373-692A,B,C M.SC. THESIS RESEARCH II. (12) Independent research under the direction of a supervisor towards the completion of the M.Sc. degree.

373-693A,B,C M.SC. THESIS RESEARCH III. (12) Completion of the M.Sc. thesis, its approval by reviewers and acceptance by Graduate Faculty are all required for a pass to be granted.

373-701D,N PH.D. COMPREHENSIVE EXAMINATION. (See Faculty Regulations.)

373-751A,B GRADUATE SEMINAR IV. (Open to students in the Ph.D. Program.) Presentation on a selected topic, research proposal or research results based on progress in the Ph.D. degree.
Section 01 Agrometeorology, Forest Science and Soil Science students
Section 02 Entomology and Wildlife Biology students
Section 03 Microbiology students

373-752A,B GRADUATE SEMINAR V. (Open to students in the Ph.D. Program.) Presentation on a selected topic, research proposal or research results based on progress in the Ph.D. degree.
Section 01 Agrometeorology, Forest Science and Soil Science students
Section 02 Entomology and Wildlife Biology students
Section 03 Microbiology students

373-753A,B GRADUATE SEMINAR VI. (Open to students in the Ph.D. Program.) Presentation on a selected topic, research proposal or research results based on progress in the Ph.D. degree.
Section 01 Agrometeorology, Forest Science and Soil Science students
Section 02 Entomology and Wildlife Biology students
Section 03 Microbiology students

373-754A,B GRADUATE SEMINAR VII. (Open to students in the Ph.D. Program.) Presentation on a selected topic, research proposal or research results based on progress in the Ph.D. degree.
Section 01 Agrometeorology, Forest Science and Soil Science students
Section 02 Entomology and Wildlife Biology students
Section 03 Microbiology students

373-772A ADVANCED MICROBIAL GENETICS. (3) (Prerequisite: Minimum of two undergraduate courses in genetics or permission of instructor.) Topics in bacterial archaeal, eucaryal, and bacteriophage genetics. **Professor Driscoll and Staff**

373-773B ADVANCED MICROBIAL PHYSIOLOGY. (3) (Prerequisite: Minimum of an undergraduate course in biochemistry and in genetics or permission of instructor.) Topics in microbial physiology and metabolism, ranging from current to classic, from biochemical to genetic aspects. **Professor Driscoll**

374-640A,B RECENT ADVANCES IN TREE ECOPHYSIOLOGY. (3) (3 lectures per week) Discussion of the effects of environmental factors on the physiology of trees. Both anthropogenic and natural factors will be discussed. **Professor Côté**

374-660A,B RECENT ADVANCES IN FOREST ECOLOGY. (3) (2 hours seminar) Review and discussion of current literature in forest ecology. Topics covered will depend on the research interests of students and may include population biology of forest plants, forest succession, forest nutrition and nutrient cycling, computer modelling of forest systems. **Professor Fyles**

375-605B WILDLIFE ECOLOGY. (3) (2 class hours per week) Discussion of current topics in wildlife ecology with special reference to the research interests of staff and students involved. **Professor Titman**

375-610A ADVANCED FISH ECOLOGY. (3) (3 class hours per week) A critical examination of current topics in fish ecology; discussion of migration, reproductive strategies, sex determination mechanisms, competition, communication and predator-prey relationships. **Professor Curtis**

54 Neurology and Neurosurgery

Graduate Program in Neurological Sciences
Division of Neuroscience
Department of Neurology and Neurosurgery
Departments of Ophthalmology and Psychiatry
Montreal Neurological Institute, Room 1220
3801 University Street
Montreal, QC H3A 2B4
Canada

Telephone: (514) 398-1905
Fax: (514) 398-7371
E-mail: Monique@MNI.Lan.McGill.ca

Chair, Department of Neurology and Neurosurgery — J. Antel

Chair, Graduate Program in Neurological Sciences — H. Durham

54.1 Staff

Emeritus Professors
D.W. Baxter, G. Bertrand, P. Gloor, J.P. Robb, L. Wolfe

Professors
A. Aguayo; M.D.(Cordoba Natn.), F.R.C.P.(C)
F. Andermann; B.A.(Paris), B.Sc., (McG.), M.D.(Montr.), F.R.C.P.(C)
J. Antel; M.D., B.Sc.(Man.), F.R.C.P.(C)
D. Arnold; B.Sc., M.D.(C'nell), F.R.C.P.(C)
M. Avoli; M.D.(Rome), Ph.D.(McG.)
A. Beaudet; B.A., M.D., Ph.D.(Mont.)
G. Bray; B.Sc.(Bran.), M.D., B.Sc., (Man.), F.R.C.P.(C)
S. Carbonetto; M.Sc.(Mass.), Ph.D.(N.Carolina)
M. Diksic; B.Sc., Ph.D.(Zagreb)
A. Evans; M.Sc.(Sur.), Ph.D.(Leeds)
W.H. Feindel; O.C., B.A.(Acad.), M.D., C.M.(McG.), M.Sc.(Dal.), D.Sc.(Acad. and McG.), D.Phil.(Oxon.), F.R.C.S.(C), F.A.C.S., F.R.S.C.
S.G. Gauthier; B.A., M.D.(Montr.), F.R.C.P.(C)
J. Gotman; M.Eng.(Dart.), Ph.D.(McG.)
D. Guitton; Dipl. IVK(U. Libre de Brux.), B.Eng., M.Eng., Ph.D.Eng., Ph.D.Physiol.(McG.)
I. Heller;
P.C. Holland; B.A.(Lanc.), Ph.D.(N'cle)
B. Jones; B.A., M.A., Ph.D.(Delaware)
M. Jones-Gotman; B.A.(Calif.), M.A., Ph.D.(McG.)
D. Kaplan; B.A.(Clark), Ph.D.(Harv.)
G. Karpati; M.D.(Dal.), F.R.C.P.(C)
D. Lawrence; B.Sc.(Bishop's), M.Sc., M.D., C.M.(McG.), F.R.C.P.(C)
R. Leblanc; M.Sc.(McG.), M.D.(Ott.), F.R.C.S.(C)
F. Miller; B.Sc.(Sask.), Ph.D.(Calg.)
B. Milner; B.A., Sc.D.(Cantab.), Ph.D.(McG.)
G. Mohr; M.D.(Stras.)
R.A. Murphy; A.B.(Worch.), M.Sc.(Boston), Ph.D.(Rutgers); Director
A. Olivier; M.D.(Montr.), Ph.D.(Laval), F.R.C.S.(C)
H. Pappius;
Y. Patel; M.B., Ch.B.(Otago), Ph.D.(Monash), F.R.A.C.P., F.R.C.P.(C)
M. Petrides; B.Sc., M.Sc.(Lond.), Ph.D.(Cantab.)
M. Rasminsky; B.A.(Tor.), M.D.(Harv.), Ph.D.(Lond.), F.R.C.P.(C)
J. Richardson; B.Sc., M.D., C.M., Ph.D.(McG.), F.R.C.P.(C)
G. Rouleau; M.D.(Ott.), F.R.C.P. (C)
A. Sherwin;
J.D. Stewart; B.Sc.(Lond.), M.B., B.S.(W.I.), F.R.C.P.(C)
J.G. Stratford; M.D., C.M., M.Sc.(McG.), F.R.C.S.(C), F.A.C.S.
G. Tannenbaum; M.Sc., Ph.D.(McG.)
C. Thompson; M.Sc., D.Sc.(N.Z.)
G. Watters; B.A.(Minn.), M.D.(Man.), F.R.C.P.(C)

Associate Professors
A. Alonso; M.S.(Barcelona), Ph.D.(Madrid)
E. Andermann; M.D., C.M., M.Sc., Ph.D.(McG.)

