

61 Philosophy

Department of Philosophy
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Chair — R.P. Buckley

61.1 Staff

Emeritus Professors

R. Klibansky; M.A.(Oxon.), D.Phil.(Heidel.), F.R.Hist. F.R.S.C.
(John Frothingham Emeritus Professor of Logic and Metaphysics)
A.T. McKinnon; M.A.(Tor.), Ph.D.(Edin.), B.D.(McG.), F.R.S.C.,
R.D., D.H.L.(St. Olaf) (*William C. Macdonald Emeritus Professor of Moral Philosophy*)
C. Taylor; M.A., D.Phil.(Oxon.), F.R.S.C.

Professors

M.A. Bunge; Ph.D.(LaPlata) (*John Frothingham Professor of Logic and Metaphysics*)
G. DiGiovanni; M.A., S.T.B., Ph.D.(Tor.)
S. McCall; B.A.(McG.), B.Phil., D.Phil.(Oxon.)
D. Norton; M.A.(Claremont), Ph.D.(Calif.)

Associate Professors

R.P. Buckley; Ph.D.(Louvain)
D. Davies; B.A. (Oxon.), M.A.(Manit.), Ph.D.(W.Ont.)
M. Deslauriers; B.A.(McG.), M.A., Ph.D.(Tor.)
M. Hallett; B.Sc., Ph.D.(Lond.)
A. Laywine; B.A.(Ott.), M.A.(Montr.), Ph.D.(Chic.)
E. Lewis; B.A.(C'nell), Ph.D.(Chic.)
J. McGilvray; B.A.(Carleton College), Ph.D.(Yale)
S. Menn; M.A., Ph.D.(Chic.), M.A., Ph.D.(Johns H.)

Assistant Professors

E. Carson; M.A.(McG.), Ph.D.(Harv.)
S. Stroud; A.B.(Harv.), Ph.D.(Prin.)

Adjunct Professor

J. Tully; B.A.(Br.Col.), Ph.D.(Cantab.)

Auxiliary Professor

K. Arvanitakis (Can. Institute of Psychoanalysis)

Associate Members

R. Hayes (Religious Studies); L. Kaplan (Jewish Studies);
A. Patten (Political Science)

61.2 Programs Offered

The Department offers courses of study leading to the Ph.D. in Philosophy. It also offers, in conjunction with the Biomedical Ethics Unit, a course of study leading to the M.A. degree in Bioethics.

61.3 Admission Requirements

Students with an Honours B.A. degree in philosophy, or the equivalent, are normally admitted to the Ph.D. program directly at the Ph.D. I level. The Department considers an Honours B.A. degree to include:

- 1) A general knowledge of the history of Western philosophy: Greek, Medieval, Modern.
- 2) A systematic knowledge of the main philosophical disciplines in their contemporary as well as historical contexts: logic, ethics, epistemology, and metaphysics.
- 3) An ability to present, in written form, clear and substantial reconstructions and analyses of the materials normally studied in the areas mentioned in (1) and (2).

To demonstrate their competence in these areas applicants must submit transcripts of academic work, three letters of recommendation from persons with whom they have studied, and at least one substantial example (approximately 15-20 typewritten pages) of their written philosophical work. In addition, applicants from North America whose first language is English are required to submit scores of the Graduate Record Examination.

Students applying to the Bioethics Specialty program must write an M.A. thesis. All applications to this program must also receive the approval of the Director of the Specialty program. Students who apply for this program should note that they must participate in a practicum which continues beyond the end of their second term of classes.

Students who hold an M.A. degree from another institution should apply for admission at the Ph.D. II level; such students will normally be required to complete two years of course work.

61.4 Application Procedures

All students in the M.A. thesis option, except those applying to the specialty M.A. in Bioethics, must submit with their applications an M.A. thesis proposal.

Applications and supporting documents should be submitted by January 15.

Applications will be considered upon receipt of:

1. application
2. transcripts
3. letters of reference
4. \$60 application fee
5. test results (GRE, TOEFL)

All information is to be submitted to the Department of Philosophy.

M.A. specialization in Bioethics: Applications are made initially through the Biomedical Ethics Unit in the Faculty of Medicine, which administers the program and teaches the core courses.

Applicants must be accepted first by the Department of Philosophy and then by the Bioethics Graduate Studies Advisory Committee.

For information, please contact the Chair, Master's Specialization in Bioethics, Biomedical Ethics Unit, 3690 Peel Street, Montreal, QC, H3A 1W9. Telephone: (514) 398-6980. Fax: (514) 398-8349. Email: Glass_K@falaw.lan.mcgill.ca

61.5 Program Requirements

The Department will consider applications from students interested in receiving an M.A. degree with thesis (in accordance with the current Department regulations). All students in an M.A. program will take the pro-seminar offered in their year(s) of course work.

The course work for the first four terms of the Ph.D. program will include two pro-seminars, in two of the following three areas: Value theory; Metaphysics and Epistemology; History of Philosophy. Each seminar will be led by two members of staff, and the grade for the seminar will be determined jointly by them. Each academic year, the Chair will invite joint proposals from staff for topics for the following year's pro-seminar and will, if necessary, choose among proposals, ensuring that the topics offered in successive years do not fall within the same area as defined above. The Chair will also consult with graduate students in Ph.D. I concerning the topic of the pro-seminar for the following year. The pro-seminar will normally be offered in the fall semester.

The course work taken towards completion of the requirements for the Ph.D. program must satisfy certain distribution requirements. Students must take at least two graduate courses in each of the following three areas: Value Theory; Metaphysics and Epistemology; History of Philosophy. Pro-seminars (6 credits each) may be counted in partial satisfaction of these requirements. The Graduate Director, in consultation with the student's advisory committee, will determine for which area(s) a given course may be counted. Students are entitled to appeal such decisions to the Department as a whole. No student may count a given course

towards the satisfaction of the distribution requirements for more than one area.

By the end of the Ph.D. II year, a student must submit a research paper (the "candidacy paper" [3 credits]), which may be worked up from a paper written to fulfill the requirements of a graduate course, to a Thesis Advancement Committee consisting of at least two members of the staff of the Department. The membership of this committee will be determined by the Graduate Director in consultation with the student; it is anticipated that members of this committee would, in principle, direct the student's thesis. This committee assigns a grade to the student's paper and reviews her or his graduate performance; on the basis of its assessment and review, it recommends to the Department as a whole either to permit the student to continue with the Ph.D. program and undertake a thesis or to decline to permit the student to continue. Two necessary conditions for a positive recommendation are that the student (a) receive a grade of at least B+ on the candidacy paper, and (b) have at least a 3.5 GPA (on the undergraduate Grade Point scale) in the course work required for the program. The Department as a whole, taking into account the Thesis Advancement Committee's recommendation and the student's overall academic record in the program, decides whether to permit the student to continue.

Students who do not receive a positive recommendation but who satisfy Graduate Faculty requirements (no courses below a B-minus and completion of 45 credits) will be recommended to the Graduate Faculty by the Department to transfer from the Ph.D. program to the M.A. program.

M.A. specialization in Bioethics: The curriculum is composed of required courses (for 6 credits) offered in the Biomedical Ethics Unit, bioethics courses (3 credit minimum) offered by Philosophy and any graduate courses required or accepted by Philosophy for the granting of a Master's degree, for a total of 18 to 21 credits. A minimum of 45 credits is required including the thesis. For further information refer to the Bioethics entry.

61.6 Courses for Higher Degrees

Subject to modification. Please consult the up-to-date list in the Departmental Office before registering.

- Denotes not offered in 1999-2000.

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

107-210A INTRODUCTION TO DEDUCTIVE LOGIC. (3) An introduction to propositional and predicate logic; formalization of arguments, truth tables, systems of deduction, elementary meta results, and related topics. **Professor Carson**

107-310B INTERMEDIATE LOGIC. (3) A second course in logic which will usually cover in detail the basic meta-results concerning first-order logic (sometimes known as the 'limitative results'), such as the Gödel-(Henkin) Completeness Theorem, Church's Theorem, the Gödel Incompleteness Theorems and Tarski's Theorem. Other topics will sometimes be covered instead, such as Intuitionistic or Modal Logic. **Professor Hallett**

107-506A,B SEMINAR: PHILOSOPHY OF MIND. (3) (Prerequisite: 107-305) (Open only to students as indicated above and to Cognitive Science Minors.) An advanced course devoted to specific topics in the philosophy of mind.

107-507A,B SEMINAR: COGNITIVE SCIENCE. (3) (Prerequisites: 107-305, 415 or written permission of the instructor.) An advanced discussion of a topic of philosophical interest arising from contemporary empirical work in cognitive science. **Professor McGilvray**

107-511A,B SEMINAR: PHILOSOPHY OF LOGIC AND MATHEMATICS. (3)

107-515A,B SEMINAR: PHILOSOPHY OF LANGUAGE. (3) (Prerequisite: 107-415 or written permission of the instructor.) An advanced course devoted to a topic in the philosophy of language. **Professor Bunge**

● **107-519A,B SEMINAR: EPISTEMOLOGY.** (3) (Prerequisite: 107-420 or written permission of the instructor.)

