courses which have both biomedical content and content from the physical sciences, engineering, or computer science selected from the following:

BIOT 505	(3)	Selected Topics in Biotechnology
BMDE 500D1	(1.5)	Seminars in Biomedical Engineering
BMDE 500D2	(1.5)	Seminars in Biomedical Engineering
BMDE 501	(3)	Selected Topics in Biomedical Engineering
BMDE 502	(3)	BME Modelling and Identification
BMDE 503	(3)	Biomedical Instrumentation
BMDE 504	(3)	Biomaterials and Bioperformance
BMDE 505	(3)	Cell and Tissue Engineering
BMDE 506	(3)	Molecular Biology Techniques
BMDE 508	(3)	Introduction to Micro and Nano-Bioengineering
BMDE 519	(3)	Biomedical Signals and Systems
BMDE 650	(3)	Advanced Medical Imaging
BMDE 651	(3)	Orthopaedic Engineering
COMP 526	(3)	Probabilistic Reasoning and AI
COMP 558	(3)	Fundamentals of Computer Vision

COMP 646	(4)	Computational Perception
	(4)	Advanced Topics Theory 2

Complementary Courses (6 credits)

6 credits from the following:

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

11.5 Communication Sciences and Disorders

11.5.1 Location

School of Communication Sciences and Disorders
Beatty Hall
1266 Pine Avenue West
Montreal, QC H3G 1A8
Canada

Telephone: 514-398-4137
Fax: 514-398-8123
Email: *scsd@mcgill.ca*
Website: *www.mcgill.ca/scsd*

11.5.2 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. 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 of McGill (psychology, linguistics, neuroscience, otolaryngology, biomedical engineering, Montreal Neurological Institute) and other Montreal universities and maintain national and international collaborations. Students can access this rich collaborative network via the

section 11.5.5: Master of Science, Applied (M.Sc.A.); Communication Sciences & Disorders (Non-Thesis) — Speech-Language Pathology (69 credits)

The professional degree leads to a Master of Science (Applied) with a specialization in Speech Language Pathology. The program involves two academic years of full-time study and related practical work followed by a Summer internship. To prepare students as creative professionals, the program emphasizes the understanding of principles and theories, and their present or potential clinical applications, in addition to the teaching of specific techniques for

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.

11.5.3.2 Application Procedures

Please see the School of Communication Sciences and Disorders website at *www.mcgill.ca/scsd/programs/application* for required application materials.

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

The School of Communication Sciences and Disorders will only consider applications upon receipt of the following documentation by the dates for guaranteed consideration:

- online application;
- Prerequisite Form;
- two letters of recommendation;
- two official copies of transcripts from all universities attended.

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 **prior to admission**: the Test of English as a Foreign Language (TOEFL) with a minimum score of 587 (paper-based) or 95 on the Internet-based test with minimum component scores of 24 in both Speaking and Writing and 21 in both Reading and Listening, or the International English Language Testing System (IELTS) with a minimum overall band score of 7.0.

M.Sc. (Thesis) and Ph.D. programs

All applications received by the dates for guaranteed consideration 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.

Applications will be considered upon receipt of supporting documents as outlined above. All applicants are strongly encouraged to submit reports of their performance on the Graduate Record Examination (GRE).

11.5.4 Communication Sciences and Disorders Faculty

Interim Director

Marc Pell

Research Director

Linda Polka

Emeritus Professor

Donald Doehring; B.A.(Buff.), M.A.(N.M.), Ph.D.(Ind.)

Professors

Shari Baum; B.A.(C'nell), M.S.(Vermont), M.A., Ph.D.(Brown)

Athanasios Katsarkas; M.D.(Thess.), M.Sc.(McG.), F.R.C.P.(C)

Associate Professors

Vincent Gracco; B.A., M.A.(San Diego), Ph.D.(Wisc.-Madison)

Associate Professors

Marc Pell; B.A.(Ott.), M.Sc., Ph.D.(McG.)

Linda Polka; B.A.(Slippery Rock), M.A.(Minn.), Ph.D.(S. Flor.)

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)

Assistant 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)

Assistant Professors (Part-Time)

Christina Lattermann; Staatlich anerkannte Logopaedin(Westfaelische Wilhelms-Universität, Muenster), M.Sc.(McG.), Ph.D.(Kassel)

Gabriel Leonard; B.A.(Dublin), D.A.P., M.Sc., Ph.D.(McG.)

Rosalee Shenker; B.Sc.(Syrac.), M.A.(Calif. St.), Ph.D.(McG.)

Faculty Lecturer

Anne Vogt; B.Ed., B.A.(Tel Aviv), M.Sc.A.(McG.)

Faculty Lecturers (Part-T

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 675	(12)	Special Topics 1
SCSD 676	(9)	Special Topics 2
SCSD 677	(6)	Special Topics 3
SCSD 678	(3)	Special Topics 4

0-15 credits chosen from:

SCSD 673	(12)	M.Sc. Thesis 3
SCSD 674	(3)	M.Sc. Thesis 4

or courses in other departments, as arranged with the student's thesis supervisor.

11.5.7 Doctor of Philosophy (Ph.D.); Communication Sciences and Disorders

Thesis

Required Courses (12 credits)

SCSD 652	(3)	Advanced Research Seminar 1
SCSD 653	(3)	Advanced Research Seminar 2
SCSD 685	(3)	Research Project 1
SCSD 686	(3)	Research Project 2
SCSD 701	(0)	Doctoral Comprehensive

Complementary Courses (6 credits)

Minimum of 6 credits of graduate-level statistics from courses such as:

EDPE 676	(3)	Intermediate Statistics
EDPE 682	(3)	Univariate/Multivariate Analysis
EDPE 684	(3)	Applied Multivariate Statistics
EPIB 621	(4)	Data Analysis in Health Sciences
EPIB 622	(3)	Scientific Communication
PSYC 650	(3)	Advanced Statistics 1
PSYC 651	(3)	Advanced Statistics 2

Any other course requirements specified for the student's individual program of study.

11.5.8 Doctor of Philosophy (Ph.D.); Communication Sciences and Disorders — Language Acquisition

Students must satisfy all program requirements for the Ph.D. in their home department. The Ph.D. thesis must be on a topic relating to language acquisition, approved by the LAP committee.

Thesis

Required Courses (14 credits)

EDSL 711	(2)	Language Acquisition Issues 3
LING 710	(2)	Language Acquisition Issues 2
PSYC 709	(2)	Language Acquisition Issues 1
SCSD 652	(3)	Advanced Research Seminar 1
SCSD 653	(3)	Advanced Research Seminar 2

SCSD 701	(0)	Doctoral Comprehensive
SCSD 712	(2)	Language Acquisition Issues 4

Complementary Courses (9 credits)

3 credits of graduate-level statistics from courses such as:

EDPE 676	(3)	Intermediate Statistics
EDPE 682	(3)	Univariate/Multivariate Analysis
PSYC 650	(3)	Advanced Statistics 1
PSYC 651	(3)	Advanced Statistics 2

Students who have taken an equivalent course in statistics, or are currently taking an equivalent course as part of their Ph.D. program requirements, will be deemed to have satisfied this requirement for the Language Acquisition Option.

At least two courses, selected from the following list.

One of these two courses must be from outside Communication Sciences and Disorders.

EDSL 620	(3)	Critical Issues in Second Language Education
EDSL 623	(3)	Second Language Learning
EDSL 624	(3)	Educational Sociolinguistics
EDSL 627	(3)	Classroom-Centred Second Language Research
EDSL 629	(3)	Second Language Assessment
EDSL 632	(3)	Second Language Literacy Development
EDSL 664	(3)	Second Language Research Methods
LING 555	(3)	Language Acquisition 2
LING 590	(3)	Language Acquisition and Breakdown
LING 651	(3)	Topics in Acquisition of Phonology
LING 655	(3)	Theory of L2 Acquisition
LING 755	(3)	Advanced Seminar: Language Acquisition
PSYC 561	(3)	Methods: Developmental Psycholinguistics
PSYC 734	(3)	Developmental Psychology and Language
PSYC 735	(3)	Developmental Psychology and Language
PSYC 736	(3)	Developmental Psychology and Language
PSYC 737	(3)	Developmental Psychology and Language
SCSD 619	(3)	Phonological Development
SCSD 632	(3)	Phonological Disorders: Children
SCSD 633	(3)	Language Development
SCSD 637	(3)	Developmental Language Disorders 1
SCSD 643	(3)	Developmental Language Disorders 2

Epidemiology and Biostatistics

1020 Pine Avenue West
Montreal, QC H3A 1A2
Canada

Telephone: 514-398-6258
Email: *graduate.eboh@mcgill.ca*
Website: *www.mcgill.ca/epi-biostat-occh*

11.6.2 About Epidemiology and Biostatistics

The Department offers master's and doctoral programs in epidemiology and biostatistics. Beginning in September 2011, the programs include an M.Sc. in Public Health. The methods learned in these fields are used not only in the study of diseases, but also in health services research, program planning and evaluation, and policy development. Our faculty members are at the forefront of their research domains and include clinician scientists, medical informatics specialists, health economists, medical sociologists, and health geographers. Research in the Department spans all clinical specialties, pharmacoepidemiology, social epidemiology, infectious diseases, population and public health, environmental and occupational health, clinical and public health informatics, biostatistics, health care delivery and organization, and many faculty members 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, and industry.

11.6.3 Epidemiology and Biostatistics Faculty

Chair

R. Fuhrer

Emeritus Professors

M.R. Becklake; M.B.B.Ch., M.D.(Witw.), F.R.C.P.

A. Lippman; B.A.(C'nell), Ph.D.(McG.)

J.C. McDonald; M.B.B.S., M.D.(Lond.), M.Sc.(Harv.), M.R.C.P.(Lond.), F.R.C.P.(C)

I.B. Pless; B.A., M.D.(W. Ont.)

G. Thériault; M.D.(Laval), M.I.H., Dr.P.H.(Harv.)

S. Wood-Dauphinee; B.Sc.(Phys.Ther.), Dip.Ed., M.Sc.(A.), Ph.D.(McG.)

Professors Post Retirement

A. Lippman; B.A.(C'nell), Ph.D.(McG.)

I.B. Pless; B.A., M.D.(W. Ont.)