M. Aubé; B.A., M.D.(Montr.), F.R.C.P.(C)
S. Bekhor; M.B., Ch.B.(Baghded), F.R.C.P.(C)
J. Blundell;
C. Bourque; B.Sc.(Ott.), Ph.D.(McG.)
J. Carlton; B.S., M.D.(Johns H.), F.R.C.P.(C)
C. Chalk; B.Sc.(Queen's), M.D., C.M.(McG.) F.R.C.P. (C)
H. Chertkow; M.D.(W. Ont.), F.R.C.P.(C)
R. Cote; M.D.(Montr.), F.R.C.P.(C)
S. David; Ph.D.(Man.)
R. Del Carpio; M.D.(Lima), F.R.C.P.(C)
P. Drapeau; B.Sc., Ph.D.(McG.)
F. Dubeau; M..D.(Montr.), F.R.C.P.(C)
J.R. Dunn; B.Sc., Ph.D.(U.B.C.)
H. Durham; M.Sc.(W.Ont.), Ph.D.(Alta.)
J.P. Farmer; M.D., M.Sc.(McG.), F.R.C.P.(C)
S. Fontaine; M.D.(Montr.), F.R.C.P.(C)
E. Hamel; B.Sc.(Sher.), Ph.D.(Montr.)
K. Hastings; B.Sc., Ph.D.(McG.)
J.-P. Julien; B.Sc.,(Que.), Ph.D.(McG.)
Y. Lapierre; B.A., M.D.(Montr.), F.R.C.P.(C)
A. Leblanc; M.Sc.(Moncton), Ph.D.(Dal.)
I. Libman; B.A., M.D., C.M.(McG.), F.R.C.P.(C)
D. Melançon; B.A., M.D.(Montr.)
C. Melmed; B.Sc., M.D.(Man.), F.R.C.P.(C)
F. Miller; B.Sc.(Sask.), Ph.D.(Calg.)
J. Montes; B.Sc.(Inst.Pot.-Mex.), M.D.(Uoio.Auto.de San Luis Pot.-Mex)
J. Nalbantoglu; B.Sc., Ph.D.(McG.)
A. O'Gorman; M.D.(Ireland)
T. Owens; M.Sc.(McG.), Ph.D.(Ott.)
A. Peterson; B.Sc.(Vic., B.C.), Ph.D.(U.B.C.)
B. Pike; B.Eng.(Mem.), M.Eng., Ph.D. (McG.)
R. Pokrupa, R., M.D.(W.Ont.), F.R.C.S. (C)
L.F. Quesney; B.Sc., M.D.(Chile), Ph.D.(McG.)
B. Rosenblatt; B.Sc., M.D., C.M.(McG.), F.R.C.P.(C)
R. Rouleau; M.D.(Ott.), F.R.C.P.(C)
A. Sadikot; M.D.(McG.), Ph.D.(Laval), F.R.C.S. (C)
G. Savard; M.D.(Montr.), F.R.C.P.(C)
H. Schipper; M.D., Ph.D.(McG.)
R. Schondorf; M.Sc., Ph.D., M.D.(McG.), F.R.C.P.(C)
P. Séguéla; Ph.D.(Bord.), Ph.D.(Montr.)
M. Shevell; B.Sc., M.D.(Vanderbilt)
E. Shoubridge; M.Sc., Ph.D.(U.B.C.)
W. Sossin; S.B.(M.I.T.), Ph.D.(Stan.)
D. Tampieri; M.D.(Bologna)
J. Woods; M.B., B.Ch.(Dub.), M.Sc.(McG.), F.R.C.P.(C)
R.J. Zatorre; A.B.(Boston), M.Sc., Ph.D.(Brown)

Assistant Professors
M. Angle; M.D., C.M.(McG.), F.R.C.P.(C)
P. Barker; Ph.D., (Alta.), B.Sc. (S.Fraser)
R. Brassard, M.D.(Montr.), F.R.C.P. (C)
M.A. Castro-Alamancos; B.Sc., M.Sc., Ph.D.(U. Complutense of Madrid)
L. Collins, M.Eng., Ph.D.(McG.)
A. Dagher; M.Eng.(McG.), M.D.(Tor.), F.R.C.P.(C)
L. Durcan; M.D.(Man.), F.R.C.P.(C)
M. Ferns; B.Sc.(Otago), Ph.D.(W. Aust.)
E. Fons, M.D.(Montr.), F.R.C.P. (C)
D. Gendron; M.D.(Laval), F.R.C.P.(C)
A. Genge; B.Sc.(Dal.), B.Med.Sc., M.D.(Mem.), F.R.C.P.(C)
W. Gorczyca; M.D., Ph.D.(Poland)
L. Jacques; B.Sc.(Laval), M.Sc., M.D.(Montr.), F.R.C.P.(C)
K. Johnston; Ph.D., M.D.(Tor.), F.R.C.S.(C)
T. Kennedy; B.Sc.(McM.), Ph.D.(Col.)
M. Lechter; B.Sc.(McG.), M.D., Ph.D.(Queen's)
G. Leonard; Ph.D.(McG.)
P. McPherson; M.Sc.(Man.), Ph.D.(Iowa)
M. Malelei, M.D.(Iran), F.R.C.S. (C)
E. Meyer; M.Sc.(Montr.), Ph.D.(McG.)
J. Minuk; M.D.(Man.), F.R.C.P.(C)
M. Panisset; M.D.(Montr.)
H. Paudel; Ph.D.(Okla.), M.Sc.(Nepal)
T. Paus; M.D.(Purkyne U./Czechoslovakia), Ph.D.(Czech. Acad. of Sciences/Prague)
C. Poulin; M.D.(Laval), F.R.C.P.(C)
A. Ptito; Ph.D.(Montr.)
D. Ragsdale; B.S.(Ill.), Ph.D.(Calif.)
Y. Rao; B.Sc.(China), Ph.D.(Tor.)
J.-P. Roy; M.D.(Laval), F.R.C.P.(C)
J. Rubin; B.Sc., M.D.(McG.), D.A.M.P.& N.
F. Salevsky; M.Sc., M.D.(Alta.), F.R.C.P.(C)
D. Sirhan; M.D.(Montr.), F.R.C.S.(C)
V. Sziklas, Ph.D.(McG.)
J. Snipes; Ph.D., M.D.(Vanderbilt)
V. Soland, M.D.(Sher.)
S. Stifani; Ph.D.(Rome), Ph.D.(Alta)
D. Trojan; M.D.(Conn.)
M. Veilleux; M.D.(Sher.), F.R.C.P.(C)
L. Viera, B.Sc.(Waterloo), M.D.(Ott.) F.R.C.S. (C)
F. Wein, M.D.(McG.) F.R.C.S. (C)

Lecturers
B. Brais; M.D.(McG.), M.Phil.(Univ. College London)
S. Chouinard; M.D.(Montr.), F.R.C.P.(C)
D. Klein; B.A., Ph.D.(U. of Witwatersrand/S. Africa)
G. Pari, M.Sc., M.D.(Ott.), F.R.C.P.(C)
A.M. Sarrazin; M.D.(Montr.), F.R.C.P.(C)
W. Vanast; M.D.(Tor.), F.R.C.P.(C)

Associate Members
C. Baker, S. Beaulieu, C. Benkelfat, P. Blier, D. Boivin, P. Boksa, P Braun, C. Bushnell, B. Collier, G. Debonnel, B. Debruille, C. de Montigny, J.P.A. Gratton, R. Hess, S. Kar, F. Kingdom, P. Lachapelle, S. Lupien, A. Majnemer, M. Meaney, K. Mullen, D. Payen de la Garanderie, B. Petrof, J. Poirier, R. Quirion, J. Rochford, L. Srivastava, C.D. Walker, S. Williams, C. Wolfson, K. Worsley

Adjunct Professors
Z. Argov, S. Berkovic, F. Cendes, J. Doyon, G. Duncan, A. Gjedde, J. Hardy, P. Matthews, L. McKerracher, M. Molnar, M. Pandolfo, T. Peters, M. Ptito, Y. Robitaille, J. Teitelbaum.

54.2 Programs Offered

M.Sc. and Ph.D. in Neurological Sciences.

54.3 Admission Requirements

General

The applicant should be a university graduate and hold a Bachelor's degree in a field related to the subject selected for graduate work.

The applicant must present evidence of high academic achievement. A standing equivalent to a cumulative grade point average of 3.0 out of a possible 4.0 is required by the Faculty of Graduate Studies; however, the program prefers applicants to show a higher academic standing, and requires a minimum GPA of 3.3.

Applicants with degrees from a non-Canadian university must submit results of the GRE exam with their application.

Applicants whose undergraduate studies were carried out in a language other than English must submit results of the TOEFL exam with their application and have a score of 600 or higher.

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

Ph.D. Degree
M.Sc. in a related field or an M.D.

54.4 Application Procedures

Applications will be considered upon receipt of:
1. application form,
2. transcripts,
3. letters of reference,
4. $60 application fee,

5. TOEFL test results,
6. GRE test results.

All information is to be submitted to above address.

Deadlines:
September entrance –
May 1 (February 1 for International candidates)
January entrance –
October 15 (September 1 for International candidates).