107-521A,B SEMINAR: METAPHYSICS. (3) (Prerequisite: 107-421 or written permission of the instructor.) An advanced course devoted to a topic in metaphysics. **Professor Davies**

107-534A,B SEMINAR; ETHICS. (3) (Prerequisite: 107-334 or written permission of the instructor.) **Prof. Stroud**

● **107-541A,B SEMINAR: PHILOSOPHY OF SCIENCE.** (3) (Prerequisite: 107-441 or other requirements specified by the instructor.)

107-543A,B SEMINAR: MEDICAL ETHICS. (3) (Prerequisite: 107-343 or written permission of the instructor.) An advanced course devoted to a particular philosophical problem as it arises in the context of medical practice or the application of medical technology.

107-548A,B SEMINAR: PHILOSOPHY OF LAW. (3) (Prerequisite: 107-348 or written permission of the instructor.) An advanced course devoted to a particular topic in the philosophy of law. Subject varies from year to year. **Staff**

107-551A,B SEMINAR: ANCIENT PHILOSOPHY. (3) (Prerequisite: at least one course in ancient philosophy and the specific requirements of individual instructors.) Topic for 1999-2000: TBA. **Professor Menn**

● **107-556A,B SEMINAR: MEDIEVAL PHILOSOPHY.** (3) (Prerequisite: 107-345 or 357 or written permission of the instructor.)

107-560A,B SEMINAR: SEVENTEENTH CENTURY PHILOSOPHY. (3) (Prerequisite: 107-360 or written permission of the instructor.) An advanced course on a seventeenth-century philosopher or philosophical issue.

107-561A,B SEMINAR: EIGHTEENTH-CENTURY PHILOSOPHY. (3) (Prerequisite: 107-361 or written permission of the instructor.) An advanced course on eighteenth-Century philosopher or philosophical issue. **Professor Laywine**

107-567A,B SEMINAR: NINETEENTH-CENTURY PHILOSOPHY. (3) (Prerequisite: 107-366 or 367 or written permissions of the instructor.) An advanced course on nineteenth-century philosophy or philosophical issue.

107-570A,B SEMINAR: CONTEMPORARY ANALYTIC PHILOSOPHY. (3) (Prerequisite: 107-370 or 415 or written permission of the instructor.) An advanced course on some major analytic philosopher, or some issue of central importance in the analytic tradition. Subject varies from year.

107-575A,B SEMINAR: CONTEMPORARY EUROPEAN PHILOSOPHY. (3) (Prerequisite: 107-475 or written permission of the instructor.) An advanced course on contemporary European philosopher or some important issue in the Continental tradition. Topic for 1997-98: A close reading of Merleau-Ponty's *Phenomenology of Perception*. **Professor Buckley**

107-581A,B SEMINAR: PROBLEMS OF PHILOSOPHY. (3) **Staff**

107-590A,B SEMINAR: SPECIAL TOPICS IN PHILOSOPHY. (3) (Prerequisites: one course in philosophy.) Psychoanalysis: a critical examination. Depending on the interests of the class, areas examined would include: psychoanalytic epistemology, psychoanalysis and the pre-socratics, psychoanalysis and tragedy, reasons versus causes in psychoanalysis, hermeneutics, psychoanalytic truth, self-deception, irrationality, paradox, creativity, internal object world and its relation to external objects. **Professor Arvanitakis**

Department of Philosophy Graduate Seminars

Not all offered every year. Please consult the Department for current listing.

107-601A,B SEMINAR IN THE HISTORY OF PHILOSOPHY I. (3) The works to be considered will be those of the major philosophers, primarily before the 20th century, e.g. Plato, Aristotle, Aquinas, Descartes, Leibniz, Locke, Berkeley, Hume, Kant, Hegel.

107-602A,B SEMINAR IN THE HISTORY OF PHILOSOPHY II. (3) The works to be considered will be those of the major philosophers, primarily before the 20th century, e.g. Plato, Aristotle, Aquinas, Descartes, Leibniz, Locke, Berkeley, Hume, Kant, Hegel.

107-603A,B SEMINAR IN METAPHYSICS AND EPISTEMOLOGY I. (3) Specific subject matter will vary, but some examples of topics to be covered are: theories of space and time, theories of perception, theories of reference and/or meaning, varieties of realism/anti-realism.

107-605A,B SEMINAR IN VALUE THEORY I. (3) Specific subject matter will vary, but some examples of topics to be covered are: Nature of justice, the right and the good, aesthetic judgment, natural law and natural justice.

107-606A,B SEMINAR IN VALUE THEORY II. (3) Specific subject matter will vary, but some examples of topics to be covered are: Nature of justice, the right and the good, aesthetic judgement, natural law and natural justice.

107-607A PRO-SEMINAR I AND 107-608B PRO-SEMINAR II. (6) A series of seminars on selected topics designed for professional training to graduate students. Topics will be selected from the general area of Value Theory.

107-640A,B SEMINAR IN FOUNDATIONS OF SCIENCE, I. (3) Topics in the philosophy of logic, mathematics and science, such as theories of truth, realism in mathematics, philosophical foundations of relativity theory, etc.

107-641A,B SEMINAR IN FOUNDATIONS OF SCIENCE, II. (3) Topics in the philosophy of logic, mathematics and science, such as theories of truth, realism in mathematics, philosophical foundations of relativity theory, etc.

107-682A PRO-SEMINAR III AND 107-683B PRO-SEMINAR IV. (6 credits each) A series of seminars on selected topics designed to provide professional training to graduate students. Topics will be selected from the general area of Metaphysics/Epistemology.

107-685A,B FUNDAMENTALS OF LOGIC. (3) A course in intermediate logic for graduate students in Philosophy, covering such topics as axiomatic systems, formal semantics, consistency, completeness, the limitative results, intuitionistic logic, formal theories of truth, aspects of the development of logic.

107-690A,B CANDIDACY PAPER. (3)

107-693A M.A. THESIS RESEARCH I. (5) Submission of thesis topic and detailed bibliography.

107-694B M.A. THESIS RESEARCH II. (5) Detailed thesis proposal.

107-695A M.A. THESIS RESEARCH III. (14) Completion of thesis.

107-696A GRADUATE SEMINAR I. (1) Attendance at graduate students' presentations.

107-697B GRADUATE SEMINAR II. (1) Attendance at graduate students' presentations.

107-698A GRADUATE SEMINAR III. (1) Presentation of the thesis and attendance at other thesis presentations.

107-705A GUIDED RESEARCH IN ETHICS. (3)

107-706B GUIDED RESEARCH IN ETHICS. (3)

107-710A GUIDED RESEARCH IN LOGIC. (3)

107-711B GUIDED RESEARCH IN LOGIC. (3)

107-720A GUIDED RESEARCH IN PHILOSOPHY OF SCIENCE. (3)

107-721B GUIDED RESEARCH IN PHILOSOPHY OF SCIENCE. (3)

107-730A GUIDED RESEARCH IN PHILOSOPHY OF RELIGION. (3)

107-731B GUIDED RESEARCH IN PHILOSOPHY OF RELIGION. (3)

107-740A GUIDED RESEARCH IN ANCIENT PHILOSOPHY. (3)

107-741B GUIDED RESEARCH IN ANCIENT PHILOSOPHY. (3)

107-750A GUIDED RESEARCH IN MEDIEVAL PHILOSOPHY. (3)

107-751B GUIDED RESEARCH IN MEDIEVAL PHILOSOPHY. (3)

107-760A GUIDED RESEARCH IN HISTORY OF PHILOSOPHY. (3)

107-761B GUIDED RESEARCH IN HISTORY OF PHILOSOPHY. (3)

107-770A GUIDED RESEARCH IN PHILOSOPHY OF POLITICS. (3)

107-771B GUIDED RESEARCH IN PHILOSOPHY OF POLITICS. (3)

107-780A GUIDED RESEARCH IN EPISTEMOLOGY AND METAPHYSICS. (3)

107-781B GUIDED RESEARCH IN EPISTEMOLOGY AND METAPHYSICS. (3)

Several courses primarily philosophical in content are available in other departments. Note in particular the offerings in Classics, Jewish Studies, Islamic Institute, and Political Science.

62 Physical Education

Department of Physical Education
Sir Arthur Currie Memorial Gymnasium
475 Pine Avenue West
Montreal, Quebec H2W 1S4

Telephone: (514) 398-4184

Fax: (514) 398-4186

Website: http://www.education.mcgill.ca/phys_ed/default.html

Chair — Hélène Perrault

M.A. Program Director — Dr. H. Perrault

Telephone: (514) 398-4184 (ext. 0578)

62.1 Staff

Professors

David Montgomery; B.Sc.(Guelph), M.Sc., Ph.D.(Purdue)

Hélène Perrault; B.Sc.(C'dia), M.Sc., Ph.D.(Montr.)

Greg Reid; B.Ed.(P.E.)(McG.), M.S.(Calif.), Ph.D.(Penn. State)

A. Edward Wall; B.Ed., M.A.(McG.), Ph.D.(Alta.)

Associate Professors

Margaret J. Downey, B.Ed., M.A., Ph.D.(McG)

Graham I. Neil; B.Ed.(P.E.), M.A.(McG.), Ph.D.(Ore.)