G. Thériault; M.D.(Laval), M.I.H., Dr.P.H.(Harv.)

S. Wood-Dauphinee; B.Sc.(Phys.Ther.), Dip.Ed., M.Sc.(A.), Ph.D.(McG.)

section 11.6.4.3: Master of Science (M.Sc.); of Public Health (Non-Thesis) (52 credits)

The mission of the M.Sc.P.H. is to train outstanding public health professionals and future leaders by offering a rigorous academic program in methods, research, and practice. This program may be of interest for students from the natural and quantitative sciences (e.g., microbiology, computer science, statistics, economics, geography), social sciences (e.g., sociology, psychology, anthropology), or the health professions (e.g., medicine, nursing, social work, nutrition). Students will study the foundations and principles of epidemiology and biostatistics, as applied to public health research and practice, in order to design, conduct, and analyze clinical, population-based, environmental, policy, and methodological public health-related research. Graduates of the program will serve as public health practitioners, research professionals, and educators, and will possess the competencies and professionalism to carry out broad public health functions in local, provincial, national, and international settings. In exceptional circumstances, the admissions committee may take professional experience into account for mid-career or returning/re-entry applicants. The Master's of Public Health program will include a three-month practicum after the first year, which will provide the student with the opportunity to use knowledge and skills acquired in the academic program in a public health practice or research setting.

section 11.6.4.4: Master of Science (M.Sc.); of Public Health (Non-Thesis) — Environment (52 credits)

A number of departments and faculties throughout McGill University have joined with the McGill School of Environment (MSE) to provide an Environment Option as part of a variety of existing graduate degrees. The option provides students with an appreciation of the role of science in informed decision-making in the environment sector, and the influence that political, socio-economic, and ethical judgments have. The option also provides a forum whereby graduate students bring their disciplinary perspectives together and enrich each other's learning through structured courses, formal seminars, and informal discussions and networking. Students who have been admitted through their home department or faculty may apply for admission to the option. Option requirements are consistent across academic units. The option is coordinated by the MSE, in partnership with participating academic units.

section 11.6.4.5: Doctor of Philosophy (Ph.D.); Epidemiology

This program may be of interest for students from the natural and quantitative sciences (e.g., microbiology, computer science, statistics, economics, geography), social sciences (e.g., sociology, psychology, anthropology) 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 quantitative skills (differential and integral calculus) at the undergraduate level.

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 in methods, rather than specific substantive areas, students learn about substantive areas in the context of their research and through elective courses.

section 11.6.4.6: Graduate Diploma in Epidemiology (30 credits)

Applications to the Diploma program will not be accepted for the 2011-2012 academic year.

11.6.4.1 Epidemiology Admission Requirements and Application Procedures

11.6.4.1.1 Admission Requirements

Graduate Diploma

(*Applications to the Diploma program will not be accepted for the 2011-2012 academic year*.)

Master's

Applicants to the M.Sc. programs must hold a bachelor's degree in a related area, possess a reasonable level of mathematical competency, and have a good knowledge of differential and integral calculus at the level of a CEGEP or first-year undergraduate course.

Ph.D.

Applicants to the Ph.D. program who hold a master's in Epidemiology are eligible for admission to the core year. Applicants with other graduate-level degrees or exceptional students without a master's degree are also eligible and will be considered for admission to a preparatory year.

Complete details on the Epidemiology programs are available on our Departmental website at: *www.mcgill.ca/epi-biostat-occh/grad/epidemiology/requirements*.

Language Requirement

Minimum TOEFL scores required, when applicable, of 100 on the Internet-based test. Minimum score for IELTS: 6.5.

11.6.4.1.1.1 Application Procedures

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

Completed applications, with all supporting documents, must reach the Department by the dates for guaranteed consideration.

Please download required documents from our website: *www.mcgill.ca/epi-biostat-occh*, then select the Graduate Studies tab to link to the appropriate degree program.

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

11.6.4.2 Master of Science (M.Sc.); Epidemiology (Thesis) (48 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 (24 credits)

EPIB 690	(24)	M.Sc. Thesis

Required Courses (22 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 602	(3)	Foundations of Population Health
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 614	(1)	Basics of Measurement in Epidemiology
EPIB 621	(4)	Data Analysis in Health Sciences

Complementary Course (2 credits)

2 credits of coursework, at the 500 level or higher, chosen in consultation with the student's academic adviser or supervisor.

11.6.4.3 Master of Science (M.Sc.); of Public Health (Non-Thesis) (52 credits)

Students will study the foundations and principles of epidemiology and biostatistics, as applied to public health research and practice, in order to design, conduct, and analyze clinical, population-based, environmental, policy, and methodological public health-related research. The program will include a three-month practicum after the first year.

Research Project (10 credits)

EPIB 630	(10)	Public Health Project

Required Courses (25 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 602	(3)	Foundations of Population Health
EPIB 603	(4)	Intermediate Epidemiology
EPIB 605	(1)	Critical Appraisal in Epidemiology
EPIB 607	(4)	Inferential Statistics
EPIB 612	(3)	Principles of Public Health Practice
EPIB 613	(1)	Introduction to Statistical Software
EPIB 614	(1)	Basics of Measurement in Epidemiology
EPIB 621	(4)	Data Analysis in Health Sciences

Complementary Courses (17 credits)

9 credits of coursework at the 500 level or higher with a minimum of:

3 credits in environmental health sciences;

3 credits in health services research policy and management;

3 credits in population and public health interventions (social and behavioral science).

8 credits of coursework, at the 500 level or higher, chosen in consultation with the student's academic adviser.

11.6.4.4 Master of Science (M.Sc.); of Public Health (Non-Thesis) — Environment (52 credits)

Students will study the foundations and principles of epidemiology and biostatistics, as applied to public health research and practice, in order to design, conduct, and analyze clinical, population-based, environmental, policy, and methodological public health-related research.

The program will include a three-month practicum after the first year.

Research Project (10 credits)

EPIB 630	(10)	Public Health Project

Required Courses (31 credits)

Students exempted from any of the courses listed below must replace them with additional complementary course credits.

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
EPIB 601	(4)	Fundamentals of Epidemiology
EPIB 602	(3)	Foundations of Population Health
EPIB 603	(4)	Intermediate Epidemiology
EPIB 605	(1)	Critical Appraisal in Epidemiology
EPIB 607	(4)	Inferential Statistics
EPIB 612	(3)	Principles of Public Health Practice
EPIB 613	(1)	Introduction to Statistical Software
EPIB 614	(1)	Basics of Measurement in Epidemiology
EPIB 621	(4)	Data Analysis in Health Sciences

Complementary Courses (11 credits)

6 credits of coursework at the 500 level or higher, with a minimum of:

3 credits in health services research policy and management;

3 credits of population and public health interventions (social and behavioural science).

Courses must be chosen and approved in consultation with the student's academic adviser.

3 credits chosen from:

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

or other courses at the 500 level or higher recommended by the advisory committee and approved by the Environmental Option Committee.

AND

2 credits of coursework, at the 500 level or higher, chosen in consultation with the student's academic adviser or supervisor.

11.6.4.5 Doctor of Philosophy (Ph.D.); Epidemiology

Preparatory Year

Students who are admitted to the Ph.D. degree program without the equivalent of an M.Sc. in epidemiology at McGill will, in their first year, be required to take, as a minimum, the following courses: EPIB 601, EPIB 602, EPIB 603, EPIB 605, EPIB 607, EPIB 613, EPIB 614, EPIB 621 (equivalent to required coursework of the master's program).

This year is called the Preparatory Year. Students then continue, in their second year, into the Core Year.

Core Year

Students who are admitted to the Ph.D. degree program with the equivalent of the M.Sc. in epidemiology at McGill will, in their first year, be required to take, as a minimum, 15 credits of required Ph.D. courses. This year is called the Core Year.

Thesis

Required Courses (12 credits)

EPIB 608	(3)	Advanced Epidemiology
EPIB 609	(3)	Seminar on Advanced Methods in Epidemiology
EPIB 610	(3)	Advanced Methods: Causal Inference
EPIB 623	(3)	Research Design in Health Sciences
EPIB 701	(0)	Ph.D. Comprehensive Examination
EPIB 702	(0)	Ph.D. Proposal

Complementary Courses (34 credits)

12-34 credits

0-22 credits* from the following:

EPIB 601	(4)	Fundamentals of Epidemiology
EPIB 602	(3)	Foundations of Population Health
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 614	(1)	Basics of Measurement in Epidemiology
EPIB 621	(4)	Data Analysis in Health Sciences

* Note: If a student has not already successfully completed them or their equivalent.

12 credits of coursework, at the 500 level or higher, of which a minimum of 3 credits in ethics (medical/public health/research), 3 credits in biostatistics, 3 credits in substantive topic, and 3 credits in epidemiology. Courses must be chosen and approved in consultation with the program's academic adviser.

11.6.4.6 Graduate Diploma in Epidemiology (30 credits)

(Applications to the Diploma program will not be accepted for the 2011-2012 academic year.)

Required Courses (17 credits)

EPIB 601	(4)	Fundamentals of Epidemiology 1
EPIB 607	(4)	Inferential Statistics
EPIB 650	(9)	Diploma Dissertation

Note: Students exempted from either EPIB 601 and/or EPIB 607 must replace them with additional complementary course credits.

Complementary Courses

13 credits of coursework, at the 500, 600, or 700 level, chosen in consultation with the student's academic adviser.