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

54.5 Program Requirements

GENERAL

1. Students must select an Advisory Committee, in conjunction with their thesis supervisor. This committee will consist of the thesis supervisor and two other individuals who will participate in discussions with students about their research program.
2. Students are required to submit a written thesis proposal to the Graduate Studies Committee (at the end of their first year for M.Sc. students, and at least one month prior to the Candidacy Examination for Ph.D. students). This document must state the hypothesis being tested, the relevant literature, and a summary of the methods that will be used to address the research question. This proposal will then be orally presented to the student's Advisory Committee which will also review the written proposal and communicate its recommendations to the student and the Graduate Studies Committee.
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 and members of the Graduate Studies 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 which in turn presents its report to the Graduate Studies Committee.

M.SC. DEGREE

Course requirements:
Student with a B.Sc., B.A. or M.D. degree: A minimum of 45 credits distributed as follows:*

Principles of Neuroscience I course: 531-630A and either Principles of Neuroscience II: 531-631B or CNS course: 531-610B;
6 credits in other graduate level specialty courses relevant to program;
9 credits in Master's project Proposal: 531-697 (first term of studies)
9 credits in Master's Seminar Presentation: 531-698 (second term of studies)
12 credits in Master's Thesis Submission: 531-699 (third term of studies)

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

Any remaining credits needed to complete the minimum 45 credits required may be chosen from the following: Master's Thesis Research I: 531-695 (3 credits); Master's Thesis Research II: 531-696 (6 credits).

** Please note that all M.Sc. level students must register for a minimum of 12 credits a term during the first three terms of their Master's program.*

Research requirements:
Presentation of a thesis in a subfield of neuroscience. The thesis must be based upon the research of the student. While not necessarily requiring an exhaustive review of work in a particular field, or a great deal of original scholarship, the thesis must show familiarity with previous work in the field and must demonstrate the ability of the candidate to carry out research and to organize results, all of which must be presented in good literary style. The Graduate Studies Committee expects the student's research should be of sufficient quality for publication in a peer-reviewed journal. A seminar on the thesis topic is given in the second year, and each subsequent year, a report from the student's Advisory Committee is required by the graduate Studies Committee.

Residence requirements:
Three terms of full-time study.

PH.D. DEGREE

Course requirements:

Students with an M.Sc. degree continuing in this Department have no required courses. 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 531-630 and 531-631 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 531-630 and 531-631. Recently graduating M.D.s should have the equivalent of 631-610, and may be granted equivalence. They will also be required to take 6 credits of graduate level courses.

Doctoral Candidacy Examination (531-700A/B)
All students registering directly into the Ph.D. program on or after September 1998, regardless of prior degrees from McGill or any other academic institutions, must complete the Doctoral Candidacy Examination within 18 months of initial registration in the Program. This is a qualifying examination consisting of a formal presentation and oral examination of the thesis proposal. The questioning will pertain to the student's knowledge and understanding of his/her field of specialization in neuroscience as well as the research proposal. Its primary purpose is to evaluate the student's ability to carry out original scholarship.

The Candidacy Examination will be conducted in conjunction with the Transfer seminar for all students currently registered in the M.Sc. program who apply for transfer to the Ph.D.

Research requirements:
Presentation of a thesis in a subfield of neuroscience. The thesis must display original scholarship expressed in satisfactory literary style and must be a distinct contribution to knowledge. After the thesis has been submitted to, and approved by the Faculty of Graduate Studies, a final oral exam will be held on the subject of the thesis and subjects immediately related to it.

Residence requirements:
Three years of resident study of which one year may be completed in the Master's program.

54.6 Graduate Courses

The course credit weight is given in parentheses (#) after the course title.

531-602A CURRENT TOPICS IN NEUROSCIENCE. (3) (Prerequisite: Permission of Unit Instructor) (Offered alternate years - even numbered years.) This course consists of several units, running concurrently, in which small groups of students (up to 8) will participate in discussions of present and past literature that has contributed to the present "state of the art" knowledge on various fields of neuroscience. Each unit will be led by a faculty member with expertise in the chosen area. A list of the literature to be covered will be distributed in the first lecture and updated as new articles appear on the topic. The supervising faculty will introduce the topic. The remainder of the course (12-14 weeks) will be devoted to didactic

discussion of the literature and/or students presentations in a journal-club format. **Professors Barker, Leblanc and Staff**

531-603B FOUNDATIONS OF CELLULAR EXCITABILITY. (3) (Offered alternate years - even numbered years.) This course will focus on the neuronal excitability and synaptic communication in the central nervous system. Discussion of the molecular properties of the voltage-and-ligand-gated ion channels that are the building blocks of cellular excitability. Examination of synaptic transmission and the mechanisms that underlie the changes in synaptic strenght that are responsible for learning and memory. Discussion of the properties of neuronal networks that contribute to higher brain functions and pathological conditions like epilepsy. Each week, the class will meet for two 90 minute long sessions dedicated to a particular topic. The first session will be a general presentation by the instructor and the second session will be a student presentation on a specific paper or set of papers. **Professor Ragsdale and Staff**

531-604A SEMINAR IN CELL AND MOLECULAR BIOLOGY OF NEUROLOGICAL DISEASE. (3) (Offered alternate years - odd numbered years.) (Prerequisites: 531-630A, 531-631B or 531-610B; and permission of instructor.) (Enrollment limited to 12.) Advanced seminars in neurobiology emphasizing current concepts of the molecular and cellular mechanisms underlying disease of the nervous system and muscle and how the study of disease has contributed to our understanding of cell biology. Topics: genetic mutations responsible for diseases, mechanisms of selective vulnerability of cell populations, and environmental influences. **Professors Nalbantoglu and Durham**

531-605B MOLECULAR AND CELLULAR ASPECTS OF NEURONAL DEVELOPMENT. (3) (Offered alternate years - odd numbered years.) This course focuses on neuronal development and maturation from a molecular aspect. We introduce various model organisms and systems that are used to study molecular aspects of development, explore their particular advantages and explore the cellular and molecular events that contribute to the development of the nervous system. **Professor Stifani and Staff**

531-610B CENTRAL NERVOUS SYSTEM. (5) An interdisciplinary course including lectures in neuroanatomy and neurophysiology; laboratories in neuroanatomy, and clinical problems and demonstrations in neurology. **Professor Chalk**

531-630A PRINCIPLES OF NEUROSCIENCE I. (3) (Prerequisites: 177-200A and 177-201B or equivalent; permission of instructor.) An overview of cellular and molecular neuroscience at the graduate level. Topics include: synthesis, processing and intracellular transport of macromolecules; development of the nervous system including neurogenesis, axonal pathfinding, synaptogenesis and myelination; neuronal survival and response to injury; generation and propagation of action potentials; neurotransmitters and synaptic transmission. **Professor Durham**

531-631B PRINCIPLES OF NEUROSCIENCE II. (3) (Prerequisite: Permission of instructor; basic knowledge of mechanisms of neurotransmission and signal transduction.) An overview of the structure, function and interaction of neuronal systems of vertebrates. Topics include basic neuroanatomy, coding and processing of sensory information (somatic sensory, visual and auditory systems), control of posture and voluntary movement, learning and memory, processing of language and speech, cerebral blood flow, the neuroendocrine system and neuroimmunology. **Professor Walker**

531-697A,B,C,T,L MASTER'S THESIS PROPOSAL. (9) (M.Sc. students only) Presentation of a written thesis proposal by the end of the first year in the program. This document stating the hypothesis being tested, relevant literature and methodology will be orally presented to the student's Advisory Committee which will also review the written proposal and communicate its recommendations to the student and the Graduate Studies Committee.

531-698A,B,C,T,L MASTER'S SEMINAR PRESENTATION. (9) Student's presentation of a thesis research seminar. In this seminar, the student shall explain the direction of his/her research and present his/her findings to date. The presentation shall take approximately 30 to 45 minutes and shall be followed by a question period. This seminar will be attended by the Graduate Studies Committee, the student's Advisory Committee, and interested observers.

531-695A,B,C,T,L MASTER'S RESEARCH I. (3) Independent work under the direction of the student's supervisor.

531-696A,B,C,T,L MASTER'S RESEARCH II. (6) Independent work under the direction of the student's supervisor.

531-699A,B,C,T,L MASTER'S THESIS SUBMISSION. (12) Submission of a Master's thesis.

531-700A/B DOCTORAL CANDIDACY EXAMINATION. A qualifying examination consisting of a formal presentation and oral examination of the thesis proposal. The questioning will pertain to the student=s knowledge and understanding of his/her field of specialization in neuroscience as well as the research proposal. Its primary purpose is to evaluate the student=s ability to carry out original scholarship. (The Candidacy Examination course is also conducted as part of the Transfer seminar for all students currently registered in the M.Sc. program who apply for transfer to the Ph.D.)