René A. Turcotte; H.B.P.H.E.(Lauren.), M.Sc., Ph.D.(Alta.)

Assistant Professors

David J. Pearsall; B.A., BPHE, M.Sc., Ph.D.(Queen's)

Adjunct Professors

Louis W. Jankowski; B.Sc.(CUNY), M.A., Ph.D.(Mich)

Robert Kilgour; B.Sc.(C'dia), M.Sc.(Dal.), Ph.D.(Florida State)

Shiping Ma; B.Sc., M.Sc.(Shanghai), M.Sc., Ph.D. (Washington)

62.2 Programs Offered

The Physical Education Department offers thesis and non-thesis options leading to a Master of Arts. There are two main areas of concentration in each option of the M.A. program: Applied Sport Science and Applied Behavioral Science.

The Applied Sport Science option includes exercise physiology and biomechanics; the Applied Behavioural Science option includes adapted physical activity, psychology of sport and motor behaviour as well as pedagogy. The program usually involves two years of study.

The M.A. with thesis route provides the opportunity to acquire critical skills and knowledge related to systematic research in an area of specialization.

The M.A. course-based (non-thesis) route provides the opportunity for those interested in professional practice to acquire advanced knowledge in an area of specialization as well as some breadth.

Prospective applicants to the Ph.D. (*ad hoc*) program should contact the Department at (514) 398-4184.

62.3 Admission Requirements

1. An undergraduate degree with a Major in Physical Education or its equivalent from a recognized university is required.
2. A minimum academic standing equivalent to a C.G.P.A. of 3.0 or 4.0.

62.4 Application Procedure

Whenever possible applicants are expected to arrange an interview with their prospective academic advisor as part of the admission procedures.

62.5 Program Requirements

M.A. PHYSICAL EDUCATION – THESIS OPTION (45 credits)

Required Courses (6 credits)

- 416-676 (3) Intermediate Statistics II
434-605 (3) Research Methods

Complementary Courses (6 credits)

6 credits, two courses from either the Applied Sport Science or the Applied Behavioural Science list.

Thesis Component – Required (24 credits)

- 434-691 (6) Thesis Research I
434-692 (6) Thesis Research II
434-693 (6) Thesis Research III
434-694 (6) Thesis Research IV

Elective Courses (9 credits)

9 credits of courses chosen in consultation with an advisor.

M.A. PHYSICAL EDUCATION – NON-THESIS OPTION (45 credits)

Project Component – Required (15 credits)

- 434-608 (15) Special Project

Complementary Courses (18 credits)

6 credits, two of the following:

- 416-575 (3) Educational Measurement
434-605 (3) Research Methods
431-630 (3) Qualitative & Ethnographic Studies
or 411-692 (3) Qualitative Research Methods

12 credits, four courses from either the Applied Sport Science or the Applied Behavioural Science list.

Elective Courses (12 credits)

12 credits of courses chosen in consultation with an advisor.

APPLIED SPORT SCIENCE COURSE LIST

- 434-553 (3) Physiological Assessment in Sport
434-566 (3) Biomechanical Assessment in Sport
434-652 (3) Cardiorespiratory Exercise Physiology
434-662 (3) Metabolic & Neuromuscular Responses to Exercise
434-663 (3) Application of Exercise Physiology to Sport
434-667 (3) Sport Science – Seminar
434-668 (3) Data Acquisition in Sport Science

APPLIED BEHAVIORAL SCIENCES COURSE LIST

- 434-504* (3) Health & Lifestyle Education
434-505* (3) Sport & Physical Education in Society
434-550 (3) Analyzing Instructional Behaviors
434-607* (3) Curriculum Innovation and Change
434-650 (3) Teaching in Physical Education
434-654 (3) Sport Psychology
434-655 (3) Program Development in Adapted Physical Activity
434-664 (3) Motor Learning
434-665 (3) Motor Performance of Disabled Persons

* All courses on this list are available for both M.A. thesis and non-thesis options with the exception of 434-504, 434-505 and 434-607 which are only available for the non-thesis option.

62.6 Courses

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

- Denotes courses not offered in 1999-2000.

- **434-502A SPECIAL ISSUES.** (3) (Undergraduate students require instructor's permission prior to registration.)

- **434-504A HEALTH & LIFESTYLE EDUCATION.** (3)

- **434-505A SPORT AND PHYSICAL EDUCATION IN SOCIETY.** (3)

434-550A ANALYZING INSTRUCTIONAL BEHAVIORS. (3) Students will investigate generic and specialized data collection instruments used in the supervision of and research into teaching and coaching. Practical experience will include the selection and use of the appropriate tools, establishment of observer reliability, critical analysis of observational systems, and application of systematic observation to pertinent research questions.

- **434-553B PHYSIOLOGICAL ASSESSMENT IN SPORT.** (3)

- **434-566 BIOMECHANICAL ASSESSMENT IN SPORT.** (3)

434-605 RESEARCH METHODS. (3) The course will examine the nomenclature, structure, methods and areas of quantitative and qualitative research in Physical Education. Students will be required to evaluate research concepts and examine their relationship to statistical design. Activities will focus on data retrieval, research problems, proposals, data collection and report of findings.

- **434-607 CURRICULUM INNOVATION AND CHANGE.** (3)

- **434-608 SPECIAL PROJECT.** (15)

- **434-650B TEACHING IN PHYSICAL EDUCATION.** (3)

- **434-652A CARDIORESPIRATORY EXERCISE PHYSIOLOGY.** (3)

434-654B SPORT PSYCHOLOGY. (3) The psychological factors and personality characteristics that influence diverse aspects of sport and physical activity. Seminars focus on discussions/presentations of theory, psychometrics and application of psychological principles to behavior in sport.

- **434-655A PROGRAM DEVELOPMENT IN ADAPTED PHYSICAL ACTIVITY.** (3)

434-662B METABOLIC AND NEUROMUSCULAR RESPONSES TO EXERCISE. (3) A comprehensive theoretical understanding of the basic physiological adaptations to acute and chronic exercise in terms of metabolic pathways and fuel utilization as well as neuromuscular responses. Discussion of current concepts of regulatory factors will be discussed.

434-663 APPLICATION OF EXERCISE PHYSIOLOGY TO SPORT. (3) An overview of the scientific literature of the muscular, respiratory, cardiovascular and metabolic effects of acute and chronic exposure to various sports. Application of this knowledge towards the improvement of athletic performance.

- **434-664A MOTOR LEARNING.** (3)

434-665B MOTOR PERFORMANCE OF DISABLED PERSONS. (3) An examination of the factors which determine the motor performance and learning of individuals who are disabled. Topics include: anthropometric characteristics; information processing; knowledge, strategies and metacognition; motor control from the ecological psychology perspective; and personality and motivational determinants.

434-667 SPORT SCIENCE – SEMINAR. (3) Students will review selected research papers regarding the physiological and biomechanical factors affecting exercise and sport. Students will be required to prepare literature precis, critiques and lead in some group discussions.

- **434-668 DATA ACQUISITION IN SPORTS SCIENCE.** (3)

434-603D READING COURSE. (6)

434-616A,B READING COURSE. (3)

434-671A,B EXPERIMENTAL PROBLEMS. (3) Study in one area of: ergo-physiology or biomechanics or psychology of motor performance or motor performance for exceptional children. To provide an opportunity to conduct a research project and develop an awareness of the problems involved in the area of concentration under departmental supervision.

434-672D EXPERIMENTAL PROBLEMS. (6) See 434-671. This course, however, is more intensive and comprehensive in nature.

434-691 THESIS RESEARCH I. (6) A comprehensive literature review in the general area of the thesis topic. Independent work under the supervision of the thesis advisor(s).

434-692 THESIS RESEARCH II. (6) Independent work under the supervision of the thesis advisor(s) culminating with a written proposal and oral seminar explaining the direction of the thesis research. The Department and Advisory Committee evaluate both the proposal and the presentation.

434-693 THESIS RESEARCH III. (6) Ongoing research pertaining to the thesis under the direction of the thesis advisor(s).

434-694 THESIS RESEARCH IV. (6) Independent work under the supervision of the thesis advisor(s). Final submission and approval of the thesis.

63 Physical and Occupational Therapy

School of Physical and Occupational Therapy
3654 Drummond Street
Montreal, QC Canada, H3G 1Y5
Telephone: (514) 398-4504
Fax: (514) 398-6360
Website: <http://www.mcgill.ca/spot/>

Director — S. Wood-Dauphinee

Associate Director, Graduate Program — A. Majnemer

63.1 Staff

Professors

H. Barbeau; B.Sc.(P.T.), M.Sc., Ph.D.(Laval)
Christina W.Y. Hui-Chan; B.Phys.Ther., M.Sc., Ph.D.(McG.)
(Leave of absence)
S. Wood-Dauphinee; B.Sc.(P.T.), Dip.Ed., M.Sc.A., Ph.D.(McG.)