11.6.5 Biostatistics

Biostatistics involves the development and application of statistical methods to scientific research in areas such as medicine, epidemiology, environmental health, genetics, and ecology. Biostatisticians play key roles in designing studies – from helping to formulate the questions that can be answered by data collection to the decisions on how best to collect the data – and in analyzing the resulting data. They also develop new statistical methods for such data. Students will take courses, and may do research, on topics such as mathematical statistics, statistical methods for epidemiology, generalized linear models, survival analysis, longitudinal data, and clinical trials. The Department of Epidemiology, Biostatistics, and Occupational Health has one of the largest concentrations of Ph.D.-level statisticians in any Canadian Faculty of Medicine.

section 11.6.5.2: Master of Science (M.Sc.); Biostatistics (Thesis) (48 credits)

M.Sc. thesis students study a foundational set of courses, and write a thesis on a topic of their choice. Thesis students should have a strong interest in research. These students are well-placed to either continue in a Ph.D. program or to work in academic research in statistics or medicine; they will also have relevant qualifications for the pharmaceutical industry and government.

section 11.6.5.3: Master of Science (M.Sc.); Biostatistics (Non-Thesis) (48 credits)

The M.Sc. non-thesis program is designed to expose students to a wide range of topics including statistical methods for epidemiology, generalized linear models, survival analysis, longitudinal data, and clinical trials. Skills in data analysis, statistical consulting, communication, and report writing are emphasized, and students graduate ready to work in the pharmaceutical and biotechnology industries, in government, or in academic medical research.

section 11.6.5.4: Doctor of Philosophy (Ph.D.); Biostatistics

Applicants should hold a master's degree in mathematics or statistics or its equivalent. Mastery of calculus, linear algebra, real analysis, and mathematical statistics are essential. Exposure to data analysis is an asset. Exceptional students without a master's degree will be considered for admission, starting with a qualifying year. Ph.D. students typically work on development of statistical methods, and can specialize in statistical methods for epidemiology, generalized linear models, Bayesian methods, survival analysis, longitudinal data, causal inference, and clinical trials. Skills in data analysis, statistical consulting, and report writing are emphasized. Ph.D. graduates typically work as faculty in universities, in research institutes, in government, or in the pharmaceutical industry.

11.6.5.1 Biostatistics Admission Requirements and Application Procedures

11.6.5.1.1 Biostatistics

11.6.5.1.1.1 Admission Requirements

An undergraduate degree in mathematics or statistics or its equivalent (an honours degree is preferred, but not required). At least three semesters of calculus, two semesters of linear algebra, at least one, but preferably two semesters of real analysis, and a full year course/sequence in mathematical statistics preferably at an honours level, e.g., MATH 356/357. Exposure to data analysis is an asset.

M.Sc.: Students admitted into the M.Sc. program will, in general, meet the requirements above.

Ph.D.: Exceptional students without a master's degree but with the above qualifications will be considered for Ph.D. admission starting with a qualifying year.

Complete details on the Biostatistics programs are available on our Departmental website at: *www.mcgill.ca/epi-biostat-occh/grad/biostatistics/requirements*.

Language Requirement

Minimum TOEFL scores required, when applicable, of 100 on the Internet-based test. Minimum score for IELTS: 6.5.

11.6.5.1.1.2 Application Procedures

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

Completed applications, with all supporting documents, must reach the Department by the dates for guaranteed consideration. Please see our website at *www.mcgill.ca/epi-biostat-occh/grad/biostatistics/applying* for information on required documents as well as the application deadline.

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

11.6.5.2 Master of Science (M.Sc.); Biostatistics (Thesis) (48 credits)

Training in statistical theory and methods, applied data analysis, scientific collaboration, communication, and report writing by coursework and thesis.

Thesis Courses (24 credits)

BIOS 690	(24)	M.Sc. Thesis

Required Courses (24 credits)

Students exempted from any of the courses listed below must replace them with complementary course credits, at the 500 level or higher, chosen in consultation with the student's academic adviser or supervisor.

BIOS 601	(4)	Epidemiology: Introduction and statistical models
BIOS 602	(4)	Epidemiology: Regression Models
MATH 523	(4)	Generalized Linear Models
MATH 533	(4)	Honours Regression and Analysis of Variance
MATH 556	(4)	Mathematical Statistics 1
MATH 557	(4)	Mathematical Statistics 2

11.6.5.3 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)	Honours Regression and Analysis of Variance
MATH 556	(4)	Mathematical Statistics 1
MATH 557	(4)	Mathematical Statistics 2

Complementary Courses (18 credits)

18 credits of coursework, at the 500 level or higher, chosen in consultation with the student's academic adviser or supervisor.

11.6.5.4 Doctor of Philosophy (Ph.D.); Biostatistics

Students will study theoretical and applied statistics and related fields; the program will train them to become independent scientists able to develop and apply statistical methods in medicine and biology and make original contributions to the theoretical and scientific foundations of statistics in these disciplines. Graduates will be prepared to develop new statistical methods as needed and apply new and existing methods in a range of collaborative projects. Graduates will be able to communicate methods and results to collaborators and other audiences, and teach biostatistics to biostatistics students, students in related fields, and professionals in academic and other settings.

Thesis

Required Courses

BIOS 700	(0)	Ph.D. Comprehensive Examination Part A
		Ph.D. Comprehensi

BIOS 702	(0)	Ph.D. Proposal

Complementary Courses (28 credits)

0-28 credits from the following list: (if a student has not already successfully completed them or their equivalent)

BIOS 601	(4)	Epidemiology: Introduction and statistical models
BIOS 602	(4)	Epidemiology: Regression Models
BIOS 624	(4)	Data Analysis & Report Writing
MATH 523	(4)	Generalized Linear Models
MATH 533	(4)	Honours Regression and Analysis of Variance
MATH 556	(4)	Mathematical Statistics 1
MATH 557	(4)	Mathematical Statistics 2

12 credits (chosen and approved in consultation with the student's academic adviser), at the 500 level or higher, in statistics/biostatistics.

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).

11.7 Experimental Medicine

Please see " *section 11.10: Medicine, Experimental*" for more information.

11.8 Human Genetics

11.8.1 Location

Department of Human Genetics
Stewart Biological Sciences Building
1205 Dr. Penfield Avenue, N5/13
Montreal, QC H3A 1B1
Canada

Telephone: 514-398-4198
Fax: 514-398-2430
Email: *grad.hg@mcgill.ca*
Website: *www.mcgill.ca/humangenetics*

11.8.2 About Human Genetics

M.Sc. and Ph.D. Degrees in Human Genetics

The Department of Human Genetics offers a clinical Master’s program in Genetic Counselling, as well as research training at both the M.Sc. and Ph.D. levels. Both the M.Sc. and Ph.D. research programs require the completion of a thesis, which is the major focus of the student's effort. A minimal amount of coursework is required, but specific course choices are flexible and vary according to the student's previous training and current research interest. The Department also offers a Bioo 144.943 Tmn58 l42.52 30 0 290.3 Tmn58 l42.52 144.943 Tm..52 144.943 Tm..52 144.942.52 144.943 Tm..52 144.943 Tm..52 14 castbt

section 11.8.5: 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, and genomics. Many of our faculty hold cross-appointments in various departments (including: biochemistry, biology, cardiology, medicine, microbiology, immunology, neurology, pathology, paediatrics, pharmacology, psychiatry) 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, the McGill Life Sciences Complex, the McGill University-Genome Quebec Innovation Centre, the Biomedical Ethics Unit, and the Centre for Genomics and Policy.

section 11.8.6: Master of Science (M.Sc.); Human Genetics (Thesis) — Bioinformatics (45 credits)

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 modeling techniques, the creation of tools for manipulating Bioinformatics data, the integration of biological databases and the use of algorithms and statistics.

section 11.8.7: 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, Religious Studies and Law, 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 11.8.8: Master of Science (M.Sc.); Genetic Counselling (Non-Thesis) (48 credits)

The M.Sc. in Genetic Counselling program provides the academic foundation and clinical training required for the contemporary practice of genetic counselling. Genetic counsellors are health professionals who provide information and support to families who have members with birth defects or genetic disorders and to families who may be at risk for a variety of inherited conditions. Genetic counsellors investigate the problem present in the family, analyze inheritance patterns and risks of recurrence, and review available options with the family. Some counsellors also work in administrative and academic capacities, and many engage in research activities. The curriculum includes a variety of required courses in Human Genetics and other departments, and 40 weeks of supervised clinical training spread over four semesters. Graduates will be eligible to sit for both the Canadian Association of Genetic Counsellors and the American Board of Genetic Counselling certification examinations. Upon completion of the M.Sc. in Genetic Counselling program, the students will demonstrate competence in or satisfactory knowledge of: principles of human genetics, including cytogenetics, biochemical, molecular, and population genetics; methods of interviewing and counselling, and the dynamics of human behaviour in relation to genetic disease; and social, legal, and ethical issues in genetics. Enrolment will be limited to four students.

section 11.8.9: Doctor of Philosophy (Ph.D.); Human Genetics

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, and genomics. Many of our faculty hold cross-appointments in various departments (including: biochemistry, biology, cardiology, medicine, microbiology, immunology, neurology, pathology, paediatrics, pharmacology, psychiatry) 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, The McGill Life Sciences Complex, The McGill University-Genome Quebec Innovation Centre, The Biomedical Ethics Unit, and The Centre for Genomics and Policy.

section 11.8.10: Doctor of Philosophy (Ph.D.); Human Genetics — Bioinformatics

Students successfully completing the Bioinformatics Option at the Ph.D. level will be fluent in the concepts, language, approaches, and limitations of the field and have the capability of developing an independent Bioinformatics research program. 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 modeling techniques, the creation of tools for manipulating Bioinformatics data, the integration of biological databases and the use of algorithms and statistics.

Prerequisites or corequisites: Recent (five years or less) university-level course in statistics.

Applicants must have obtained some experience (either paid or volunteer) working in a counselling or advisory capacity, ideally in a health care setting.

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 score of 600 on the TOEFL paper-based test (or 100 on the Internet-based test), with each component score no less than 20, as the **minimum** standard for admission.

M.Sc. and Ph.D. in Human Genetics

Prerequisites: B.Sc. – minimum CGPA 3.0/4.0 or 3.2/4.0 for the last two full-time academic years. Applicants must have a minimum of 6 credits in cellular and molecular biology or biochemistry, 3 credits in mathematics or statistics and 3 credits in genetics. 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 score of 600 on the TOEFL paper-based test (or 100 on the Internet-based test), with each component score no less than 20, or 7 on the IELTS, as the minimum standard for admission.

Admission is based on an evaluation by the Graduate Training Committee and on acceptance by a research director who has agreed to provide adequate funding for the duration of the academic program. Prospective graduate students should complete the online application form, indicate at least three faculty members they are interested in working with, and email copies of their transcripts/letters, etc., to *grad.hg@mcgill.ca*.

11.8.3.2 Application Procedures

M.Sc. in Genetic Counselling

Applications will be considered upon receipt of:

1. online application form, plus fee of **$100;**
2. two original transcripts;
3. two original letters of reference;
4. statement of purpose;
5. test results for international students: TOEFL or IELTS.