COURSES IN OTHER DEPARTMENTS

Biology

177-588A ADVANCES IN MOLECULAR AND CELLULAR NEUROBIOLOGY. (3) **Professors Carbonetto and Hastings**

177-532B DEVELOPMENTAL NEUROBIOLOGY SEMINAR. (3) **Professor Levine**

Dentistry

590-654B MECHANISMS AND MANAGEMENT OF PAIN. (3) **Professor Bushnell**

Physiology

552-520B IONIC CHANNELS. (3) **Professors Drapeau and Bourque**

552-556B TOPICS IN SYSTEMS NEUROSCIENCE. (3) **Professors Guitton and Cullen**

Psychiatry

555-500B ADVANCES IN THE NEUROBIOLOGY OF MENTAL DISORDERS. (3) **Professors Boksa and Gratton**

555-630B STATISTICS FOR NEUROSCIENCES. (3) **Professor Rochford**

Psychology

204-526A ADVANCES IN VISUAL PERCEPTION. (3) **Professors Mullen and Kingdom**

204-710A COMPARATIVE & PHYSIOLOGICAL PSYCH. (3)

55 Nursing

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Canada

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Director — L.N. Gottlieb

Associate Director of Research — C.C. Johnston

55.1 Staff

Professor
L.N. Gottlieb; B.N., M.Sc.(A), Ph.D.(McG.*) (Shaw Professor of Nursing) (on leave Jan. - Dec. 2001)*
C.C. Johnston; M.S.(Boston), B.N., D.Ed.(McG.) *(on leave June - Dec. 2000)*

Associate Professors
H. Ezer; B.Sc.(N.), M.Sc.(A) (McG.)
N. Frasure-Smith; B.A., Ph.D.(Johns H.)
O. Mansi; B.Sc.N.,(Queen's), M.Sc.(A) (McG.)

C.J. Pepler; B.N.Sc.(Queen's), M.Sc.N.(Wayne St.), Ph.D.(Mich.)

Assistant Professors
M. Beaulieu, B.Sc., M.Sc.(A) (McG.), Ph.D.(McG.)
A. Gagnon; N., B.Sc(N), M.P.H., Ph.D.(McG.)
C. Loiselle; N., B.Sc.(N.) (U de M), M.S., Ph.D.(Wis.-Madison)
M.N. Purden; B.Sc.(N), Ph.D.(McG.)

Lecturers
M. Buck; N., B.Sc.(N), M.Sc.(A) (McG.),
K. Carnaghan-Sherrard; N., B.N., M.Sc.(A) (McG.)
C. Gros; N., B.Sc.(Mass.), M.Sc.(A)(McG.)
B. Poggi; B.A., M.Sc.(A) (McG.)

55.2 Programs Offered

Master's Programs

Two types of Master's degrees are offered: Master of Science (Applied) and Master of Science (with thesis) (not offered 2000-01). These programs are designed to prepare clinicians and researchers for the expanding function of nursing within the health care delivery system.

Master of Science (Applied)
The objective of this program is to prepare specialists in nursing able to participate in the development, implementation and management of services in all domains of health care. Opportunity is provided for the advanced clinical study of nursing, and for incorporating research and evaluation methods in the investigation of nursing problems.

Master of Science (with thesis)
(not offered 2000-01).

Doctoral Studies in Nursing

The School of Nursing of McGill University and the Faculté des Sciences Infirmières of the Université de Montréal offer a joint doctorate program leading to a Ph.D. in Nursing. This program is offered in English at McGill.

The program is designed to train researchers who will make a contribution to the advancement of knowledge in the field of nursing and assume a leadership role both in the profession and in the health care system.

55.3 Admission Requirements

Master's Programs

Non-Canadian applicants shall normally be required to submit documented proof of competency in oral and written English, e.g. TOEFL (580 minimum) or equivalent.

GRE – General Test required.

Nurse applicants
Applicants for the Master's degree must have completed a bachelor's degree in nursing with a minimum GPA of 3.0 on a scale of 4.0. This preparation must be comparable to that offered in the bachelor's program at McGill. Experience in nursing is suggested. Applicants for the M.Sc. (with thesis) must have completed an introductory statistics course (3 credits) prior to entrance.

Nurses with a general B.Sc. or B.A. (comparable to the McGill undergraduate degrees) may be considered on an individual basis.

All nurse applicants are expected to hold current registration in the province or country from which they come. Nurses who are not licensed in Québec must obtain a special authorization for graduate nurse students from the Order of Nurses of Québec.

Non-nurse applicants (generic Master's students)
Applicants holding a bachelor's degree comparable to a B.Sc. or B.A. granted at McGill and who have potential for the study of nursing, may be admitted to a Qualifying Year. Upon successful completion of studies, candidates may apply directly to the Master's program. (Persons prepared in another professional discipline or in nursing are not eligible for this program.) A number of prequisite courses are required. For entry, applicants must have a GPA of 3.0 or above.

Ph.D. Program

The School of Nursing of McGill University and the Faculté des Sciences Infirmières of the Université de Montréal offer a joint doctorate program leading to a Ph.D. in Nursing.

The program is designed to train researchers who will make a contribution to the advancement of knowledge in the field of nursing and assume a leadership role both in the profession and in the health care system.

To be admitted to McGill University, the candidate must satisfy the following conditions:

1. hold a Master of Science in Nursing or equivalent;
2. GPA of 3.3 or high B standing;
3. demonstrated research ability;
4. be accepted by a faculty member who has agreed to serve as the thesis adviser;
5. submit a 5-page outline of proposed research including literature review and abbreviated methods sections;
6. submit letters of references from two professors who are familiar with the candidate's work and research aptitude;
7. submit a curriculum vitae;
8. submit two official copies of academic transcripts of undergraduate and graduate records,
9. be eligible to hold nursing registration in Quebec;
10. submit results of the Graduate Record Examination General Test.

55.4 Application Procedures

Application for admission to any of these programs is made on application forms available from the Graduate Program Office, School of Nursing. Applications must be completed according to the instructions that accompany the forms.

Deadline for receipt of application is March 1st. All documents required for admission should be submitted by this deadline. Classes are admitted in September.

55.5 Program Requirements

Master's Programs

The general rules concerning higher degrees apply. (See the Faculty of Graduate Studies General Information and Faculty Regulations.) A minimum of two years of study is required for the Masters programs.

Nurse applicants to the Master's program may complete their studies on a part-time basis, i.e. minimum of 6 credits per term to a maximum of four years.

Non-nurse applicants who do not have all the prerequisites required for entry may apply for a qualifying year as full-time students. They are recommended for entry to the Master of Science (Applied) program following successful completion of the Qualifying Year of study. They must complete their program of study on a full-time basis.

M.SC. (APPLIED)
(48 credits nurse students; 52 credits non-nurse students)

First Year
(24 credits nurse students; 28 credits non-nurse students)
573-611D (6) Seminar in Nursing I
573-612A (3) Research Methods in Nursing I
573-614D (6) Clinical Laboratory in Nursing I
573-627B (3) Nursing Practicum
one 3-credit Statistics course
and
* 573-616C (4) Advanced Clinical Skills
* 573-623A (3) Clinical Assessment and Therapeutics
** Complementary course (3 credits)

* Generic Students Only
** Nurse Students Only

Second Year (24 credits)
573-615B (3) Health Care Evaluation
573-620A (2) Current Theories of Nursing
573-621D (6) Seminar in Nursing II
573-624A (4) Clinical Laboratory in Nursing II
573-625B (6) Clinical Laboratory in Nursing III
573-626A (3) Developments in Education & Administration

M.SC. (THESIS) (50 credits)
(not offered 2000-01)

QUALIFYING YEAR
(non-nurse applicants entering with B.A. or B.Sc.)
572-220A (3) Therapeutic Relationships
572-222A (1) McGill Model of Nursing
573-511D (6) Practice and Theory in Nursing – Part I
573-514D (10) Clinical Laboratory in Nursing
573-512C (8) Practice and Theory in Nursing – Part II

Complementary Courses (12 credits)
12 credits from the physical and social sciences, chosen in consultation with faculty to complement the student's previous academic background.

Students must successfully complete all requirements for entrance and for the Qualifying Year and be recommended by the Standing and Promotions Committee for entry to the Master's of Science (Applied) Program.