Associate Professors

E.P. Aston-McCrimmon; B.Sc.(P.&O.T.), M.Sc.A.(McG.)
E. Gisel; B.A.(Zur.), B.S., M.S., Ph.D.(Temple)
A. Majnemer; B.Sc.(O.T.), M.Sc., Ph.D.(McG.)
P.A. McKinley; B.A., M.A., Ph.D.(UCLA)
D. St-Pierre; B.Sc.(P.T.)(McG.), M.Sc., Ph.D.(Montr.)
D.O. Thomas-Edding; B.Sc.(P.&O.T.), Dip.Ed.P.T., M.Sc.A.(McG.),
Ph.D.(Tor.)
P. Wells; Dip.Ed.(Tor.), B.Sc.(P.T.), M.Sc.A.(McG.)
N. Korner-Bitensky; B.Sc.(O.T.), M.Sc.(Rehab),
Ph.D.(Rehab)(McG.) (part-time)
N. Mayo; B.Sc.(P.T.)(Queen's), M.Sc., Ph.D.(McG.)

Assistant Professors

J. Fung; B.Sc.(P.T.)(H.K. Polytechnic U.), Ph.D.(Rehab.)(McG.)
I. Gelinias; B.Sc.(Ergo)(Montr.), M.Sc.(O.T.)(Virginia),
Ph.D.(Rehab. Sci.)(McG.)
N. Paquet; P.T. (Laval), Ph.D. (Rehab.)(McG.)
L. Snider; B.Sc.(O.T.)(McG.), M.A.(Br.Col.), Ph.D.(Tor.)
R. Torres-Moreno; B.Sc.(Mex.), M.Sc.(S. Fraser), Ph.D.(Strath.)

63.2 Programs Offered

Master of Science; Master of Science, Applied; and a Doctorate in Rehabilitation Science

63.3 Admission Requirements

Master of Science in Rehabilitation Science

1. A B.Sc. degree or equivalent in physical or occupational therapy or related fields from a university of recognized reputation.
2. Evidence of a high academic achievement equivalent to a B standing, or a McGill CGPA of 3.0 (70-74%).
3. Prerequisite courses may be required in statistics, anatomy, physiology, psychology, sociology, neurophysiology or other areas, depending on the student's anticipated specialization.
4. Non-Canadian applicants to the Faculty of Graduate Studies and Research 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 250 (School requirement), and TWE, or the equivalent in other tests.
5. The GRE Test is mandatory for the following applicants:
 - those who do not have a B.Sc. or equivalent from a Canadian University;
 - those who have been out of university for 5 years or more;
 - those whose GPA is below 3.0.

Only the General Test is mandatory. For consideration, students must obtain a minimum score of 550 in each category. For enquiries about Graduate Records Examination, please contact GRE - Educational Testing Service, Princeton, NJ 08540. Applicants are responsible for ensuring that their scores are sent to the School of Physical and Occupational Therapy.

Master of Science, Applied in Rehabilitation Science

1. to 5. as above, plus
6. Two years of clinical experience is required.

Doctorate in Rehabilitation Science

1. An M.Sc. degree in a rehabilitation-related discipline from a university of recognized reputation.
2. Evidence of a high academic achievement equivalent to a B⁺ standing, or a McGill CGPA of 3.3 (75-79%) is required.
3. Proof of proficiency in English.
4. GRE Test with a minimum score of 600 in each category. The GRE Test is mandatory for the following applicants:
 - those who do not have a B.Sc. or equivalent from a Canadian University;
 - those who have been out of university for 5 years or more;
 - those whose GPA is below 3.0.

If a graduate student accepted into the M.Sc. program demonstrates superior performance in the first year, the Graduate Committee, in consultation with the thesis supervisor, may recommend waiving the M.Sc. thesis requirement, and allow the student to proceed directly to the Ph.D. program.

63.4 Application Procedures

Application forms for admission to the Faculty of Graduate Studies and Research, for the degree of M.Sc., M.Sc.A., or Ph.D. in Rehabilitation Science, may be requested directly from the School.

Once completed, the application form and required documents should be returned to the Associate Director, Graduate Program, School of Physical and Occupational Therapy.

Applications will be considered upon receipt of:

1. application;
2. transcripts;
3. letters of reference;
4. \$60 application fee;
5. test results (GRE, TOEFL).

Deadline: February 15.

63.5 Program Requirements

Elective Courses (for all programs)

In addition to courses offered by the School of Physical and Occupational Therapy, students may choose courses given in other units. A complete list of suitable electives can be obtained from the Graduate Program Coordinator.

MASTER OF SCIENCE IN REHABILITATION SCIENCE

(45 credits)

The program requires a minimum of three terms of full-time residence study. It is not uncommon for a student to take two or more years to complete the degree.

Required Courses (10 credits)

- 582-610A,B (3) Research Methodology
 582-614A (3) Selected Topics in Rehabilitation Science
 582-616D (1) Seminars in Rehabilitation Science
 582-631A,B (3) Research Proposal

A research proposal is to be submitted in written form and defended in front of a supervisory committee. Research proposals should be completed by the beginning of the second full-time year.

Elective Courses (6 credits)

Courses which pertain to the student's area of specialization.

Thesis Component – Required (29 credits)

- 582-696A,B,C (2) Thesis Research
 582-697A,B,C (6) Thesis Research
 582-698A,B,C (9) Thesis Research
 582-699A,B,C (12) Thesis Research.

The student carries out a research study in an approved subject area under the guidance of an internal supervisor (from within the School) or an external supervisor (from outside the School).

All four of these courses must be registered for within the first 3 terms of full-time study. The course 582-699A,B,C is carried as IP "in progress" until completion of thesis.

MASTER OF SCIENCE, APPLIED IN REHABILITATION SCIENCE (45 credits)

For Master's programs structured as Course, Project or Non-thesis options, residence requirements are fulfilled when students complete all course requirements in their respective programs and pay the fees accordingly. This would normally be completed in four terms.

Required Courses (13 credits)

- 582-602A,B (3) Educational Methodology (or equivalent)
 582-603A,B,C (3) Directed Practicum
 582-610A,B (3) Research Methodology
 582-614A,B (3) Selected Topics in Rehabilitation Science
 582-616D (1) Seminars in Rehabilitation Science

Complementary Course (3 credits)

one 3-credit course in Statistics

Elective Courses (15 credits)

courses at the 500 and 600 level, related to the student's area of specialization; one or two 300 and 400-level courses may also be included upon approval of the Associate Director.

Project Component – Required (14 credits)

- 582-661 (6) Research Project I
 582-662 (8) Research Project II

DOCTORATE IN REHABILITATION SCIENCE

Doctoral students will be required to pursue at least three years of full-time residence study in the graduate program of the School of Physical and Occupational Therapy.

The curriculum will be divided as follows:

Required Courses (15 credits)

- 582-602A,B* (3) Educational Methodology (or equivalent)
 582-610A,B* (3) Research Methodology
 582-614A* (3) Selected Topics in Rehabilitation Science
 582-620A (3) Measurement in Rehabilitation I

582-630B (3) Measurement in Rehabilitation II

Of the five required courses, at least two* will already have been completed by students with an M.Sc. in Rehabilitation Science from McGill.

Elective Courses (6 credits)

Courses which pertain to the student's area of specialization; chosen by the student in consultation with his/her supervisor and upon approval of the Associate Director of the Graduate Program.

Thesis Component – Required

- 582-701D Ph.D. Comprehensive Examination

The student carries out a research study in an approved subject area under the guidance of an internal supervisor (from within the School) or an external supervisor (from outside the School).

Research Proposal:

A research proposal is to be submitted in written form and defended in front of a supervisory committee. Research proposals should be completed during the second full-time year.

Comprehensive Examination:

The student must successfully pass a written comprehensive examination by the end of the second academic year. The format will be three questions to be answered in essay style over a five-day period. An additional requirement may include an oral component.

63.6 Courses

- Denotes not offered in 1999-2000.

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

582-602A,B EDUCATIONAL METHODOLOGY. (3) Process of learning, methods of communication and teaching strategies for classrooms and clinical settings.

582-603A,B,C DIRECTED PRACTICUM. (3) A tutorial with directed practical experience in a clinical setting related to the student's clinical specialization, including curriculum development, and emphasizing current thought in rehabilitation. **Graduate Faculty**

- **582-604A CURRENT TOPICS IN PEDIATRICS.** (3) (Prerequisite: 582-233A, or permission from the instructors.)

- **582-608A,B PLASTICITY AS A BASIS FOR REHABILITATION.** (3) (Prerequisite: 582-455B or equivalent.)

582-610A,B RESEARCH METHODOLOGY. (3) (Prerequisite: 204-305B or 513-607A, or 416-675A and 416-676B, or equivalent.) An advanced lecture and seminar course. The philosophy of scientific inquiry, principles of research design, and application of statistical techniques are discussed with special consideration given to research studies in health care and rehabilitation.

Professor N. Mayo

582-614A,B SELECTED TOPICS IN REHABILITATION SCIENCE. (3)

A weekly lecture and seminar course taught by staff, designed to provide an overview of current research issues in rehabilitation.

**Professors S. Wood-Dauphinee,
L. Snider and Graduate Staff**

582-616D SEMINARS IN REHABILITATION SCIENCE. (1) A weekly seminar course given by staff and invited speakers in different areas of rehabilitation science. Students are expected to participate by reading pertinent literature prior to seminars and asking questions at each seminar. Attendance is compulsory, and the course is graded pass/fail based on participation.