Documentation and online application must be received by January 15th. Interviews will be arranged dur1 Tfdnglweekv

M.Sc. (Thesis) programs:

Fall: March 31
Winter: Sept. 30
Summer: no admissions**

Ph.D. programs:

Fall: March 31
Winter: Sept. 30
Summer: Jan. 31

* **M.Sc. Genetic Counselling program** accepts applications for the Fall term only.

** The Department of Human Genetics is not willing to consider any applications to the M.Sc. (Thesis) for the Summer term.

For further details regarding dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

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

Application materials should be sent to Thomas Leslie at the departmental address.

11.8.4 Human Genetics Faculty

Chair

D.S. Rosenblatt

Program Directors

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

E. Shoubridge – *M.Sc. and Ph.D. in Human Genetics*

Administrative Assistant

K. Springer

Graduate Program Coordinator

T. Leslie

Assistant Graduate Program Coordinator

A. Cenaiko

Emeritus Professors

V. Der Kaloustian; B.A.(Acad.), M.Sc., Ph.D., M.D.,C.M.(McG.), D.Sc.(Acad.), F

HGEN 690	(3)	Inherited Cancer Syndromes
HGEN 691	(3)	Host Responses to Pathogens
HGEN 693	(3)	Using Bioinformatics Resources
HGEN 694	(3)	Microarray Statistical Analysis
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 course work at the 500, 600, or 700 level depending on the background of the candidate.

Master of Science (M.Sc.); Human Genetics (Thesis) Thesis)

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 543	(3)	Seminar: Medical Ethics
RELG 571	(3)	Religion and Medicine

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

Required Courses - Phase I (24 credits)

HGEN 600D1	(3)	Genetic Counselling Practicum
HGEN 600D2	(3)	Genetic Counselling Practicum
HGEN 601	(3)	Genetic Counselling Principles
HGEN 620D1	(4.5)	Introductory Field Work Rotations
HGEN 620D2	(4.5)	Introductory Field Work Rotations
HGEN 660	(3)	Genetics and Bioethics
PATH 653	(3)	Reading and Conference

Required Courses - Phase II (24 credits)

HGEN 610	(3)	Genetic Counselling: Independent Studies 1
HGEN 611	(3)	Genetic Counselling: Independent Studies 2
HGEN 630D1	(6)	Advanced Field Work Rotations
HGEN 630D2	(6)	Advanced Field Work Rotations
HGEN 640	(3)	Clinical Genetics 1
		Clinical Genetics 2

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 694	(3)	Microarray Statistical Analysis
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 any two of the following courses:

HGEN 670	(3)	Advances in Human Genetics 1
HGEN 671	(3)	Advances in Human Genetics 2
HGEN 672	(3)	Advances in Human Genetics 3

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

11.8.10 Doctor of Philosophy (Ph.D.); Human Genetics — Bioinformatics

Thesis

Required Courses (6 credits)

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar
HGEN 692	(3)	Human Genetics
HGEN 701	(0)	Ph.D. Comprehensive Examination

Complementary Courses (6 credits)

* Two courses from the following:

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

* 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.

11.9 Medical Physics

11.9.1 Location

Medical Physics Unit
Montreal General Hospital
Livingston Hall, Room L5-113
1650 Cedar Avenue
Montreal, QC H3G 1A4
Canada

Telephone: 514-934-1934 ext. 44158
Fax: 514-934-8229
Email: *mak@medphys.mcgill.ca*
Website: *www.medphys.mcgill.ca*

11.9.2 About Medical Physics

The Medical Physics Unit offers an M.Sc. in Medical Radiation Physics. Facilities are available for students to undertake a Ph.D. in Medical Physics through the Department of Physics.

The Unit is a teaching and research unit concerned with the application of physics and related sciences in medicine, especially (but not exclusively) in radiation medicine; i.e., radiation oncology, medical imaging, and nuclear medicine.

Students are admitted to the M.Sc. program only to start in the Fall term (in September) of a given academic year. Applications for consideration for the Fall term of 2012 must be completed by January 15, 2012.

Applications being made to McGill University graduate programs for September 2012 can only be made online via McGill's website. For information regarding the application procedure and to access the application form, please go to *www.mcgill.ca/gradapplicants/apply* or go directly to the Medical Physics Unit admissions website at *www.medphys.mcgill.ca* and click on **Academic** and then **Admissions Information**.

Only complete applications will be considered. Interested candidates should (a) ask their university(ies) to send two originals of each transcript, and (b) request that original confidential letters of recommendation be sent by professors familiar with their work. Letters must be originals, must be dated within the last two years, and must be written on official university letterhead, otherwise they will not be accepted. The application fee of $100 may be remitted in either Canadian or U.S. funds. When preparing the online application form, the application fee is remitted via a valid credit card. Applicants must either complete the "Applicant Statement" portion of the online application, or alternatively may submit a one-page "Statement of Interest" as part of their supporting documentation.

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 a TOEFL, iBT, or IELTS. The original test report must be sent by the testing centre, i.e., a photocopy sent by the applicant is not acceptable. The test must have been taken within the two years prior to date of application review, i.e., not prior to April 2009. Applicants from some countries are exempt from providing evidence of English language proficiency. For more information, see *www.mcgill.ca/gradapplicants/apply/prepare/requirements/proficiency*.

All supporting application materials should be sent directly to the Administrative Coordinator, Medical Physics Unit, and should reach the Department by January 15, 2012.

11.9.4 Medical Physics Faculty

Director

J.P.F. Seuntjens

Emeritus Professor

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

Professors

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

G.B. Pike; B.Eng.(St. John's), M.Eng., Ph.D.(McG.)

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

Associate Professor

I. El Naqa; B.Sc., M.S.(Jordan), Ph.D.(Chic.), M.A.(Wash.), D.A.B.R.

Assistant Professor

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

Lecturers

F. DeBlois, S. Devic, A. Gauvin, G. Hegyi, C. Janicki, J. Kildea, P. Léger, W.A. Parker, H.J. Patrocinio, R. Ruo, G. Stroian

Associate Members

A. Reader, R.B. Richardson, E. Soisson, N. Tomic, W. Wierzbicki

11.9.5 Master of Science (M.Sc.); Medical Radiation Physics (Thesis) (60 credits)

Thesis Courses (32 credits)

MDPH 625	(32)	M.Sc. Thesis Research

Required Courses (28 credits)

MDPH 601	(3)	Radiation Physics

MDPH 602 (3) Applied Dosimetry

section 11.10.7: Master of Science (M.Sc.); Experimental Medicine (Thesis) — Environment (45 credits)

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 option in Environment provides students with an appreciation of the role of science in informing decision-making in the environment sector, and the influence that political, socio-economic, and ethical judgments have.

section 11.10.8: Master of Science (M.Sc.); Experimental Medicine (Thesis) — Family Medicine (45 credits)

Applicants for the M.Sc. (Family Medicine Option) must be practising family physicians interested in conducting research in family medicine. Exceptionally, candidates from different backgrounds may be considered. This program is the first of its kind in Canada because it teaches rigorous research skills to be successful researchers in the discipline of family medicine. It differs from the other programs in that it focuses on improving primary care delivery. All students are expected to complete a thesis to graduate. Graduates of this program may lead to careers in clinical or primary care research, government, or academia.

section 11.10.9: 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 ha

The option of in-course addition of the Environment Option is also available to students in Experimental Medicine. For further information, students should refer to the departmental website or contact the student affairs office.

M.Sc. (Family Medicine Option)

The M.Sc. in Experimental Medicine (Thesis) – Family Medicine option is designed to provide research training to family physicians practising in Quebec interested in conducting research in family medicine. Exceptionally, students who do not fit these criteria may be considered for admission on an individual basis.

For those who apply to the M.Sc. (Family Medicine Option), the requirements, as well as the application deadline are different. For further information regarding this program, please visit their website at: *www.mcgill.ca/familymed/mastersprogram*.

Graduate Diploma in Clinical Research

Professors

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

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

Professors

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

Associate Professors

M. Laughrea; B.Sc.(Laval), M.Sc., M.Phil., Ph.D.(Yale)

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

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

L. Lecanu; M.Sc., Ph.D.(Paris)

S. Lemay; M.D.(Montr.), F.R.C.P.(C)

R. Lin; B.Sc., M.Sc.(PRC), Ph.D.(C'dia)

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

J.-L. Liu; B.Sc., M.Sc.(Beijing), Ph.D.(McG.)

J.A. Morais; M.D.(Montr.), F.R.C.P.(C)

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

M. Newkirk; B.Sc., M.Sc.(Qu.), Ph.D.(Tor.)

S. Qureshi; B.Sc., M.D.(Alta.), F.R.C.P.(C)

J. Rauch; B.Sc., Ph.D.(McG.)

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

G. Spurll; B.Sc.(Med.), M.D.(Manit.)

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

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

B. Turcotte; B.Sc., Ph.D.(Laval)

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

Assistant Professors

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

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

M. Chevrette; B.Sc., M.Sc., Ph.D.(Laval)MontrJ.A. Morais; M.D.(Montr

Assistant Professors

P. Siegel; B.Sc., Ph.D.(McM.)

R. Sladek; B.Sc., M.D.(Tor.), F.R.C.P.(C)

E. Torban; B.Sc., M.Sc.(Russia), Ph.D.(McG.)

Associate Members, McGill

G. Bartlett, M. Basik, E. Bereza, J.D. Bobyn, D. Boivin, M. Bouchard, J. Bourbeau, P. Brodt, K. Brown, D.H. Burns, S. Chevalier, R.-C. Chian, H. Clarke, T. Duchaine, D. Dufort, C. Ells, R. Farookhi, K. Glass, C. Goodyer, P. Goodyer, W. Gotlieb, M. Götte, I. Gupta, J. Haggerty, M. Hunt, N. Jabado, M. Kaartinen, N. Kabani, J. Kimmelman, A. Koromilas, L. Lands, J. Lapointe, C. Mandato, A. Macaulay

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 543	(3)	Seminar: Medical Ethics
RELG 571	(3)	Religion and Medicine

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

11.10.7 Master of Science (M.Sc.); Experimental Medicine (Thesis) — Environment (45 credits)

Thesis Courses (24 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

Required Courses (6 credits)

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

Complementary Courses (15 credits)

3 credits from one of the following courses*:

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

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

12 credits of courses at the 500, 600, or 700 level chosen in consultation with the student's academic supervisor.