Ph.D. PROGRAM

Each student's program is designed with the research director and thesis supervisor, taking into account the student's previous academic preparation, needs and research interests. The requirements for the doctoral degree are:

1. A minimum of 18 credits beyond the Master's level. Courses and seminars in research design, issues of measurement, advanced nursing, development of theory in nursing, advanced statistics and complementary course(s) in the student's major field of study are compulsory. The student's program is decided in consultation with the faculty advisor.
2. Successful completion of the Ph.D. comprehensive examination.
3. Oral defense of the thesis proposal.
4. Dissertation and oral examination.
5. Two years of full-time residence. A student who has obtained a Master's degree at McGill University or at an approved institution elsewhere, and is proceeding in the same subject to a Ph.D. degree, may on the recommendation of the School, be registered in the second year of the Ph.D. program.

55.6 Courses

The letters which form part of the course numbers have the following significance:
A – fall term
B – winter term
C – summer session courses starting in May
D – fall and winter term

● Denotes not offered in 2000-01.

The course credit weight appears in parentheses (#) after the name.

QUALIFYING PROGRAM

572-220A THERAPEUTIC RELATIONSHIPS. (3) The course introduces the principles, theories, and basic skills of a collaborative relationship with individuals and families. Students will learn about the phases of the relationship (i.e., engagement, working, and termination) and the clinical skills involved in establishing, maintaining, and terminating a relationship in promoting health. **C. Gros**

573-511D PRACTICE AND THEORY IN NURSING – PART I. (6) A study of selected concepts related to the practice of nursing including health, family, normative life transitions and interpersonal interaction. The major focus is on developing an understanding of human behaviour using the process of scientific inquiry. Special emphasis is placed on the observation of people in their physical and social environments and on the analysis of clinical data as the basis for the development of innovative nursing approaches. **Faculty**

573-512C PRACTICE AND THEORY IN NURSING – PART II. (8) Learning to nurse patients in acute care settings, who are experiencing a variety of common illness-related problems.

573-514D CLINICAL LABORATORY IN NURSING. (10) Learning to nurse through field experiences with individuals and families in the community and in acute care settings. The focus is on the application of knowledge and theory in practice and includes the testing and analysis of nursing approaches. Students work with clients and families experiencing a variety of life events including aging, birth and parenting as well as acute illness and hospitalisation. **Faculty**

GRADUATE PROGRAM

573-611D SEMINAR IN NURSING I. (6) A critical study of selected concepts in nursing and health related to individuals and families. An introduction to the study of concepts and theories relevant to nursing. **H. Ezer**

573-612A RESEARCH METHODS IN NURSING I. (3) Basic knowledge and skills needed to conduct research. The philosophy and principles of scientific inquiry, research design, sampling, techniques of data collection, ethics, and incorporating research into practice are discussed with emphasis for nursing. **N. Frasure-Smith and M. Purden**

573-614D CLINICAL LABORATORY IN NURSING I. (6) Field experience in nursing to test and develop concepts critical to the health of individuals and families. The examination of theories relevant to nursing practice in the clinical field. **Faculty**

573-615B HEALTH CARE EVALUATION. (3) An evaluation of educational and health care systems with particular reference to the nursing input in problems of health, health care and health care delivery. Evaluative research includes qualitative and quantitative approaches to assessing health status and quality of care. **A. Gagnon**

573-616C ADVANCED CLINICAL SKILLS. (4) Supervised clinical experiences in health care agencies are aimed at developing competence in technical and family nursing skills at an advanced level. Experience is determined on an individual basis according to learning needs and the student's area of interest. **Faculty**

573-620A CURRENT THEORIES OF NURSING. (2) (Prerequisites: 573-611D, 573-614D or equivalent). Current theories of nursing e.g. Orem, Roy, King, Rogers are examined along with their implications for practice, curriculum, administration, and research. The internal and external adequacy of these theories will be evaluated using selected schema. Critical analysis of issues and problems of theories in a practice discipline will be undertaken. **C. Loiselle and L. Gottlieb**

573-621D SEMINAR IN NURSING II. (6) An opportunity for investigation of some of the critical problems in nursing as related to the student's area of inquiry. Particular emphasis is placed on theory development in nursing. **M. Purden and C. Loiselle**

573-623A CLINICAL ASSESSMENT AND THERAPEUTICS. (3) (Prerequisites: 546-300B; 522-201A, 522-202B or equivalent.) Development of skills in the medical-nursing assessment and management of patients and families dealing with chronic and life-threatening illnesses. Includes instruction in history-taking and physical assessment. **M. Beaulieu**

573-624A CLINICAL LABORATORY IN NURSING II. (4) Field experience in nursing, incorporating extensive assessment, experimentation and evaluation of differing nursing approaches. **Faculty**

573-625B CLINICAL LABORATORY IN NURSING III. (6) Field experience in nursing, incorporating extensive assessment, experimentation and evaluation of differing nursing approaches. **Faculty**

573-626A DEVELOPMENTS IN EDUCATION & ADMINISTRATION. (3) An examination of theories of learning and organizational behaviour as related to the preparation of nurses for the delivery of health care services. Implications of these theories for the assessment, development, and evaluation of nursing programs will be investigated. **C. Pepler**

573-627B NURSING PRACTICUM. (3) Research, administrative or teaching projects in nursing are defined by interested faculty and developed with students. The goal is to promote and enhance scholarly activity and productivity. At completion, there should be some final product such as a manuscript, a data collection system set-up, or the synthesis of pilot data **A. Gagnon**

- **573-690B M.SC. THESIS I.** (4)
- **573-691A M.SC. THESIS II.** (8)
- **573-692B M.SC. THESIS III.** (12)

Ph.D. PROGRAM

573-701 COMPREHENSIVE EXAMINATION. (1)

573-702 RESEARCH DESIGN. (3) The logic and procedures of both qualitative and quantitative research designs are examined with particular emphasis on their appropriateness for addressing nursing and health problems. Issues specific to the design of nursing and health care studies are explored. Included in the types of designs analyzed are: experimental and quasi-experimental, ethnographic, grounded theory and evaluative. **C. Loiselle**

573-703 ISSUES OF MEASUREMENT. (3) An examination of the underlying theories of measurement and techniques for assessing the validity and reliability of data collection instruments. Issues related to the development and/or utilization of instruments to measure target variables in nursing and health research are addressed. **C. Johnston**

573-730 DEVELOPMENT OF THEORY IN NURSING. (3) (Prerequisite: 573-620A or equivalent) This course surveys the history of nursing theory development with special emphasis placed on the approaches theory development and the factors affecting these approaches. Issues such as the level of theory, where theory derives are examined in light of the needs of a practice discipline. Future directions for theory development in nursing are explored. **F. Carnevale**

573-780 ADVANCED NURSING. (3) (3 hours seminar weekly) (Prerequisite: 573-621D, 573-624A, 573-625B or equivalent and permission of instructor). An in-depth analysis of selected issues and developments within nursing and health care. Included will be topics relevant to the areas of research and clinical expertise of the student and faculty. **L. Gottlieb**

56 Occupational Health

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Montreal, QC H3A 1A2
Canada

Website: http://www.mcgill.ca/occh

Chair — G. Thériault

M.Sc. (Resident) and Ph.D. programs:
Telephone: (514) 398-4229
Fax: (514) 398-4503
E-mail: occhdept@epid.lan.mcgill.ca

Coordinator (M.Sc. Resident/Ph.D.) — S. Larivière

M.Sc. (Distance Education) program:
Telephone: (514) 398-6989
Fax: (514) 398-7153
E-mail: distocch@epid.lan.mcgill.ca

Coordinator (M.Sc. Distance Education) — Y. Provençal

56.1 Staff

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

Professors
J.P. Farant; Ph.D.(Carl.), C.I.H.
C. Infante-Rivard; M.D.(Montr.), M.P.H.(UCLA), Ph.D.(McG.), F.R.C.P.(C)
G. Thériault; M.D.(Laval), M.I.H., Dr. P.H.(Harv.)