**Professor A. Majnemer, Graduate Staff
and Invited Speakers**

582-620A MEASUREMENT IN REHABILITATION I. (3) (Prerequisite: 582-220B and permission from the instructor.) Theoretical and practical basis for utilization of electronic equipment for quantitative measurement in rehabilitation research. Ambulatory assistive devices, electronic plates and instrumentation to assess normal and pathological human movement will be used to demonstrate the application of theory and techniques for quantitative analysis

of human performance. Recording, reduction and analysis of electromyographic, kinetic and kinematic data included.

Professor R. Torres-Moreno and Graduate Staff

● **582-622A,B PATHOKINESIOLOGY.** (3) (Prerequisites: 582-620A and 582-630B)

582-630B MEASUREMENT IN REHABILITATION II. (3) (Prerequisite: 513-607 or 204-305 or equivalent.) Theoretical and practical basis for measurement in rehabilitation research. Introduction to measurement theory, scale development and related statistics, approaches and instruments used to assess outcomes in patients with musculoskeletal, neurological, cardiovascular, respiratory, psychiatric or psychologic conditions.

Professors S. Wood-Dauphinee and N. Korner-Bitensky

582-631 RESEARCH PROPOSAL. (3) The course covers issues involved in the development of a research protocol. The presentation of a written thesis proposal is required by the end of the course. This document will serve as the basis for an oral presentation to the student's Supervisory Committee which will also review the written proposal.

Professor N. Mayo

582-661 RESEARCH PROJECT I. (6)

582-662 RESEARCH PROJECT II. (8)

582-701D PH.D. COMPREHENSIVE EXAMINATION.

64 Physics

Department of Physics
Ernest Rutherford Physics Building
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Email (General):

SECRETARIAT@PHYSICS.MCGILL.CA

Email (Graduate information):

PAULAD@PHYSICS.LAN.MCGILL.CA

Website: www.physics.mcgill.ca

Chair — J. Barrette

64.1 Staff

Emeritus Professors

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

E.R. Pounder; B.Sc., Ph.D.(McG.), F.R.S.C.

J.M. Robson; B.A., M.A., Sc.D.(Cantab.), F.R.S.C.

R.T. Sharp; B.Sc., M.Sc., Ph.D.(McG.)

P.R. Wallace; B.A., M.A., Ph.D.(Tor.), F.R.S.C.

Post-Retirement

A.P. Contogouris; B.A.(Nat. Tech. Athens), Ph.D.(C'neil)

Professors

J. Barrette; M.Sc., Ph.D.(Montr.)

C. Burgess; B.Sc.(Wat.), Ph.D.(Texas)

M. Cohen; B.Sc., Ph.D.(Lond.), A.R.C.S.; Faculty of Medicine

J.E. Crawford; B.A., M.A.(Tor.), Ph.D.(McG.)

S. Das Gupta; B.Sc., M.Sc.(Calc.), Ph.D.(McM.)

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

M. Grant; B.Sc.(P.E.I.), M.Sc., Ph.D.(Tor.)

R. Harris; B.A.(Oxon.), Ph.D.(Sus)

C.S. Lam; B.Sc.(McG.), Ph.D.(M.I.T.)

J.K.P. Lee; B.Eng., M.Sc., Ph.D.(McG.)

S. Lovejoy; B.Sc.(Cantab.), Ph.D.(McG.)

S.K. Mark; B.Sc., M.Sc., Ph.D.(McG.)

R.B. Moore; B.Eng., M.Sc., Ph.D.(McG.)

W.B. Muir; B.Sc.(McG.), M.Sc.(W.Ont.), Ph.D.(Ott.)

P.M. Patel; B.Sc., M.Sc.(Manc.), Ph.D.(Harv.)

D.G. Ryan; B.Sc., M.Sc.(Queen's), Ph.D.(Birm.)

D.G. Stairs; B.Sc., M.Sc.(Queen's), Ph.D.(Harv.)

J.O. Strom-Olsen; B.A., M.S., Ph.D.(Cantab.)

M. Sutton; B.Sc., M.Sc., Ph.D.(Tor.)

J.M. Trischuk; B.Eng.(McG.), Ph.D.(Cal. Tech.)

M.J. Zuckermann; M.A., D.Phil.(Oxon.), F.R.S.C.

Associate Professors

F. Corriveau; Ph.D.(Zür.)

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

H. Guo; B.Sc.(Sichuan), M.Sc., Ph.D.(Pitt.)

D. Hanna; B.Sc.(McG.), M.A., Ph.D.(Harv.)

R. Myers; B.Sc.(Wat.), M.A., Ph.D.(Prin.)

K. Ragan; B.Sc.(Alta.), Ph.D.(Geneva)

D.H. Ryan; B.A., Ph.D.(Dub.)

Assistant Professors

J. Cline; B.Sc.(Calif.), M.Sc., Ph.D.(Cal. Tech.)

P. Grutter; Diploma, Ph.D.(Basel)

Lecturers

Z. Altounian, F. Buchinger

Associate Members

R. Davies (Atmospheric and Oceanic Sciences); B.C. Eu (Chemistry); G. Fallone (Radiation Oncology); M. Mackey (Physiology); E. Podgorsak (Radiation Oncology); D. Ronis (Chemistry)

64.2 Programs Offered

M.Sc. and Ph.D.

FIELDS OF RESEARCH

High-Energy Physics

Theoretical: The McGill high energy theorists have interests in a wide range of problems pertaining to all fundamental interactions: strong, electromagnetic, weak and gravitational. The research program extends from studies closely connected with experimental data to purely theoretical questions. Ongoing projects involve: particle phenomenology, quantum chromodynamics, electroweak baryogenesis, group theory, astroparticle physics, quantum gravity, grand unification and string theory.

Experimental High Energy Physics The experimental high energy physics group is engaged in a number of experiments at the research frontiers of the field, both in subatomic physics and in high energy astrophysics. These include:

- BaBar: The group has played an important role in construction and installation of the new BaBar detector at PEP-II (SLAC, Stanford). First operation is planned for early 1999, after which an extensive period of utilisation for the systematic search and detailed study of CP violation in the B sector will start.
- STACEE: Members of the group are currently constructing and installing a major air Cherenkov detector for the study of high energy gamma rays emitted by astrophysical processes. The detector (at Sandia Labs in Albuquerque, New Mexico) will be commissioned by early 1999 and will initially study active galactic nuclei (black-hole driven quasars) and supernova remnants.
- ZEUS: A group working at the world's first electron-proton collider (HERA, at DESY, Hamburg) studies lepton-quark interactions at high energy. The physics topics of interest to the group include deep inelastic scattering (proton structure, forward jet production and low-x physics) and flavour (strange, charm) production.

Thus, graduate students at the M.Sc. and Ph.D. levels are offered a strong program of research in a challenging and rapidly advancing field. Short term Master's projects are based mainly on instrumentation or data analysis conducted on Campus, while Ph.D. research may involve an extended stay at one of the world's major research laboratories.

Nuclear Physics

Theoretical: Transport equations for heavy ion collisions at intermediate energy; nuclear equation of state from heavy ion collisions; fragmentation at intermediate energy; electromagnetic probes in relativistic heavy ion collisions; effective lagrangians for hadronic systems at finite temperature; pion-nucleus interactions.

Current research programs in experimental nuclear physics at McGill are focussed on two main axes:

- The study of heavy-ion reactions at relativistic energies to determine the properties of nuclear matter at high density. This program is being performed at the Brookhaven National Laboratory. McGill physicists are part of a major experiment at the new heavy-ion collider RHIC, presently under construction at BNL.
- The study of ground state properties of unstable nuclei using laser spectroscopy techniques and ion traps. This work is being carried out using the Canadian Penning trap facility at the Argonne National Laboratory and at the accelerator ISOLDE (CERN).

Furthermore, the Nuclear Physics Group has an active in-house research program that applies the ion trap and laser techniques to the detection of trace quantities of material and contaminants, and to ion spectroscopy.

Condensed-Matter Physics

Theoretical: Programs of research are in progress on the properties of dilute alloys and amorphous metals, including magnetic systems and "spin-glasses"; on nonequilibrium characteristics of quantum devices; on kinetics of pattern formation during first order phase transitions, on structured fluids and polymers, on the statistical mechanics of biological membranes and growth problems; and on interface instabilities in dendritic crystal growth. Research is being done by nonlinear analysis and large-scale computational modelling.

Experimental: Lines of research include structural, transport, Mössbauer and other magnetic properties of metallic glasses and rapidly quenched metals, and certain crystalline metal alloys. High resolution X-ray diffraction using synchrotrons to study the time evolution of non-equilibrium structures and to study thin films and buried interfaces. Scanning tunneling and atomic force microscopy.

Nonlinear Variability in Geophysics

This group studies nonlinear dynamical processes in the atmosphere and other geophysical systems, especially those associated with turbulent, chaotic and extremely variable behaviour. Emphasis is placed on multifractal analysis and modelling as well as the development of new theories and techniques covering wide ranges of scale in time and space. Data from a variety of in situ and remotely sensed sources are used. This includes satellite data of the earth's atmosphere and surface as well as high quality precipitation data from the McGill Radar Weather Observatory.

64.3 Admission Requirements

M.Sc.