11.10.8 Master of Science (M.Sc.); Experimental Medicine (Thesis) — Family Medicine (45 credits)

Thesis Courses (24 credits)

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

Required Courses (17 credits)

DENT 672	(3)	Applied Mixed Methods in Health Research
EPIB 507	(3)	Biostatistics for Health Professionals
EPIB 600	(3)	Clinical Epidemiology
FMED 500	(1)	Introduction to Research
FMED 600	(1)	Mixed Studies Reviews
FMED 601	(3)	Advanced Topics in Family Medicine Research

a Cell sorter, ultra centrifuges, confocal microscope, real-time PCR facilities, cryostat for Immunocytochemistry, and facilities for radio-isotope studies and infectious diseases. We foster close ties with McGill's teaching hospitals and research centres to promote multidisciplinary research.

section 11.11.5: Master of Science (M.Sc.); Microbiology and Immunology (Thesis) (45 credits)

The primary goal of this program is to provide students with unique opportunities to learn experimental designs and fundamental research techniques, and objectively synthesize information from scientific literature. These tools enable the students to focus on major research topics offered by the Department: molecular microbiology, mycology, microbial physiology, virology, genetics, immunology, drug design, and aspects of host-parasite relationships. Each M.Sc. student chooses their preferred major research area and research supervisor. Following an interview, the student is presented with a research topic and offered a studentship (amounts vary). Each student then must register for our graduate courses (two seminars, two reading and conference courses, and three current topics). If pertinent to the student's research program, the research adviser may advise the student to take additional courses. Most of our students, after one year, are profiand of

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

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

Associate Members

Neurology and Neurosurgery: J. Antel

Oncology: A. Gatignol, A.E. Koromilas, A. Mouland, S. Richard

Ophthalmology: M. Burnier

Surgery: N.V. Christou

Adjunct Professors

J. Archambault, A. Descoteaux, P. Lau, B. Lee, S-L. Liu, A. Makrigiannis, Y. Mamane, R.-P. Sekaly, W.-K. Suh, D. Ziberstein

11.11.5 Master of Science (M.Sc.); Microbiology and Immunology (Thesis) (45 credits)

Thesis Courses (24 credits)

MIMM 697	(8)	Master's Research 1
MIMM 698	(8)	Master's Research 2
MIMM 699	(8)	Master's Research 3

Required Courses (15 credits)

MIMM 611	(3)	Graduate Seminars 1
MIMM 612	(3)	Graduate Seminars 2
MIMM 613	(3)	Current Topics 1
MIMM 614	(3)	Current Topics 2
MIMM 615	(3)	Current Topics 3

Complementary Courses (6 credits)

6 credits, two of the following courses:

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

Other courses may be required to strengthen the student's background.

11.11.6 Doctor of Philosophy (Ph.D.); Microbiology and Immunology

Thesis

Required Courses (18 credits)

MIMM 611	(3)	Graduate Seminars 1
MIMM 612	(3)	Graduate Seminars 2
MIMM 613	(3)	Current Topics 1
MIMM 614	(3)	Current Topics 2
MIMM 615	(3)	Current Topics 3
MIMM 701	(0)	Comprehensive Examination-Ph.D. Candidate
MIMM 713	(3)	Graduate Seminars 3

Complementary Courses (12 credits)

(minimum of 12 credits)

Three courses from List A and a minimum of three consecutive courses from List B

List A:

3. Students will present a formal seminar on their research work prior to writing their thesis. This presentation will be attended by the student's Advisory Committee who will report their impressions and recommendations to the student.
4. An annual oral informal presentation of research work accomplished will be presented to the student's Advisory Committee.
5. The Graduate Program Committee has instituted a mentorship program by which each student will be matched with a specific member of the Committee. The Program Mentor ensures that the student, the supervisor(s) and other members of the Advisory Committee are aware of and meet key milestones, in a timely manner, throughout the course of the student's graduate study.
6. An M.Sc. student may be eligible to transfer to the Ph.D. program without submitting a master's thesis by taking the Transfer Seminar/Candidacy Exam. This exam is allowable if the master's CGPA is 3.3 or higher and if the student's Advisory Committee recommends the student as an appropriate candidate for Ph.D. studies. M.Sc. students who wish to pursue a Ph.D. degree, but who have not obtained the minimum 3.3 CGPA in their M.Sc. coursework while in the IPN, must submit a master's thesis and apply for the Ph.D. level afterwards.
7. All incoming students are required to take the workshops on Responsible Conduct of Research. These will be included as part of the milestones for annual progress reports.

section 11.12.5: Master of Science (M.Sc.); Neuroscience (Thesis) (45 credits)

The M.Sc. program offers opportunities to a wide diversity of individual interests and backgrounds, and prepares our students for scientific careers in the neuroscience and related fields. Programs leading to an M.Sc. degree require the completion of 45 credits of academic and research training. Applicants must hold an undergraduate degree, or its equivalent, from a recognized institution and must display an adequate background in basic sciences. Applicants are expected to have attained a high scholastic standing equal to, or greater than, the minimum cumulative grade point average (CGPA) of 3.3 (out of 4.0 at McGill University) in all levels of study.

section 11.12.6: Doctor of Philosophy (Ph.D.); Neuroscience

The IPN offers a highly competitive Ph.D. degree program that prepares students for successful, scientific careers in the field of neuroscience. Over half of the students registered in the neuroscience graduate program at McGill University are in the doctoral stream. Applicants must hold a graduate-level degree in a fi

6. TOEFL test results.

All information is to be submitted to the address listed in *section 11.12: Neuroscience (Integrated Program in)*.

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gr*

Professors
D. ColmanR.ukO.sors

Professors

J. Poirier; Ph.D.(Montr.), Dept. of Psychiatry and Medicine

A. Ptito; Ph.D.(Montr.), Dept. of Neurology and Neurosurgery

R. Quirion; B.Sc., M.Sc., Ph.D.(Sher.), Dept. of Psychiatry

M. Rasminsky; B.A.(Tor.), M.D.(Harv.), Ph.D.(Lond.), F.R.C.P.(C), Dept. of Neurology and Neurosurgery

A. Ribeiro-da-Silva; M.D.(Porto), Ph.D.(Porto), Dept. of Pharmacology and Therapeutics

R.J. Riopelle; M.D.(Ott.), F.R.C.P.(C), Dept. of Neurology and Neurosurgery

A. Sadikot; M.D.,C.M.(McG.), Ph.D.(Laval), F.R.C.S.(C), Dept. of Neurology and Neurosurgery

H.U. Saragovi; Ph.D.(Miami), Dept. of Pharmacology and Therapeutics

H. Schipper; M.D., Ph.D.(McG.), F.R.C.P.(C), Dept. of Neurology and Neurosurgery

P. Seguela; Doct. 3e Cycle(Bord.), Ph.D.(Montr.), Dept of Neurology and Neurosurgery

M. Shevell; B.Sc., M.D.(Vanderbilt), Dept. of Neurology and Neurosurgery

E. Shoubridge; M.Sc., Ph.D.(Br. Col.), Dept. of Neurology and Neurosurgery

W. Sossin; B.S.(MIT), Ph.D.(Stan.), Dept. of Neurology and Neurosurgery

L. Srivastava; Ph.D.(New Delhi), Dept. of Psychiatry

S. Stifani; Ph.D.(Rome), Ph.D.(Alta.), Dept. of Neurology and Neurosurgery

M. Sullivan; B.A.(McG.), M.A., Ph.D.(C'dia), Dept. of Psychology

G. Tannenbaum; M.Sc., Ph.D.(McG.), Dept. of Neurology and Neurosurgery

G. Turecki; M.D.(Brazil), Ph.D.(McG.), Dept. of Psychiatry

C.-D. Walker; Ph.D.(Geneva), Dept. of Psychiatry

C. Wolfson; Ph.D.(McG.), Dept. of Epidemiology and Biostatistics

R.J. Zatorre; A.B.(Boston), M.Sc., Ph.D.(Brown), Dept. of Neurology and Neurosurgery

Associate Professors

J. Armony; Ph.D.(NYU), Dept. of Psychiatry

A. Bar-Or; M.D.,C.M.(McG.), F.R.C.P(C), D.A.B.N.P., Dept. of Neurology and Neurosurgery

S. Beaulieu; M.D., Ph.D., F.R.C.P.(C), Dept. of Psychiatry

D. Bernard; Ph.D.(Johns Hop.), Dept. of Pharmacology

A. Bernasconi; M.D.(Basel), Dept. of Neurology and Neurosurgery

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

D. Boivin; M.D.(La

Associate Professors

A. F

Assistant Professors

E. Kobayashi; M.D., Ph.D.(Campinas State), Dept. of Neurology and Neurosurgery

L. Koski; B.Sc.(Tor.), Ph.D.(McG.), Dept. of Neurology and Neurosurgery

N. Ladbon-Bernasconi; M.D.(Lausanne), Ph.D.(McG.), Dept. of Neurology and Neurosurgery

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

G. Leonard; Ph.D.(McG.), Dept. of Neurology and Neurosurgery

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

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

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

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

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

J. Pruessner; Ph.D.(Trier), Dept. of Psychiatry

E. Ruthazer; A.B.(Princ.), Ph.D.(Calif.-San Francisco), Dept. of Neurology and Neurosurgery

P. Schweinhardt; M.D.(Heidelberg), Ph.D.(Oxf.), Depts. of Dentistry, Neurology and Neurosurgery

A. Shmuel; B.Med., M.Sc.(Hebrew), Ph.D.(W

NEUR 698	(9)	Master's Seminar Presentation
NEUR 699	(12)	Master's Thesis Submission

and one of the following:

NEUR 610	(5)	Central Nervous System
NEUR 630	(3)	Principles of Neuroscience 1
NEUR 631	(3)	Principles of Neuroscience 2

Complementary Courses (6 credits)

6 credits in other graduate-level specialty courses relevant to the program.

Upon recommendation, depending upon their particular background and needs, students may be requested to take additional selected courses.