Associate Professors
A. Dufresne; B.Sc., M.Sc.(Que.), Ph.D.(McG.)
P. Héroux; B.Sc.(Laval), M.Sc., Ph.D.(I.N.R.S.)
T. Kosatsky; M.D.(Man.), M.P.H.(Emory)
M. Rossignol; B.Sc., M.D.(Sher.), M.Sc.(McG.), F.R.C.P.(C)

Lecturers
J.E. Deadman, P. Dubé, J.P. Gauvin

Associate Members
M.R. Becklake, J.F. Boivin, P. Ernst, F. Liddell, A.D. McDonald *(Epidemiology and Biostatistics)*
P. Burpee *(Faculty of Education)*
B. Case *(RVH-Pathology)*

Adjunct Professors
D. Amore (Hôpital Ste-Justine); B. Armstrong (London School of Hygiene); S. Arnold (Consultant); N. Cherry (U. of Manchester); L. DeGuire, L. Drouin, M. Goldberg, F. Labreche, P. Robillard, S. Stock (Direction de la santé publique); A. Dembe (U. of Massachusetts); H. Demers (Consultant); D. Gautrin (Hôpital Sacré-Coeur); B. Pant (Concordia); L. Patry; G. Perrault (IRSST); P. Sebastien (St.Gobain); J. Saari (U. of Waterloo); G. Shematek (Calgary Regional Hospitals Authority); J. Siemiatycki (Institut Armand Frappier); C. Tremblay (Santé Publique-Montérégie); M. Vézina (Centre de santé Publique de Québec); C. Viau (U. de Montréal); W. Wood (Environmental Safety Office, McGill); S. Youakim (U. of Alberta)

56.2 Programs Offered

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.

M.Sc. Applied Program (Full-time) (Resident) (on campus)
The objective of this program is to train and enable competent health and hygiene professionals to work in occupational health programs by evaluating the work environment and work hazards and by proposing appropriate methods of prevention and control.

M.Sc. Applied Program (Distance Education)
A three and one-half year program leading to the degree of Master of Science Applied in Occupational Health Sciences – M.Sc.(A). This program is also offered for professional interest, for details please contact the Coordinator.

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

56.3 Admission Requirements

Non-Canadian applicants whose mother tongue is not English and who have not completed an undergraduate degree using the English language are required to submit documented proof of competency in oral and written English, by appropriate exams e.g. TOEFL (Test of English as a Foreign Language) with a minimum score of 600, or 250 on the computerized test.

M.Sc. Applied Program (Full-time) (Resident) (on campus)

Candidates should have completed, with high academic standing, a bachelor's degree or its equivalent in a discipline relevant to occupational health or hygiene such as: chemistry, engineering, environmental sciences, physics; medicine, nursing and other health sciences with a standing equivalent to a minimum Cumulative Grade Point Average (CGPA) of 3.0 out of 4. High grades are

expected in courses considered by the Department to be preparatory to the graduate program.

M.Sc. Applied Program (Distance Education)

Candidates must hold an M.D., a bachelor's degree in nursing, or a B.Sc. (any major). They must have maintained at least a 3.0 on 4.0 grade point average.

Those who hold a B.Sc. must be Industrial Hygienists with at least three years of experience in industrial hygiene and/or safety. In the case of medical doctors and nurses, priority will be given to candidates with two or more years of experience in occupational health.

Ph.D. Program

Candidates must hold a 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.).

56.4 Application Procedures

M.Sc. Applied Program (Full-time) (Resident) (on campus)

Candidates must submit with their application two official copies of their university transcripts, two letters of reference, a copy of their curriculum vitae and a letter describing their background (occupational health, occupational hygiene, worker safety, etc.) as well as a $60(Cdn) application fee.

Eligible candidates may be invited for an interview with members of the Admissions Committee of the Department.

M.Sc. Applied Program (Distance Education)

Candidates must submit with their application two official transcripts from their university of graduation, two letters of recommendation, a copy of their résumé, a letter describing their career plan, the reasons for their enrolment, and how they plan to accommodate their study time within their work schedule as well as a $60(Cdn) application fee.

Ph.D. Program

Candidates must submit with their application two official copies of their university transcripts (undergraduate and graduate), two letters of reference (or completed special forms), a copy of their curriculum vitae and a letter describing their field of interest as well as a $60(Cdn) application fee.

Candidates must also submit with their application an outline of their scientific interests, indicating the field and the topic of their proposed research. Each student will be assigned to one academic staff member of the Department, who will act as his/her supervisor, who will guide him/her in the preparation of a definite research protocol.

56.5 Program Requirements

M.SC. APPLIED PROGRAM (FULL-TIME) (RESIDENT) (ON CAMPUS)

Teaching is organized in eight 3-credit courses and one 6-credit course totalling 30 credits. Promotion to the following semester is dependent upon passing grade. A comprehensive examination is held at the end of the course program.

After successfully completing the course requirements and passing the comprehensive examination, students must carry out an extended project (15 credits). The project requires students to identify an issue in their area of specialization, to review the present state of knowledge relevant to that issue, and either to carry out a survey to assess a particular work situation and make recommendations, or to devise a research protocol to extend knowledge in the area and to carry out a preliminary study to assess the feasibility of the protocol proposed.

Normally, students extend the duration of their project into the Fall term by registering for an additional session.

Required Courses (30 credits)

392-602B	(3)	Occupational Health Practice
392-603A	(3)	Work and Environment Epidemiology I
392-604A	(3)	Monitoring Occupational Environment
392-605D	(6)	Physical Health Hazards
392-608B	(3)	Biological and Chemical Hazards
392-612A	(3)	Principles of Toxicology
392-614B	(3)	Topics in Occupational Health
392-615B	(3)	Occupational Safety Practice
392-616A	(3)	Occupational Hygiene
392-600B		M.Sc.(A) Comprehensive Examination

Project Component – Required (15 credits)

392-699T	(15)	Project Occup. Health & Safety

M.SC. APPLIED PROGRAM (DISTANCE EDUCATION)

The Master distance education program takes three and one-half years to complete.

The first part (3 years) consists of 10 three-credit theory courses. Students enrolled in the program must successfully complete ten courses (30 credits). Equivalencies may be granted upon examination of the application by the professors concerned, and the Faculty of Graduate Studies.

During the first part, there are six work sessions (practicum). These sessions are held in Montréal on the McGill University Campus. Their aim is to offer students direct exposure to various industrial hygiene situations and laboratory activities. Each course has a final examination at the end of the term. Participation in the practica is an essential component of the program.

The second part consists of writing an extended project report (15 credits). The project report will be carried out under the supervision of a member of the teaching staff. Note that students must pass the comprehensive exam before writing their report. A total of 45 credits is offered, the number required to complete the M.Sc. program.

Courses

392-602B-88	(3)	Occupational Health Practice
392-603A-88	(3)	Work & Environment Epidemiology I
392-604A-88	(3)	Monitoring Occupational Environment
392-608B-88	(3)	Biological and Chemical Hazards
392-612A-88	(3)	Principles of Toxicology
392-615B-88	(3)	Occupational Safety Practice
392-616A-88	(3)	Occupational Hygiene
392-617A-88	(3)	Occupational Diseases
392-624B-88	(3)	Social & Behavioural Aspects of Occupational Health
392-625B-88	(3)	Work & Environment Epidemiology II.
392-626B-88	(3)	Basics of Physical Health Hazards
392-627A-88	(3)	Work Physiology and Ergonomics
392-630A-88	(3)	Occupational Disease for Ohns
392-600B-88		M.Sc.(A) Comprehensive Examination

Each course has a final examination at the end of the term. Students must obtain at least 65% (B-) in each course in the program. Students who fail one course will be invited to withdraw from the program. Special circumstances can be examined.

Practica

Practicum 1: Monitoring the work environment
to be preceded by 392-616-88

Practicum 2: Clinical approach to occupational diseases
to be preceded by 392-617A-88

Practicum 3: Epidemiology in occupational health
to be preceded by 392-603-88

Practicum 4: Ethics and Law / Mental Health / Psychoactive substance abuse
to be preceded by 392-624-88

Practicum 5: Ergonomic evaluation
to be preceded by 392-627-88

Practicum 6: The multidisciplinary management of occupational health problems (student reports)
to be preceded by 392-625-88 and/or 392-608-88

Project Component – Required (15 credits)
392-699T,D-88 (15) Project Occup. Health & Safety

PH.D. PROGRAM

Three years of resident study are required for this program.

Students are required to take course 392-706D Occupational Health and Hygiene Seminars (2 credits) and 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.

All Ph.D. students must take a comprehensive examination within 18 months of registration.

A thesis committee will be established to ensure proper supervision and coverage of the different fields of expertise as required.

56.6 Courses

▭ Denotes limited enrolment.

The course credit weight is given in parentheses (#) after the course title.

M.SC.(A) APPLIED PROGRAM (RESIDENT) COURSES

392-600B M.SC.(A) COMPREHENSIVE EXAMINATION. (0)

392-602B OCCUPATIONAL HEALTH PRACTICE. (3) The course which includes lectures, discussions and practical sessions, analyzes the functions, structure and organization of occupational health programs and services.