Normal requirement is a B.Sc. in Physics, or equivalent, with high standing.

Ph.D.

Normal requirement is a M.Sc. in Physics or equivalent. Candidates in good standing may have the option of transferring into this program from the M.Sc. program after one year.

64.4 Application Procedures

An application package is available upon request. It includes a brochure with a detailed description of the research activities in the Department, application forms for admission to graduate studies and information concerning requirements for the M.Sc. and Ph.D. degrees. Inquiries should be addressed to the Graduate Coordinator.

Applications will be considered upon receipt of:

1. application;
2. transcripts;
3. letters of reference;
4. \$60 application fee;
5. test results (GRE, TOEFL).

All information is to be submitted to Paula Domingues, Department of Physics.

Applications and supporting documents should be submitted by:
February 1st – international applicants,
March 15th – Canadian applicants.

Financial Assistance

Subject to the availability of funds, financial assistance will be offered to students in the form of Teaching and Research assistantships. For new students, financial support will be offered at the time of acceptance and arrival. Forms are given and filled out on registration day.

64.5 Program Requirements

M.Sc.

Candidates must successfully complete five 3-credit courses, plus 198-691A or B, 198-692 A or B and 198-690D (M.Sc. Thesis), in addition to all the other normal requirements of the Graduate Faculty. The M.Sc. program in Physics carries 48 credits in total.

Ph.D.

Candidates must successfully complete two one-semester courses and a Preliminary examination and submit a Ph.D. thesis, in addition to all the normal requirements of the Graduate Faculty. (Courses taken as part of the M.Sc. program at McGill may be accepted as substitutes for the two required courses.) Normally one of the courses must be a 600 or 700-level course in the candidate's area of specialization.

64.6 Advanced Undergraduate and Graduate Courses

- Denotes not offered in 1999-2000.

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

198-514B GENERAL RELATIVITY. (3) (3 hours) Transition from special to general relativity. Non-Euclidian geometry. The basic laws of physics in covariant form. Einstein's equations. Newton's theory of gravitation as an approximation. Propagation of gravitation. Rigorous solutions of the field equations. Cosmology.

Professor Myers

198-551A QUANTUM THEORY. (3) (3 hours) General formulation, scattering theory, WKB approximation, time-dependent perturbation theory and applications, angular momentum, relativistic wave equations.

Professor Gale

198-557A NUCLEAR PHYSICS. (3) (3 hours) General nuclear properties, nucleon-nucleon interaction and scattering theory, radioactivity, nuclear models, nuclear reactions.

Professor Mark

198-558A SOLID STATE PHYSICS. (3) (3 hours) Properties of crystals, lattice vibrations and thermal properties of insulators, free electron model and band structure, semiconductors, metals, optical properties.

Professor D.H. Ryan

198-559B STATISTICAL MECHANICS. (3) (3 hours) Bose and Fermi gas; cluster expansions; hydrodynamics of superfluids; second sound; Fermi liquid theory; phase transitions; the Ising model; fluctuations; the Fokker-Planck equation; the Onsager relation.

Professor Grant

198-562A,B ELECTROMAGNETIC THEORY. (3) (3 hours) (Prerequisites: U1 or U2 Honours Physics or permission of instructor.) Electrostatics, dielectrics, magnetostatics, time-varying fields, relativity, radiating systems, fields of moving charges.

Professor de Takacsy

198-567B PARTICLE PHYSICS. (3) (3 hours) Survey of elementary particles; hadrons, leptons and hadrons' constituents (quarks). Invariance principles and conservation laws. Detectors and accelerators. Phenomenology of strong, electromagnetic and weak interactions.

Professor Patel

198-610A ADVANCED QUANTUM MECHANICS. (3) (3 hours) Relativistic quantum mechanics. Klein-Gordon equation, Dirac equation. Second quantization of non-relativistic Schrodinger equation, scalar fields and the electromagnetic field. Simple Feynman diagrams. **Professor Lam**

198-612A ADVANCED MATHEMATICAL PHYSICS. (3) (3 hours) Selected topics from differential equations, Green's functions and integral equations; applications to physics.

198-613B ADVANCED MATHEMATICAL PHYSICS. (3) (3 hours) Group representation theory with applications to physics.

● **198-616A,B MULTIFRACTALS AND TURBULENCE** (3) (3 hours)

● **198-618B QUANTUM THEORY OF SOLIDS.** (3) (3 hours)

198-619A,B THEORETICAL SOLID STATE PHYSICS. (3) (3 hours) Many body techniques in solid state physics, including second quantization for the many body Hamiltonian, Wicks theorem, Green's functions including diagrammatic methods for both zero and finite temperature.

198-620A,B EXPERIMENTAL METHODS OF SUBATOMIC PHYSICS. (3) (3 hours) Basic techniques of experimentation in nuclear and particle physics. Accelerators, beam optics, detection systems, major experiments, Monte-Carlo simulation, data acquisition and data analysis. **Professor Stairs (staff)**

● **198-658A,B ADVANCED CONDENSED MATTER PHYSICS.** (3) (3 hours)

198-659A,B EXPERIMENTAL CONDENSED MATTER. (3) (3 hours) To obtain an active understanding of the principles, the possibilities and the limitations of various experimental techniques. Possible topics include vacuum and low-temperature techniques; transport, thermal, magnetization and de Haas van Alphen measurements; scattering techniques; Mossbauer spectroscopy, NMR, scanning probe microscopy, electron microscopy; surface science methods. **Professor Grutter (staff)**

198-671A NUCLEAR STRUCTURE. (3) (3 hours) Gross properties of nuclei, nucleon-nucleon interaction, shell model, collective model, pairing model, electromagnetic and beta decay.

198-672B NUCLEAR REACTIONS. (3) (3 hours) Compound nucleus and the R-matrix theory; direct reactions; heavy ion reactions.

198-673B THEORETICAL HIGH ENERGY PHYSICS. (3) (3 hours) Introduction to quantum field theory; perturbation theory and Feynman diagrams. Applications to quantum electrodynamics, quantum chromodynamics and electroweak (Weinberg-Salam) theory. **Professor Burgess**

198-690D M.Sc. THESIS. (24)

198-691A,B. THESIS PREPARATION. (3) Directed study of research papers and experimental or theoretical techniques in the student's designated area of research under the supervision of the graduate studies committee of the Department.

198-692A,B THESIS PROJECT. (6) Independent work under the direction of the student's supervisor on a research problem in the student's designated area of research leading to a project report or seminar.

198-700A,B PRELIMINARY PH.D. EXAMINATION.

198-718A,B SPECIAL TOPICS IN SOLID STATE PHYSICS I. (3) (3 hours) Specialized discussion of some current problems in solid state physics.

198-719A,B SPECIAL TOPICS IN SOLID STATE PHYSICS II. (3) (3 hours) Specialized discussion of some current problems in solid state physics.

198-729A,B SELECTED TOPICS IN NUCLEAR PHYSICS (3) Specialized discussion of some current problems in nuclear physics.

198-730A SPECIAL TOPICS IN HIGH ENERGY PHYSICS I. (3) (3 hours) Specialized discussion of some current problems in theoretical particle physics.

198-731A SPECIAL TOPICS IN HIGH ENERGY PHYSICS II. (3) (3 hours) Specialized discussion of some current problems in particle physics.

563-601A RADIATION PHYSICS. (3) The production and properties of ionizing radiation and their interactions with matter; basic theoretical and experimental aspects of radiation dosimetry.

65 Physiology

Department of Physiology
McIntyre Medical Sciences Building
3655 Drummond Street
Montreal, QC Canada, H3G 1Y6
Telephone: (514) 398-3689
Fax: (514) 398-7452

Chair — A. Shrier

Chair of Graduate Program — E. Cooper

65.1 Staff

Emeritus Professor

G. Melvill Jones; B.A., M.A., M.B., B.Ch., M.D.(Cantab.)

Professors

C. Bushnell; B.A.(Maryland), M.A., Ph.D.(American U.) (*Harold Griffith Professor of Anaesthesia*) (*joint appt with Dentistry*)

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

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

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

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

L. Glass; B.S.(Brooklyn), Ph.D.(Chic.)

P. Gold; M.Sc., Ph.D., M.D., C.M.(McG.), F.R.C.P.(C.) (*joint appt with Medicine*)

D. Goltzman; B.Sc., M.D., C.M.(McG.), F.R.C.P.(C) (*Antoine G. Massabki Professor of Medicine*) (*joint appt with Medicine*)

J. Hanrahan; Ph.D.(Br.Col.)

J.L. Henry; B.Sc.(Tor.), M.Sc., Ph.D.(W.Ont.)

R.E. Kearney; B.Eng., M.Eng., Ph.D.(McG.) (*joint appt with Biomedical Engineering*)

K. Krnjevic; B.Sc., Ph.D., M.B., Ch.B.(Edin.) (*joint appt with Anaesthesia Research*)

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

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

M. Mackey; B.A., Ph.D.(Wash.)

J.P. Mortola; M.D.(Milan)

P. Ponka; M.D., Ph.D.(Prague)

A. Shrier; B.Sc.(C' dia), Ph.D.(Dal.) (*Hosmer Professor of Physiology*)

D.G.D. Watt; M.D., Ph.D.(McG.)