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

11.12.6 Doctor of Philosophy (Ph.D.); Neuroscience

Students with an M.Sc. degree continuing in this Department will receive credit exemptions for graduate coursework accomplished (including NEUR 630, and either NEUR 631 or NEUR 610). It may be recommended that they take specialty courses related to their field of study in neuroscience. Students with an M.Sc. degree from another program will be required to take NEUR 630 and NEUR 631 and/or other courses listed under the M.Sc. degree depending upon their background and field of study.

Students with an M.D. degree proceeding directly into a Ph.D. program will be required to take NEUR 630 and NEUR 631. Recently graduated M.D.s should have the equivalent of NEUR 610, and may be granted equivalence. They will also be required to take 6 credits of graduate-level courses.

Thesis

Required Courses (3 credits)

Note: A student may receive an exemption if the student can display equivalency for NEUR 630.

NEUR 630	(3)	Principles of Neuroscience 1
NEUR 700	(0)	Doctoral Candidacy Examination

Complementary Courses (11 credits)

(9-11 credits)

Note: A student may receive exemptions if the student can display equivalencies for NEUR 631 and NEUR 610.

Must take one of the following courses:

NEUR 610	(5)	Central Nervous System
NEUR 631	(3)	Principles of Neuroscience 2

Two courses at the 500, 600, or 700 level, approved by the graduate program adviser.

11.13 Occupational Health

11.13.1 Location

Department of Epidemiology, Biostatistics and Occupational Health
Purvis Hall
1020 Pine Avenue West
Montreal, QC H3A 1A2

Canada

Website: *www.mcgill.ca/occh*

M.Sc.(A.) (Resident) and Ph.D. programs:

Telephone: 514-398-6258
Email: *graduate.eboh@mcgill.ca*

M.Sc.(A.) (Distance Education) program:

Telephone: 514-398-6989
Email: *distance.occh@mcgill.ca*
Website: *www.mcgill.ca/occh/programs/distance*

11.13.2 About Occupational Health

The Department of Occupational Health offers two graduate degree programs: a doctorate (Ph.D.) and master (M.Sc.(A.)) in occupational health sciences. The master's program is available on campus or in distance education format. Special student status may be granted to students who wish to take only specific courses from our M.Sc. program. There is a maximum of 12 credits overall, with a maximum of 6 credits per semester.

Students are required to have access to a computer and the Internet as some of the course material is most readily available by accessing the web.

section 11.13.5: Master of Science, Applied (M.Sc.A.); Occupational Health (Resident) (Non-Thesis) (45 credits)

A one-year program in health and hygiene appropriate for physicians, nurses, graduates from engineering, and basic sciences. Occupational health training allows candidates to evaluate work environments and attenuate work hazards using prevention and control.

section 11.13.6: Master of Science, Applied (M.Sc.A.); Occupational Health (Distance) (Non-Thesis) (45 credits)

A three-and-a-half-year program completed mostly over the Internet. This program is not accepting applicants for 2011-2012.

section 11.13.7: Doctor of Philosophy (Ph.D.); Occupational Health

The objective of this program is to train independent researchers in the field of work environment and health.

11.13.3 Occupational Health Admission Requirements and Application Procedures

11.13.3.1 Admission 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 documented proof of competency in oral and written English by appropriate exams, e.g., TOEFL (Test of English as a Foreign Language) with a minimum score of 550, or 86 on the Internet-based test with each component score not less than 20.

M.Sc. Applied Program (Resident) (on campus)

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 equivalent, in a discipline relevant to occupational health or hygiene such as: chemistry, engineering, environmental sciences, physics;
- an M.D. (medicine);
- a B.Sc. in health sciences or nursing.

Distance Education

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:

- an M.D. (medicine);
- a B.Sc. in health sciences or nursing;
- a bachelor of science degree, or its equivalent, in a discipline relevant to occupational health or hygiene such as: chemistry, engineering, environmental sciences, physics.

Candidates should have at least three years of experience in industrial hygiene and/or in safety.

For medical doctors and nurses, priority will be given to candidates with at least three years of experience in occupational health.

Ph.D. Program

Candidates must hold an M.Sc. degree or its equivalent in occupational health sciences, or in a relevant discipline, such as: community health, environmental health, epidemiology, chemistry, engineering, physics, or health sciences (medicine, nursing, etc.).

11.13.3.2 Application Procedures

Professors

J. Brophy; B.Eng.(McG.), M.Eng., M.D.(McM.), Ph.D.(McG.) (*joint appt. with Medicine*)

E.L.F. Franco; M.P.H., Dr.P.H.(Chapel Hill) (*joint appt. with Oncology*) (*James McGill Professor*)

R. Fuhrer; B.A.(CUNY (Brooklyn College)), M.Sc., Ph.D.(Calif.-San Francisco)

T.W. Gyorkos; B.Sc.(McG.), M.Sc.(Bishop's), Ph.D.(McG.)

M.L. Joseph;M.Sc., Ph.D.(McG.) *(joint appt. with Pediatric Dentistry) (on leave Winter 2012 and Winter 2013)*

J.A. Hanley; B.Sc., M.Sc.(NUI), Ph.D.(Wat.) (*on leave Winter 2012 and Winter 2013*)

J. Heymann; B.A.(Yale), M.P.H., M.D., Ph.D.(Harv.) (*joint appt. with Political Science*) (*Canada Research Chair*)

C. Infante-Rivard; M.D.(Montr

Assistant Professors

E.E.M. Moodie; B.A.(Winn.), Ph.D.(Wash.)

A. Nandi; B.S.(College of New Jersey), M.P.H.(Col.), Ph.D.(Johns Hop.) (*joint appt. with Institute for Health & Social Policy*)

L. Patry; B.Sc., M.D.(Laval), F.R.C.P.(C) (PT)

E. Strumpf; B.A.(Smith), Ph.D.(Harv.) (*joint appt. with Economics*)

G. Tan; D.Phil.(Oxf.) (PT)

Associate Members

Biomedical Ethics Unit: N. King

Dietetics and Human Nutrition: K. Gray-Donald

Dentistry: P. Allison, J. Feine

Family Medicine: A. Andermann, J. Haggerty, T. Tannenbaum

Geography: N. Ross

Medicine: A. Barkun, M. Behr, S. Bernatsky, T. Brewer, J. Bourbeau, P. Brassard, A. Clarke, K. Dasgupta, M. Eisenberg, P. Ernst, M. Goldberg, C. Greenaway, S. Kahn, M. Klein, N. Mayo, N. Pant Pai, L. Pilote, E. Rahme, B. Richards, K. Schw

Note: Students must pass the Master's Integrative Examination (OCCH 600) before writing their Project.

OCCH 600	(0)	Master's Integrative Exam
OCCH 602	(3)	Occupational Health Practice
OCCH 603	(3)	Work and Environment Epidemiology 1
OCCH 604	(3)	Monitoring Occupational Environment
OCCH 605	(6)	Physical Health Hazards
OCCH 608	(3)	Biological Hazards
OCCH 612	(3)	Principles of Toxicology
OCCH 614	(3)	Topics in Occupational Health
OCCH 615	(3)	Occupational Safety Practice
OCCH 616	(3)	Occupational Hygiene

11.13.6 Master of Science, Applied (M.Sc.A.); Occupational Health (Distance) (Non-Thesis) (45 credits)

This program is not accepting applicants for 2011-2012.

Research Project (15 credits)

OCCH 699	(15)	Project Occupational Health and Safety

Required Courses (30 credits)

Note: Students must pass the Master's Integrative Examination (OCCH 600) before writing their Project.

Each course has a final (proctored) examination at the end of the term.

OCCH 600	(0)	Master's Integrative Exam
OCCH 602	(3)	Occupational Health Practice
OCCH 603	(3)	Work and Environment Epidemiology 1
OCCH 604	(3)	Monitoring Occupational Environment
OCCH 608	(3)	Biological Hazards
OCCH 612	(3)	Principles of Toxicology
OCCH 615	(3)	Occupational Safety Practice
OCCH 616	(3)	Occupational Hygiene
OCCH 617	(3)	Occupational Diseases
OCCH 624	(3)	Social and Behavioural Aspects - Occupational Health
OCCH 625	(3)	Work and Environment Epidemiology 2
OCCH 626	(3)	Basics: Physical Health Hazards
OCCH 627	(3)	Work Physiology and Ergonomics
OCCH 630	(3)	Occupational Diseases for OHNS
OCCH 635	(3)	Environmental Risks to Health

On-campus practicum may be held at the discretion of each professor. These sessions are held in Montreal on the McGill University campus. Their aim is to offer students additional specific learning activities. Participation in the practicum is an essential component of the program.

11.13.7 Doctor of Philosophy (Ph.D.); Occupational Health

Thesis

Required Courses (2 credits)

OCCH 700	(0)	Ph.D. Comprehensive Examination
OCCH 706	(2)	Ph.D. Seminar on Occupational Health and Hygiene

Students are encouraged to take up to 12 credits in areas pertinent to their specialty or in areas necessary to complete their knowledge of occupational health.

11.14 Otolaryngology – Head and Neck Surgery

11.14.1 Location

Department of Otolaryngology – Head and Neck Surgery
Royal Victoria Hospital
687 Pine Avenue West, Room E3-37
Montreal, QC H3A 1A1
Canada

Telephone: 514-843-2820
Fax: 514-843-1403
Website: *www.mcgill.ca/ent*

11.14.2 About Otolaryngology – Head and Neck Surgery

The Master of Science degree in Otolaryngology trains otolaryngologists and physicians for clinical or basic science research in Otolaryngology – Head and Neck Surgery. 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 modeling, oto-toxicity, genomics, infection, thyroid disease, or genetics.

section 11.14.5: Master of Science (M.Sc.); Otolaryngology (Thesis) (45 credits)

The master's program is intended for otolaryngologists or for physicians with a strong interest in otolaryngology research. Under exceptional circumstances, others (Ph.D.s, dentists, veterinarians, medical professionals, etc.) may be considered. 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. Medical professionals graduating from 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.

11.14.3 Otolaryngology Admission Requirements and Application Procedures

11.14.3.1 Admission Requirements

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

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

11.14.3.2 Application Procedures

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

Applications require the following documentation:

1. completed application form and personal statement form;
2. letters of reference from two professors;
3. two official copies of academic transcripts;
4. application fee: $100;

Associate Members

W.R.J. Funnell; B.Eng., M.Eng., Ph.D.(McG.)