392-603A WORK AND ENVIRONMENT EPIDEMIOLOGY I. (3) Lectures and practical sessions to provide students with basic knowledge of epidemiology and statistics as applied to occupational health.

392-604A MONITORING OCCUPATIONAL ENVIRONMENT. (3) Principles and practices of environmental and biological monitoring of workplace hazards. Familiarization with instrumentation and calibration procedures. Students learn to identify workplace health hazards, develop effective sampling strategies, use industrial hygiene equipment and interpret results of exposure measurements.

392-605D PHYSICAL HEALTH HAZARDS. (6) Properties, mechanisms of action and health effects of physical agents in the workplace and in the general environment: electromagnetic risks, noise and vibration, ionizing radiation, ventilation and thermal environment. Administrative, engineering and medical control methods, exposure standards and safety measures for these agents.

392-608B BIOLOGICAL AND CHEMICAL HAZARDS. (3) This course will acquaint the student with the physical, chemical, and toxicological properties of common industrial products, important industrial processes and their associate health and safety hazards and the control measures.

392-612A PRINCIPLES OF TOXICOLOGY. (3) Lectures and practical sessions on selected topics, including acute, subacute and chronic toxicity assessment, pharmaco-kinetics and pharmaco-dynamics, mutagenicity, carcinogenicity and teratogenicity.

392-614B TOPICS IN OCCUPATIONAL HEALTH. (3) Using a problem oriented approach, this course aims at integrating all notions seen previously in the program. Advanced learning, lectures, readings, student presentations, written assignments.

392-615B OCCUPATIONAL SAFETY PRACTICE. (3) Principles of safety and loss prevention; incident investigations and analyses, occupational safety management tools; loss recognition; safety standards, guidelines and legislation. Selected topics include: fire prevention; workshop, tool and machine safety; fall protection; laboratory safety; confined space entry; safe work permit systems; and materials handling.

392-616A OCCUPATIONAL HYGIENE. (3) An introduction to the principles and practices of industrial hygiene designed to provide the students with the knowledge required to identify health and safety hazards in the workplace.

392-699T PROJECT OCCUP. HEALTH & SAFETY. (15) Under supervision, the student will identify an issue relevant to occupational health and report on work accomplished (i) to review the present state of knowledge and (ii) to conduct a survey and make recommendations or to devise a study proposal and to carry out a preliminary feasibility study.

Students with a strong interest in ergonomics could take course 392-627A-88 Work Physiology and Ergonomics given in the Distance Education program as an additional course. This is not a required course for the resident program students and will not exempt students from taking all the required courses in the resident program.

Those with a strong interest in risk assessment are encouraged to take the summer course 513-668C Epidemiology and Environmental Risk Assessment. This is not a required course and will not exempt the resident program or distance education program students from taking all the required courses in their respective programs. For more information on this course, please contact the Summer Programme Office at tel: (514) 398-3973 or e-mail: summer@epid.lan.mcgill.ca or refer to their website: http://www.epi.mcgill.ca.

M.SC.(A) DISTANCE EDUCATION PROGRAM COURSES

392-600B OR C-88 COMPREHENSIVE EXAMINATION.

▭ **392-602B-88 OCCUPATIONAL HEALTH PRACTICE.** (3) The course which includes lectures, discussions and practical sessions, analyzes the functions, structure and organization of occupational health programs and services

▭ **392-603A-88 WORK & ENVIRONMENT EPIDEMIOLOGY I.** (3) Lectures and practical sessions to provide students with basic knowledge of epidemiology and statistics as applied to occupational health.
Practicum 3: Epidemiology in Occupational Health

392-604A-88 MONITORING OCCUPATIONAL ENVIRONMENT. (3) Principles and practices of environmental and biological monitoring of workplace hazards. Familiarization with instrumentation and calibration procedures. Students learn to identify workplace health hazards, develop effective sampling strategies, use industrial hygiene equipment and interpret results of exposure measurements.
Practicum 5-F1 – Laboratory session on monitoring the occupational environment and interpreting results.

▭ **392-608B-88 BIOLOGICAL AND CHEMICAL HAZARDS.** (3) (See 392-625B-88) This course will acquaint the student with the physical, chemical, and toxicological properties of common industrial products, important industrial processes and their associate health and safety hazards and the control measures.
Practicum 6: The Multidisciplinary Management of Occupational Health Problems (Student Reports) (Same as 392-625B-88)

▭ **392-612A-88 PRINCIPLES OF TOXICOLOGY.** (3) Lectures and practical sessions on selected topics, including acute, subacute and chronic toxicity assessment, pharmaco-kinetics and pharmaco-dynamics, mutagenicity, carcinogenicity and teratogenicity.

▭ **392-615B-88 OCCUPATIONAL SAFETY PRACTICE.** (3) Principles of safety and loss prevention; incident investigations and analyses, occupational safety management tools; loss recognition; safety standards, guidelines and legislation. Selected topics include: fire prevention; workshop, tool and machine safety; fall protection; laboratory safety; confined space entry; safe work permit systems; and materials handling.

▭ **392-616A-88 OCCUPATIONAL HYGIENE.** (3) An introduction to the principles and practices of industrial hygiene designed to provide the students with the knowledge required to identify health and safety hazards in the workplace.
Practicum 1: Monitoring the Work Environment

▭ **392-617A-88 OCCUPATIONAL DISEASES.** (3) Review of occupational health problems structured around target organs: respiratory, musculo-skeletal, skin, cardiovascular, mental disorders and

aggressive agents: trauma, physical agents, solvents and metals and infectious agents. Also covered are occupational cancer, conditions associated with hypo-and hyperbaric environments, mutagenicity, teratogenicity and reproduction disorders, pre-employment, period examination and medical activities in the workplace.
Practicum 2: Clinical Approach to Occupational Diseases

392-624B-88 SOCIAL & BEHAVIOURAL ASPECTS OF OCCUPATIONAL HEALTH. (3) This course explores the social science of occupational health practice, and describes influences on that practice of recent political, social and economic changes in the workforce and at the workplace; the theory of health promotion; management skills; and evaluation methods
Practicum 4: Selected issues in Ethics and law/Mental health/Psychoactive substance abuse (Same as 392-602B-88)

392-625B-88 WORK & ENVIRONMENT EPIDEMIOLOGY II. (3) Combined with 392-608B-88 to prepare students to evaluate the relations between exposure to workplace contaminants and health. The course involves the multidisciplinary analysis of four problems: Work-related cancer; Musculo-skeletal problems; Biological hazards; Chemical intoxication.
Practicum 6: The Multidisciplinary Management of Occupational Health Problems (Student Reports) (Same as 392-608A-88)

392-626B-88 BASICS OF PHYSICAL HEALTH HAZARDS. (3) Properties, mechanisms of action and health effects of physical agents in the workplace: thermal environment, noise and vibration, electromagnetism and ionizing radiation. Engineering control methods, exposure standards and safety measures for physical agents. Basics of monitoring workers for health impacts. Control of airborne contaminants using ventilation-based dilution methods.

392-627A-88 WORK PHYSIOLOGY AND ERGONOMICS. (3) Provide students with basic knowledge of physiological and psychological work requirements, ergonomic approach to work-related health problems and application of this type of approach to preventive and corrective measures.
Practicum 5: Ergonomic Evaluation

392-630A-88 OCCUPATIONAL DISEASES FOR OHNS. Designed to meet independent and specific needs of occupational health nurses, it examines potential patologies in the workplace, and subsequent disease outcomes. Focus is on an evidence-based approach to assessment, nursing diagnosis, appropriate interventions in the identification, management of occupational diseases. Worker screening strategies and disease prevention activities are introduced.

392-699T,D-88 PROJECT OCCUP. HEALTH & SAFETY. (15)

PH.D. COURSES

392-700D PH.D. COMPREHENSIVE EXAMINATION.

392-706D OCCUPATIONAL HEALTH AND HYGIENE SEMINARS. (2) A critical appraisal of the occupational health sciences literature which addresses issues in hygiene, safety, epidemiology and toxicology. Students will develop a critical sense of the literature and increase their understanding of different research paradigms.