Associate Professors

R. Farookhi; B.Sc., M.Sc.(M.I.T.), Ph.D.(Tufts)

M. Glavinovic; B.Sc.(Zagreb), M.Sc.(Tor.), Ph.D.(McG.) (*joint appt with Anaesthesia Research*)

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

S. Magder; M.D.(Tor.) (*joint appt with Medicine*)

J. Orłowski; B.Sc.(McG.), M.Sc., Ph.D.(Queen's)

T. Trippenbach; M.D., Ph.D.(Warsaw)

A. Wechsler; B.A.(Tor.), M.Sc., Ph.D.(McG.)

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

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

Assistant Professors

K. Cullen; B.Sc.(Brown), Ph.D.(Chic.)

R. Sipehia; B.Sc., M.Sc.(Punj.), Ph.D.(C' dia)

U. Stochaj; Ph.D.(Cologne)

Lecturer

J. Day; M.Eng.(McG)

Adjunct Professors

E. Delvin, J. Milton, E. Quillen, S. Rossignol, M. Sairam

Associate Members

Anaesthesia: S. Backman

Dentistry: J. Lund

Medicine: J. Bates, A. Cybulsky, S.O. Freedman, A. Fuks, C. Gagnon, R. Gagnon, H.L. Goldsmith, A. Grassino, G. Hendy, G. Jensen, M. Katz, P.T. Macklem, J. Martin, S. Mulay, M. Newkirk, B. Posner, S. Rabbani, I. Shrier, J.E. Silva, A. Sniderman, M. Stevenson, S. Wing, H. Zingg

Neurology and Neurosurgery: A. Aguayo, M. Avoli, C. Bourque, S. Carbonetto, P. Drapeau, D. Guitton, M. Rasminsky

Otolaryngology: B. Segal

Pediatrics: I. Moss

Physical and Occupational Therapy: C. Hui-Chan

Psychiatry: B. Dubrovsky, C. Gianoulakis

65.2 Programs Offered

The Physiology Department offers training leading to M.Sc. and Ph.D. degrees. The scope of the ongoing research, and close connections with the McGill teaching hospitals, offer excellent opportunities for collaborations with hospital based scientists.

All graduate students in Physiology receive financial support. Any faculty member who agrees to supervise a student who does not hold a fellowship, is obliged to provide financial support.

65.3 Admission Requirements

Admission to the Graduate Program is based on an evaluation by the Graduate Student Admissions and Advisory Committee (G.S.A.A.C.), and on being accepted by a research supervisor.

Candidates for the M.Sc. degree must hold a B.Sc. degree or its equivalent. Candidates who have completed an M.Sc. may be admitted directly to the Ph.D. program. M.Sc. students interested in a Ph.D., may transfer to the Ph.D. program after 12-18 months, if all of the transfer requirements have been fulfilled. The M.Sc. thesis requirement is then waived. Candidates with exceptional academic records may be considered to proceed directly to the Ph.D. degree from the B.Sc. degree.

The GRE General Test is required for anyone who does not have a degree from a Canadian University. The TOEFL is required for anyone whose university studies were completed in a language other than English outside of Canada. A minimum CGPA of 3.2 on 4.0 is required for a file to be considered.

65.4 Application Procedures

The G.S.A.A.C. will only consider applications upon receipt of all of the following documentation:

1. application form;
2. personal statement;
3. CV;
4. letters of reference from two professors;
5. two official copies of all university transcripts;
6. \$60 application fee;
7. results of the G.R.E. (Graduate Record Exam) General Test, for applicants whose undergraduate degree is not from a Canadian university.
8. results of the Test of English as a Foreign Language (TOEFL) if the undergraduate studies were carried out in a language other than English outside of Canada.

Applications should be submitted to the Student Affairs Officer as early as possible in order to facilitate processing. However, no applications will be considered after the following deadlines:

- May 1st for the September Term
- Oct. 1st for the January Term
- March 1st for the Summer Term (M.Sc. only)

Deadlines are six months earlier for international students.

Interested candidates should contact the Department for an application package.

65.5 Program Requirements**M.Sc.**

The M.Sc. program is comprised of a minimum of 49 credits:

- 552-601A,B (1) M.Sc. Proposal Seminar
- 552-602A,B,C (3) Literature Search and Research Proposal
- 552-607A,B,C (3) Laboratory Research I
- 552-608A,B,C (3) Laboratory Research II
- 552-618A (3) Research Topics in Physiology I
- 552-619B (3) Research Topics in Physiology II
- 552-620A,B,C (3) Progress and Research
- 555-621A,B,C (12) Thesis I
- 552-622A,B,C (15) Thesis II
- 552-623A,B,C (3) M.Sc. Seminar

Additional course work may be required depending upon background of the candidate.

Students in the M.Sc. Program are required to:

1. fulfill the course requirements specified at the time of admission;
2. present a proposal seminar 3 months after starting the program, and a seminar based on the research project 2 months prior to submission of the thesis;
3. submit a thesis.

Each student will have a supervisory committee which will monitor the progress of the studies.

Transfer to the Ph.D Program

After 18 months students may transfer to the Ph.D. program if all of the transfer requirements have been fulfilled. This includes completion of the Ph.D. Preliminary Exam and the successful completion of a transfer seminar. The M.Sc. thesis requirement is then waived.

Ph.D.

Students in the Ph.D. Program are required to:

1. complete the Ph.D. Departmental Seminar Course and any other course requirements specified at the time of admission;
2. present a proposal seminar 3 months after starting the program, and a "work in progress" seminar every year until submission of the thesis;
3. pass the Ph.D. Preliminary Exam within 6-12 months of admission to the program;
4. submit a thesis and defend it orally.

Each student will have a supervisory committee which will monitor the progress of the studies.

65.6 Courses

● Denotes not offered in 1999-2000.

□ Denotes limited enrolment.

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

552-502B EXERCISE PHYSIOLOGY. (3) (Prerequisite: 552-311A, 312B, 313B) Behaviour of physiological processes in response to physical effort, in areas such as structural basis of muscle contraction, neural control of muscle, mechanics and energetics of muscle contraction, fuel utilization, fatigue, physiological adjustments during exercise and influence of training. **Professor Ward and Staff**

□ **552-508A ADVANCED RENAL PHYSIOLOGY.** (3) (Prerequisite: 552-312B or the equivalent.) Offered in conjunction with the Department of Medicine. Lectures and seminars will cover advanced concepts in selected areas of kidney physiology (glomerular and tubular function) as well as membrane and epithelial transport. Students will be expected to critically discuss selected experimental papers. Open to advanced undergraduate and graduate students. **Professor Levy and Staff**

552-513B CELLULAR IMMUNOLOGY. (3) (4 hours lectures plus term paper) (Prerequisites: 528-314B, or permission of the instructor.)

This course deals with cellular interactions, regulation and effector mechanisms of the normal immune response in relation to diseases and pathogenic processes. It is taught at an advanced level.

Professor Lapp

552-515A PHYSIOLOGY OF BLOOD I. (3) (2 hours lecture plus 1 hour seminar weekly) (Prerequisites: 552-313B, or permission of the instructor.) Study of the cell and molecular physiology of hemostasis and its pathophysiology (bleeding and thrombosis). Emphases on molecular mechanisms regulating clot formation, fibrinolysis, and cell adhesion/aggregation. Experimental approaches and specific clinical disorders will be analyzed. Weekly discussions, and a major term paper.

Professors Frojmovic, Solymoss and Staff

552-516B PHYSIOLOGY OF BLOOD II. (3) (2 hours lecture plus 1 hour seminar weekly) Bone marrow hematopoiesis, with emphasis on regulation of stem cell proliferation and differentiation along hematopoietic pathways. Formation and differentiation of red and white blood cells and some of the diseases associated with hematopoiesis will be covered. Emphasis will be given to the molecular mechanisms involved in the normal and pathological conditions.

Professors Ponka and Hiscott

552-517B ARTIFICIAL INTERNAL ORGANS. (3) (Prerequisite: permission of instructors. Password required) Physiological, bio-engineering, chemical and clinical aspects of artificial organs including basic principles and physiopathology of organ failure. Examples: oxygenator, cardiac support, vascular substitutes, cardiac pacemaker, biomaterials and tissue engineering, biocompatibility.

Professors Sipehia and Chang

552-518A ARTIFICIAL CELLS & BIOTECHNOLOGY. (3) (Prerequisite: Permission of instructors; password required) Physiology, biotechnology, chemistry and biomedical application of artificial cells, immobilized enzymes, microorganisms and cells, blood substitutes, hemoperfusion, artificial kidneys and drug delivery systems. 517B and 518A when taken together, will give a complete picture of this field. However, the student can select one of these. Given jointly with the Artificial Cells and Organs Research Centre.

Professors Chang and Yu

● **552-520B ION CHANNELS.** (3) (1½ hour lecture, 1½ hour seminar) (Prerequisites: 552-311A. Priority to Graduate and Honours students; others by permission of instructors. Password required.) (Offered in odd numbered years only.)