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

Q. Hamid; M.D.(Iraq), Ph.D.Med.(Lond.)

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

Lecturers

A. Finesilver, J. Rothstein, J. Young

Adjunct Professor

J.-J. Dufour

11.14.5 Master of Science (M.Sc.); Otolaryngology (Thesis) (45 credits)

Telephone: 514-398-7192 ext. 00481 or 00494
Fax: 514-398-7446
Email: *pathologyteaching.med@mcgill.ca*
Website: *www.mcgill.ca/pathology*

11.15.2 About Pathology

Pathology is the science of disease, and research in Pathology is focused on understanding the cellular and molecular changes that cause disease – generating knowledge that is essential in the development of new methods for prevention and treatment. Pathology is a multidisciplinary science, and laboratory techniques overlap those used in all current fields of biomedical investigation. We offer unique opportunities for graduate students to conduct fundamental biomedical research that is directly linked to patient care, working with teams of highly experienced investigators and clinicians. Our laboratories are located on the main campus and throughout the McGill network of hospitals and research institutes. Our investigators collaborate with basic scientists from a variety of other departments, and we also undertake collaborative studies with colleagues in academic institutions around the world. Graduate students take part in joint clinical-experimental presentations involving our 48 faculty members, gaining a broad exposure to current issues in diagnosis and treatment of disease. This opportunity to combine basic research and potential applications offers very exciting possibilities for a highly rewarding career.

The Pathology Department offers research training in a wide variety of areas such as immunology and transplantation, neoplasia, opthalmic pathology, cell biology, pulmonary vascular and airways disease, pulmonary edema, neurodegenerative disorders, and smooth muscle pathophysiology.

Modern techniques and equipment include light, fluorescence and electron microscopy (both transmission and scanning), laser capture, DNA analysis, cell culture, advanced immunological, pharmacological, biochemical, and physiological techniques, as well as morphometry and computer-aided analysis.

section 11.15.5: Master of Science (M.Sc.); Pathology (Thesis) (45 credits)

Graduates can directly enter rewarding careers in research, or opt to continue with their studies and obtain a Ph.D. Some combine their research training with subsequent training in medicine, law, or business administration.

section 11.15.6: Doctor of Philosophy (Ph.D.); Pathology

Our graduates enter successful careers in industry, academia, government/international agencies, or clinical medicine, sometimes combining two of these options. They leave McGill with experience in leadership and communication skills in addition to being highly trained in biomedical research, and their career choices include a wide range of administrative and research positions around the world.

11.15.3 Pathology Admission Requirements and Application Procedures

11.15.3.1 Admission Requirements

Applicants must have a B.Sc. or the equivalent degree with an extensive background in the physical and biological sciences. An academic record equivalent to or better than a CGPA of 3.2 out of 4.0 at McGill is required for at least the two final full-time years of undergraduate training, with a minimum CGPA of 3.0 overall.

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 the GRE and TOEFL examinations in order to be properly evaluated as to their suitability. Students are normally accepted into the M.Sc. program, and those candidates showing exceptional ability may be permitted to transfer into the Ph.D. program after one year of training.

Applicants who already possess an additional degree (M.Sc., M.D.) and have some research experience may be allowed to register in the Ph.D. program directly.

Prospective students apply online at *www.mcgill.ca/gradapplicants/apply*.

For further information, applicants may contact the Teaching Office, Department of Pathology.

11.15.3.2 Application Procedures

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

Applications will be considered upon receipt of:

1. application;
2. transcripts;
3. two letters of reference;
4. $100 application fee;
5. test results (GRE, TOEFL).

All information is to be submitted directly to the Pathology Teaching Office.

All applications will be evaluated by the Graduate Students Committee. Candidates found suitable must then be accepted by a research director, and adequate funding must be obtained for both personal support and research expenses.

11.15.4 Pathology Faculty

Chair

D. Haegert

Director of Graduate Program

E. Zorychta

Professors

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

A.M.V

Assistant Professors

11.15.6 Doctor of Philosophy (Ph.D.); Pathology

Thesis

Candidates will be evaluated primarily on their ability to conduct independent research and submit a thesis, which must be defended orally. They must also complete the courses listed below and any additional courses considered necessary by their research director or the Graduate Students Committee.

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
PATH 701	(0)	Comprehensive Examination - Ph.D. Candidates

Complementary Courses (9 credits)

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

11.16 Pharmacology and Therapeutics

11.16.1 Location

Department of Pharmacology and Therapeutics
McIntyre Medical Sciences Building
3655 Pro1 8Q.16flogy85leg..2 595.583 Tmbh 1 81.t4thinar 2

section 11.16.6: Master of Science (M.Sc.); Pharmacology (Thesis) — Chemical Biology (47 credits)

The Chemical Biology Thematic Group is engaged in a diverse range of research topics that 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 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.

section 11.16.7: 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.

section 11.16.8: Doctor of Philosophy (Ph.D.); Pharmacology — Chemical Biology

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 which unite the research being performed 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

5. official GRE (*www.ets.org/gre*) and TOEFL (*www.ets.org/toefl*) scores (not required of applicants from Canada).

Applications and all documents should be submitted directly to the Graduate Program Coordinator, Ms. Tina Tremblay, in the Department of Pharmacology.

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program. Please refer to our website (*www.medicine.mcgill.ca/pharma*) for complete deadlines.

11.16.4 Pharmacology and Therapeutics Faculty

Chair

H.H. Zingg

Graduate Program Director

G. Almazan

Emeritus Professors

R. Capek; M.D., Ph.D.(Prague)

B. Collier; Ph.D.(Leeds)

T. Sourkes; Ph.D.(C'nell)

Professors

G. Almazan; Ph.D.(McG.)

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.)

D. Maysinger; Ph.D.(USC)

P.J. McLeod; M.D.(Manit.), F.R.C.P.(C)

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.)

H.H. Zingg; M.D., Ph.D.(McG.)

Associate Professors

D. Bernard; Ph.D.(Johns Hop.)

D. Bowie; B.Sc., Ph.D.(Lond.)

T. Hébert; Ph.D.(Tor.)

A. McKinney; Ph.D.(Ulster)

S. Nattel; M.D.,C.M.(McG.)

A.L. Padjen; M.D., Ph.D.(Zagreb)

E. Zorychta; Ph.D.(McG.)

Assistant Professors

G. Miller; Ph.D.(W. Ont.)

J. Tanny; Ph.D.(Harv.)

Associate Members

M. Alaoui-Jamali; Ph.D.(Sorbonne)

G. Batist; M.D.,C.M.(McG.)

M. Culty; Ph.D.(Fr.)

G. Di Battista; B.Sc., Ph.D.(Montr.)

L. Fellows; M.D., C.M.(McG.) Ph.D.(Oxf.)

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

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

T. Geary; Ph.D.(Mich.)

B. Jean-Claude; Ph.D.(McG.)

S. Kimmins; Ph.D.(Dal.)

S. Laporte; Ph.D.(Sher.)

C. O'Flaherty; Ph.D.(Buenos Aires)

V. Pappadopoulis; Ph.D.(Univ. Pierre & Marie Curie)

R. Prichard; Ph.D.(NSW)

R. Quirion; Ph.D.(Sher.)

S. Rousseau; Ph.D.(Laval)

Y. Shir; M.D.(Israel), Ph.D.(Johns Hop.)

L. Stone; Ph.D.(Minn.)

M. Ware; MBBS(West Indies)

T. P. Wong; Ph.D.(McG.)

Adjunct Professors

B. Allen, M. Bruno, S. Chemtob, J. Coull, Y. De Koninck, L. Garofalo, J.M.A. Laird, J. Mancini, K. Meerovitch, T. Sanderson

11.16.5 Master of Science (M.Sc.); Pharmacology (Thesis) (45 credits)

Thesis Courses (24 credits)

PHAR 696	(3)	Thesis Preparation
PHAR 698	(9)	Thesis Preparation 2
PHAR 699	(12)	Thesis Preparation 3

Required Courses (9 credits)

PHAR 601	(6)	Comprehensive
PHAR 712	(3)	Statistics for Pharmacologists

Complementary Courses (12 credits)

6 credits, from the follop ce.34fol6Indies)

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PHAR 697	(6)	Thesis Preparation 1

6 credits, two 700-level PHAR courses.

11.16.6 Master of Science (M.Sc.); Pharmacology (Thesis) — Chemical Biology (47 credits)

Thesis Courses (24 credits)

PHAR 696	(3)	Thesis Preparation
PHAR 698	(9)	Thesis Preparation 2
PHAR 699	(12)	Thesis Preparation 3

Required Courses (9 credits)

PHAR 601	(6)	Comprehensive
PHAR 712	(3)	Statistics for Pharmacologists

Complementary Courses (14 credits)

2 credits, two of the following courses:

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

6 credits, from the following courses:

PHAR 562	(3)	General Pharmacology 1
PHAR 563	(3)	General Pharmacology 2

or, for students who have taken PHAR 562 and PHAR 563 as part of their undergraduate degree, they can be replaced with two of the following courses:

BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
CHEM 504	(3)	Drug Design and Development 2
CHEM 522	(3)	Stereochemistry
CHEM 591	(3)	Bioinorganic Chemistry
CHEM 621	(5)	Reaction Mechanisms in Organic Chemistry
CHEM 629	(5)	Organic Synthesis
CHEM 655	(4)	Advanced NMR Spectroscopy
PHAR 504	(3)	Drug Design and Development 2
PHAR 707	(3)	Topics in Pharmacology 6

3 credits, one of the following courses:

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

3 credits, one of the following courses:

CHEM 502	(3)	Advanced Bio-Organic Chemistry
		Drug Design and De3.1 Tm(anic bn38 Tm(Drug De1 0 0 Design and5.695 623.1 Tm92.485 Design andelopment 1.864

two of the following courses:

	(3)	Topics in Pharmacology 1

section 11.17.7: 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, or in medicine. The multidisciplinary nature of the Department exposes students to a vast array of research interests and experimental approaches.

Graduate Program Director

Kathleen Cullen

Emeritus Professors

Thomas M.S. Chang; B.Sc., M.D.,C.M., Ph.D.(McG.), F.R.C.P.(C)

Kresmir Krnjevic; O.C., B.Sc., Ph.D., M.B., Ch.B.(Edin.), F.R.S.C.