57 Otolaryngology

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57.1 Staff

Emeritus Professor
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Professors
H. L. Galiana; B.Eng., M.Eng., Ph.D.(McG.)
A. Katsarkas; M.D.(Thess.), M.Sc.(Otol.), F.R.C.S.(C)
M.D. Schloss; M.D.(Br.Col.), F.R.C.S.(C)
T.L. Tewfik; M.D.(Alex.), F.R.C.S.(C)

Associate Professors
M.J. Black; M.D., C.M.(McG.), F.R.C.S.(C)
N. Fanous; M.B., BCH.(Cairo), F.R.C.S.(C)
S. Frenkiel; B.Sc., M.D., C.M.(McG.), F.R.C.S.(C)
W.R.J. Funnell; B.Eng., M.Eng., Ph.D.(McG.)
J. Manoukian; M.B., Ch.B.(Alex.), F.R.C.S.(C)
M. Mendelsohn; B.Sc., M.D., C.M.(McG.), F.R.C.S.(C)
W.H. Novick; M.D., C.M.(Queen's), F.R.C.S.(C)
B. Segal; B.Sc., B.Eng., M.Eng., Ph.D.(McG.)
R.S. Shapiro; M.D., C.M.(McG.), F.R.C.S.(C)
G.S. Shenouda; M.D.(Cairo), F.R.C.P.(C)

Assistant Professors
F. Chagnon; M.D.C.M.(McG.), F.R.C.S.(C)
I. Fried; M.D.(Dal.), F.R.C.S.(C)
M. Hier; M.D.(McG.), F.R.C.S.(C)
K. Kost; M.D., C.M.(McG.), F.R.C.S.(C)
R. Lafleur; M.D.(Ott.), F.R.C.S.(C)
M.-L. Lessard; M.D.(Laval), F.R.C.S.(C)
J. Rappaport; M.D.(Dal.), F.R.C.S.(C)
H. Remy; M.D.(Montr.), F.R.C.S.(C)
L. Rochon; M.D.(Sher.), F.R.C.P.(C)
N. Sadeghi; M.D.(McG.), M.Sc.(Otol.), F.R.C.S.(C)
G. Sejean; M.D.(Beirut), F.R.C.S.(C)
R. Sweet; M.D., C.M.(McG.)
L. Tarantino; M.D.(Naples), F.R.C.S.(C)
A.G. Zeitouni; M.D.(Sher.), M.Sc.(Otol.), F.R.C.S.(C)

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

Adjunct Professors
M. Desrosiers; M.D.(Montr.), F.R.C.S.(C)
J.-J. Dufour; M.D.(Laval), F.R.C.S.(C)

57.2 Program Offered

The Master of Science degree in Otolaryngology trains otolaryngologists for clinical or basic-science research in Otolaryngology.

57.3 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.

All applicants must be otolaryngologists, or they should be currently enrolled in a residency program leading to certification in Otolaryngology.

57.4 Application Procedures

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: $60;
5. Results of Test of English as a Foreign Language (TOEFL) (minimum of 550) if undergraduate and medical training were carried out in a language other than English or French.

Prospective students should contact research supervisors individually.

57.5 Program Requirements

The M.Sc. program comprises a minimum of 45 credits as follows:

Required Courses (12 credits)
540-602 (3) Physiology, Histopathology and Clinical Otolaryngology 1
540-612 (3) Physiology, Histopathology and Clinical Otolaryngology 2
540-603 (3) Advanced Scientific Principles of Otolaryngology 1
540-613 (3) Advanced Scientific Principles of Otolaryngology 2

Complementary Course (3 credits)
513-607 (3) Principles of Inferential Statistics in Medicine or equivalent

Thesis Component – Required (30 credits)
540-690 (3) Thesis 1
540-691 (3) Thesis 2
540-692 (6) Thesis 3
540-693 (6) Thesis 4
540-694 (12) Thesis 5

When appropriate, courses 540-602, 540-612, 540-603 or 540-613 may be replaced by other basic-science or clinical (500-level or higher) courses of relevance to Otolaryngology, as recommended or approved by the Department.

Students aiming to acquire an interdisciplinary background will be expected to take additional elective courses, at the undergraduate level if necessary.

57.6 Graduate Courses

The course credit weight is given in parentheses (#) after the course title.

540-602A,B,C PHYSIOLOGY, HISTOPATHOLOGY AND CLINICAL OTOLARYNGOLOGY 1. (3) (6 hours/week) University and hospital rounds and seminars presenting various topics in Clinical Otolaryngology. **Dr. S. Frenkiel and Staff**

540-603A,B,C ADVANCED SCIENTIFIC PRINCIPLES OF OTOLARYNGOLOGY 1. (3) (1.5 hours/week) Lectures in advanced basic-science topics of relevance to the otolaryngologist. **Dr. S. Frenkiel and Staff**

540-612A,B,C PHYSIOLOGY, HISTOPATHOLOGY AND CLINICAL OTOLARYNGOLOGY 2. (3) (6 hours/week) University and hospital rounds and seminars presenting various additional topics in Clinical Otolaryngology. **Dr. S. Frenkiel and Staff.**

540-613A,B,C ADVANCED SCIENTIFIC PRINCIPLES OF OTOLARYNGOLOGY 2. (3) (1.5 hours/week) Lectures in additional basic-science topics of relevance to the otolaryngologist. **Dr. S. Frenkiel and Staff**

540-690 THESIS 1. (3) A literature search and research proposal under supervision of the research supervisor that leads to a written proposal.

540-691 THESIS 2. (3) Supervised training and research in connection with the Master's thesis.

540-692 THESIS 3. (3) Independent research in connection with the Master's thesis.

540-693 THESIS 4. (6) A seminar and written report to be presented to an ad hoc committee describing appropriate progress at the end of the first year of training.

540-694 THESIS 5. (12) Independent study in connection with the Master's thesis. Presentation of results at a departmental seminar, or at a scientific meeting. Completion and final acceptance of the M.Sc. Thesis by the Department and Faculty of Graduate Studies.

513-607A,C,L PRINCIPLES OF INFERENTIAL STATISTICS IN MEDICINE. (3) Introduction to basic principles of statistical inference.

58 Parasitology

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Director — Marilyn E. Scott

58.1 Staff

Professors
Gaétan M. Faubert; B.Sc.(Sher.), M.Sc.(Montr.), Ph.D.(McG.)
Roger Prichard; B.Sc., Ph.D.(N.S.W.) *(CP Professor of Biotechnology)*

Associate Professors
Robin N. Beech; B.Sc.(Nott.), Ph.D.(Edin.)
Kris Chadee; B.Sc.(Winn.), M.Sc.(Man.), Ph.D.(McG.)
Elias Georges; B .Sc., Ph.D.(McG.)
Marilyn E. Scott; B.Sc.(U.N.B.), Ph.D.(McG.)

Assistant Professor
Paula Ribeiro; B.Sc., Ph.D.(York)

Associate Members
Mark A. Curtis; B.Sc., M.Sc., Ph.D.(McG.) *(Natural Resource Sciences, Wildlife Biology)*
Gregory J. Matlashewski; B.Sc.(C'dia), Ph.D.(Ott.) *(Medicine, Microbiology & Immunology)*
Manfred E. Rau; B.Sc.(Purdue), M.Sc., Ph.D.(McG.) *(Natural Resource Sciences, Entomology)*
Mary Stevenson; B.A.(Hood), M.Sc., Ph.D.(Catholic U. of Amer.), *(Medicine, Experimental Medicine)*
Brian Ward; M.D.(McG.), M.Sc.(Oxon), F.R.C.P.(C) *(Medicine, Experimental Medicine)*

Lecturer
James M. Smith, B.Sc.(N.E. London Polytechnic), Ph.D .(McG.)

58.2 Programs Offered

M.Sc. and Ph.D. degrees in Parasitology, and Graduate Certificate in Biotechnology.

The Institute of Parasitology teaches and researches the phenomenon of parasitism of man and livestock. Current research involvement includes the biology, biochemistry, pharmacology, control, ecology, epidemiology, immunology, molecular biology, neurobiology, and population and molecular genetics of parasitic organisms, viruses and cancer cells.

The Institute is housed in its own building adjacent to the Macdonald Campus Library, and has well equipped laboratories. The Institute has its own animal rooms and has access to large animal facilities at Macdonald farm. The Institute is affiliated to the McGill Centre for Tropical Diseases at the Montreal General Hospital.

Staff at the Institute of Parasitology also coordinate a 15-credit Graduate Certificate in Biotechnology.

58.3 Admission Requirements

Candidates for either the M.Sc. or the Ph.D. degree should possess a Bachelor's degree in the biological or medical sciences with a cumulative grade point average of 3.2/4.0. Previous experience in parasitology is not essential.

Candidates for the Graduate Certificate in Biotechnology must possess a Bachelor's degree or equivalent with a cumulative grade pont average of 3.0/4.0 or 3.2/4.0 in the last two full-time years of university study and prerequisites or equivalents. Prerequisites or equivalents: Students are required to have sufficient