Wayne S. Lapp; M.S.A.(Tor.), Ph.D.(McG.)

Mortimer Levy; B.Sc., M.D.,C.M.(McG.), F.R.C.P.(C) (*joint appt with Medicine*)

George Mandl; B.Sc.(C'dia); Ph.D.(McG.)

Geoffrey Melvill Jones; B.A., M.A., M.B., B.Ch., M.D.(Cant.)

Joseph Milic-Emili; M.D.(Milan)

Professors

Monroe W. Cohen; B.Sc., Ph.D.(McG.)

Ellis J. Cooper; B.Eng.(Sir G. Wms.), M.Sc.(Surr.), Ph.D.(McM.)

Kathleen Cullen; B.Sc.(Brown), Ph.D.(Chic.) (*W*

Assistant Professors

Maurice Chacron; Ph.D.(Ott.)

Russell Jones; Ph.D.(Tor.)

Associate Members

Anaesthesia: Steven Backman, Fernando Cervero

Biochemistry: Imed Gallouzi

Biomedical Engineering: Robert Kearney, Satya Prakash

Electrical and Computer Engineering: Sam Musallam

Kinesiology and Physical Education: Dilson Rassier

Medicine: Albert Aguauo, Volker Blank, Mark Blostein, Andrey Cybulsky, Abraham Fuks, Claude Gagnon, Raymond Gagnon, Harry L. Goldsmith, Geoffrey Hendy, Louise Larose, Anne-Marie Lauzon, James Martin, Shree Mulay, Mariana Newkirk, Barry Posner, Shafaat Rabbani, Mary Stevenson, Simon Wing, Hans Zingg

Nephrology: Serge Lemay, Tomoko Takano

Neurology: David Ragsdale

Neurology and Neurosurgery: Jack Antel, Massimo Avoli, Charles Bourque, Sal Carbonetto, Daniel Guitton, Christopher Pack, Melissa Vollrath

Opthamology: Curtis Baker

Otolaryngology: Bernard Segal

Pediatrics: Charles Rohlicek

Pharmacology: Terence Hebert

Psychiatry: Nicolas Cermakian, Bernardo Dubrovsky, Christina Gianoulakis

Adjunct Professors

Roy Caplan, Pierre Drapeau, John Milton, Malmur Sairam, Peter Swain

11.17.5 Master of Science (M.Sc.); Physiology (Thesis) (49 credits)

Thesis Courses (30 credits)

PHGY 621	(12)	Thesis 1
PHGY 622	(15)	Thesis 2
PHGY 623	(3)	M.Sc. Seminar

Required Courses (13 credits)

PHGY 601	(1)	M.Sc. Proposal Seminar
PHGY 602	(3)	Literature Search and Research Proposal
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 above.

11.17.6 Master of Science (M.Sc.); Physiology (Thesis) — Bioinformatics (49 credits)

Thesis Courses (30 credits)

PHGY 621	(12)	Thesis 1
PHGY 622	(15)	Thesis 2
PHGY 623	(3)	M.Sc. Seminar

Required Courses (16 credits)

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar
PHGY 601	(1)	M.Sc. Proposal Seminar
PHGY 602	(3)	Literature Search and Research Proposal
PHGY 603	(3)	Systems Biology and Biophysics
PHGY 607	(3)	Laboratory Research 1
PHGY 608	(3)	Laboratory Research 2

Complementary Courses (3 credits)

3 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

11.17.7 Doctor of Philosophy (Ph.D.); Physiology

Thesis

Required Courses (9 credits)

PHGY 701	(0)	Ph.D. Comprehensive Examination
PHGY 702	(1)	Ph.D. Proposal
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)

Students are required to take an additional three courses of Physiology or Science at the 500 level or above, in consultation with the GSAAC and the candidate's supervisor.

11.17.8 Doctor of Philosophy (Ph.D.); Physiology — Bioinformatics

Thesis

Required Courses (15 credits)

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar
PHGY 603	(3)	Systems Biology and Biophysics
PHGY 701	(0)	Ph.D. Comprehensive Examination
PHGY 702	(1)	Ph.D. Proposal
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 Course (3 credits)

One course 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

11.18 Psychiatry

11.18.1 Location

Department of Psychiatry
1033 Pine Avenue West
Montreal, QC H3A 1A1
Canada

Telephone: 514-398-4176
Fax: 514-398-4370
Email: *graduate.psychiatry@mcgill.ca*
Website: *www.med.mcgill.ca/psychiatry*

11.18.2 About Psychiatry

McGill University's Department of Psychiatry is one the most prestigious in the world. In the 1950s and '60s, Heinz Lehmann conducted the first North American clinical trials for antipsychotic and antidepressant medications. Theodore Sourkes identified the core neurobiological features of Parkinson's disease. And Eric Wittkower plus Jack Fried brought together scholars from Anthropology and Psychiatry to create Transcultural Psychiatric Studies. Since then, faculty members and graduate students continue outstanding research in addictions, Alzheimer's and childhood disorders, eating, personality and mood disorders, stress, trauma, and psychosis. The work is conducted in people plus animal models, and benefits from expertise ranging from neuroimaging and epigenetics to mental health services and public policy, remaining at the cutting edge of research on health, disease, and recovery.

Master of Science (M.Sc.), *ad hoc* Ph.D.

section 11.18.5: Master of Science (M.Sc.); Psychiatry (Thesis) (45 credits)45 cr,y and P MTm(y)Tj1 0 atry (Thesis.5

11.18.3 Psychiatry Admission Requirements and Application Procedures

11.18.3.1 Admission Requirements

- A B.Sc., B.A., B.N., or M.D. degree.
- A strong background in science and/or social science, as demonstrated by academic achievement equivalent to a GPA of 3.3 (on a 4 point scale) or 3.5 in the last two years.
- A written agreement from the proposed research supervisory Adwithnt'sap23.2r(PseA written agreement from the pro531.96550.421 studentement m(M.D. lrd re fo

Professors

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

Associate Professors

Associate Member

R.O. Pihl (*Psyc*

section 11.19.5: Master of Science (M.Sc.); Experimental Surgery (Thesis) (Surgical Research) (48 credits)

The M.Sc. 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 11.19.6: Doctor of Philosophy (Ph.D.); Experimental Surgery (Surgical Research)

The doctoral program is intended for students with excellent academic standing who wish to pursue research-focused careers in academia, medical field, or industry. Thesis projects available in the various laboratories of the Department are multidisciplinary and provide in-depth training ensuring that students are exposed to a broad spectrum of research projects and experimental approaches.

section 11.19.7: Graduate Diploma in Surgical Health Care Research (30 credits)

The graduate diploma program is open to all graduate students in the Division of Surgical Research, but is specifically designed for surgical residents whogicc90.4 Tm(v

Associate Director

A. Philip

Administrative & Student Affairs Coordinator

514-934-1934 ext. 42837

Professors

J.D. Bobyn; B.Sc., M.Sc.(McG.), Ph.D.(Tor.)

P. Brodt; B.Sc.(Bar-Ilan), M.Sc.(Ott.), Ph.D.(McG.)

R.C.-J. Chiu; M.B.(Taiwan), Ph.D.(McG.)

N.V. Christou; B.Sc., M.Sc., Ph.D., M.D.,C.M.(McG.)

M.M. Elhilali; M.B., B.Ch., D.S., DU, M.Ch.(Cairo), Ph.D.(McG.)

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

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

F. Glorieux; M.D.(Louvain), M.Sc.(Montr.), Ph.D.(McG.)

P.H. Gordon; M.D.(Sask.)

J.E. Henderson; Ph.D.(McG.)

J.M. Laberge; M.D.(Laval)

D.S. Mulder; M.D.(Sask.), M.Sc.(McG.)

L. Rosenberg; M.Sc., M.D., Ph.D.(McG.)

P.J. Roughley; B.Sc., Ph.D.(Nott.)

R. St. Arnaud; Ph.D.(Laval)

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)

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

Associate Professors

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

J. Barkun; M.D., M.Sc.(McG.)

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

S. Chevalier; B.Sc., M.Sc., Ph.D.(Montr.)

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

L. Feldman; M.D.,C.M., M.Sc.(McG.)

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

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

E. Harvey; B.Sc.(Ont.) M.D.,C.M., M.Sc.(McG.)

K.J. Lachapelle; M.Sc., M.D.,C.M.(McG.)

L. Lessard; B.Sc., M.D.(Laval), F.R.C.S.(C)

S. Meterissian; M.D.,C.M., M.Sc.(McG.)

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

J.S. Mort; B.Sc.(McG.), Ph.D.(McM.)

A. Philip; M.Sc., Ph.D.(McG.)

P. Puligandla; M.D., M.Sc.(W. Ont.), F.R.C.S.(C)

J. Sampalis; M.Sc., Ph.D.(McG.)

Associate Professors

D. Shum-Tim; M.Sc., M.D.,C.M.(McG.)

T. Steffen; M.D.(Switz.), Ph.D.(McG.)

T. Taketo-Hosotani; B.Sc., M.Sc., Ph.D.(Kyoto)

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

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

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

Assistant Professors

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

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

J. Chen; B.Sc.(Chin. Acad. Sci.), Ph.D.(Guelph)

M. Chevrette; B.Sc., M.Sc., Ph.D.(Laval)

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

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

L. Ferri; M.D.,C.M., M.Sc.(McG.)

S. Fraser; B.Sc., M.D.(Tor.), M.Sc.(McG.), F.R.C.S.(C)

O. Huk; B.Sc., M.D.,C.M.(McG.), M.Sc.(Montr.)

P. Jarzem; B.Sc., M.D.(Qu.)

J. Lapointe; M.D., Ph.D.(Laval)

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

S. Paraskevas; M.D., Ph.D.(McG.)

M. Petropavlovskaia; M.Sc., Ph.D.(Moscow)

A.D. Recklies; B.Sc.(McG.), Ph.D.(McM.)

K. Shaw; M.D.,C.M., M.Sc.(McG.)

11.19.5 Master of Science (M.Sc.); Experimental Surgery (Thesis) (Surgical Research) (48 credits)

Note: EPIB 631 and 633 must be taken in tandem for a total of four credits.