552-531B TOPICS IN APPLIED IMMUNOLOGY. (3) (Permission of the instructor; U3 Interdept. Honours Immunology students and graduate students with strong immunology background i.e. 552-513A and 507-503B.) Seminar format course in which experts in immunologic mechanisms of resistance against a variety of infectious diseases, including AIDS, malaria, and tuberculosis oversee student moderators in their presentation of recent scientific literature in the field.

Professors Stevenson and Bernard

□ **552-552B ADVANCED TOPICS IN CELLULAR AND MOLECULAR PHYSIOLOGY.** (3) (1 hour lecture, 2 hours seminar weekly) (Prerequisite: 552-311A. Preference will be given to Physiology Honours and Graduate students.) Discussions of recent significant advances in our understanding of the gene products involved in diverse cellular signalling pathways. Topics will include cell-surface hormone receptors, nuclear steroid hormone receptors, and ion channels and transporters. Students will present and critically evaluate experimental approaches, results and interpretations of selected research publications. **Professors Orłowski and White**

552-556B TOPICS IN SYSTEMS NEUROSCIENCE. (3) (Permission of the instructor required. Limited enrollment. Password required.) (Not open to students who have taken 552-456B.) Topics of current interest in systems neurophysiology and behavioural neuroscience including: the neural representation of sensory information and motor behaviours, models of sensory motor integration, and the computational analysis of problems in motor control and perception. Students will be expected to present and critically discuss journal articles in class. **Professors Cullen and Guitton**

552-601A,B M.Sc. PROPOSAL SEMINAR. (1)

552-602A,B,C LITERATURE SEARCH AND RESEARCH PROPOSAL. (3)

552-607A,B,C LABORATORY RESEARCH I. (3)

552-608A,B,C LABORATORY RESEARCH II. (3)

552-610A,B SEMINARS IN THEORETICAL BIOLOGY. (3) (Prerequisite: permission of the instructor.) A series of seminars in selected topics in theoretical biology and biomathematics.

Professor Mackey

● **552-611A PHYSIOLOGY EXAM I.** (3) (Password required) (Students not in Physiology must receive permission from the Graduate Program director.)

● **552-612B PHYSIOLOGY EXAM II.** (3) (Password required) (Students not in Physiology must receive permission from the Graduate Program director.)

● **552-613B PHYSIOLOGY EXAM III.** (3) (Password required) (Students not in Physiology must receive permission from the Graduate Program director.)

552-618A RESEARCH TOPICS IN PHYSIOLOGY I. (3) (Enrollment limited to new M.Sc. and Ph.D. students in Physiology.) Specific topics of current interest in physiology will be considered using molecular, cellular and systems level approaches. Students will be expected to critically discuss journal articles in class.

552-619B RESEARCH TOPICS IN PHYSIOLOGY II. (3) (Enrollment limited to new M.Sc. and Ph.D. students in Physiology.) Specific topics of current interest in physiology will be considered using molecular, cellular and systems level approaches. Students will be expected to critically discuss journal articles in class.

552-620A,B,C PROGRESS IN RESEARCH. (3)

552-621A,B,C THESIS I. (12)

552-622A,B,C THESIS II. (15)

552-623A,B,C M.Sc. SEMINAR. (3)

552-701D PH.D. PRELIMINARY EXAMINATION.

552-702A,B PH.D. PROPOSAL SEMINAR. (1)

552-703A,B PH.D. PROGRESS SEMINAR I. (1)

552-704A,B PH.D. PROGRESS SEMINAR II. (1)

552-720A,B PH.D. SEMINAR COURSE I. (1) Required for Ph.D. students. Coordinated in conjunction with the weekly Departmental seminar series, students will meet for one hour before each seminar to critically discuss papers on the subject of the weekly seminar. Students will take turns introducing the papers and leading discussions on an overview of the research topic, some of the methodologies, results and conclusions. **Professor Orłowski and Staff**

552-721A,B PH.D. SEMINAR COURSE II. (1) Same as 552-720A,B

552-722A,B PH.D. SEMINAR COURSE III. (1) Same as 552-720A,B

552-723A,B PH.D. SEMINAR COURSE IV. (1) Same as 552-720A,B

552-724A,B PH.D. SEMINAR COURSE V. (1) Same as 552-720A,B

552-725A,B PH.D. SEMINAR COURSE VI. (1) Same as 552-720A,B

COURSES OFFERED BY OTHER UNITS –

Department of Medicine, Division of Experimental Medicine:

516-502A ADVANCED ENDOCRINOLOGY. (3)

516-503B ADVANCED ENDOCRINOLOGY. (3)

516-506B ADVANCED CARDIOVASCULAR PHYSIOLOGY. (3)

516-507A ADVANCED RESPIRATORY PHYSIOLOGY. (3)

516-508B TOPICS IN ADVANCED RESPIRATION. (3)

516-509A GASTROINTESTINAL PHYSIOLOGY AND PATHOPHYSIOLOGY. (3)

516-612D SEMINARS IN MEMBRANE BIOLOGY. (3)

516-615B BIOCHEMISTRY OF COMPLEX CARBOHYDRATES. (3)

Biomedical Engineering:

399-519B INTRODUCTION TO THE ANALYSIS OF BIOMEDICAL SYSTEMS AND SIGNALS. (3)

66 Plant Science

Department of Plant Science
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Canada H9X 3V9

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Fax: (514) 398-7897

Email: infoplsci@agradm.lan.mcgill.ca

Website: <http://www.agrenv.mcgill.ca/plant/plantsci.htm>

Chair — M.G. Fortin

66.1 Staff

Emeritus Professors

R.H. Estey; B.Ed.(U.N.B.), M.S.(Maine), D.I.C.(Imp. Coll.),
B.Sc.(Agr.), Ph.D.(McG.), F.L.S.

W.F. Grant; B.A., M.A.(McM.), Ph.D.(Va), F.L.S.

W.E. Sackston; B.S.A.(Man.), M.Sc.(McG.), Ph.D.(Minn.),
F.C.P.S., F.A.P.S.

H.A. Steppler; B.S.A.(Man.), M.Sc., Ph.D.(McG.), F.A.I.C.

Professors

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

D.L. Smith; B.Sc., M.Sc.(Acad.), Ph.D.(Guelph)

A.K. Watson; B.Sc.(Agr.), M.Sc.(Br.Col.), Ph.D.(Sask.)

Associate Professors

D.J. Donnelly; B.Sc.(Agr.)(McG.), M.Sc.(U.B.C.), Ph.D.(S.Fraser)

P. Dutilleul; L.Sc., D.Sc.(Louvain)

M.G. Fortin; B.Sc.(Pl.Sc.), M.Sc.(Laval), Ph.D.(McG.)

S. Jabaji-Hare; B.Sc.(Beirut), M.Sc.(Guelph), Ph.D.(Wat.)

A.C. Kushalappa; B.Sc., M.Sc.(B'Loire), Ph.D.(Flor.)

D. Mather; B.Sc.(Agr.)(McG.), M.Sc., Ph.D.(Guelph)

T.C. Paulitz; B.Sc.(Cal.St.Pom.), Ph.D.(U.Cal.Riv.)

S.A. Sparace; B.S.(C'nell), Ph.D.(Wyoming)

K.A. Stewart; B.Sc.(Agr.)(Br.Col.), Ph.D.(R'dg)

M. Waterway; B.A.(Grand Rapids), M.S.(Wis.), Ph.D.(C'nell)

Faculty Lecturers

A. DiTommaso; B.Sc.(McG.), M.Sc.(Queen's), Ph.D.(McG.)

S. Lussier; B.Sc.(Agr.) (McG)

D. Wees; B.Sc.(Agr.), M.Sc. (McG)

Associate Member

T. Johns

Adjunct Professors

D. Benoit, D. Boisclair, G. Bourgeois, M.R. Bullen, O. Charisse,
D. Cloutier, B.E. Coulman, L.M. Dwyer, S. Jenni, S. Khanizadeh,
J.-F. Laliberté, A. Légère, C. Morris, L. O'Donoghue

66.2 Programs Offered

The Department offers an M.Sc. and Ph.D. in Plant Science and provides for study in all fields of the plant sciences. Research facilities – both field and laboratory – are available for investigations in plant breeding, crop physiology, crop management, plant ecology, the epidemiology and biology of plant diseases, the physiology of diseased plants, cytogenetics, biosystematics, recombinant DNA technology, mycology, weed biology, tissue culture and plant biochemistry.

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

66.3 Admission Requirements

General

An equivalent cumulative grade point average of 3.0/4.0 is required.

Ph.D.

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

66.4 Application Procedures

Applications for Admission and all supporting documents must be sent directly to:

Student Affairs Office (Graduate Studies)

Macdonald Campus of McGill University

21,111 Lakeshore

Ste-Anne-de-Bellevue, Québec

H9X 3V9 CANADA

Telephone: (514) 398-7708

Fax: (514) 398-7968

Email: GRAD@macdonald.mcgill.ca

Applications will be considered upon receipt of a signed and completed application form, \$60 application fee, all official transcripts, two signed original letters of reference on official letterhead of originating institution, and (if required) proof of competency in oral and written English by appropriate exams.

Deadlines – For **international students**, complete applications with supporting documents must reach the Student Affairs Office (Graduate Studies) at Macdonald Campus at least **eight months** prior to the intended start of program. May 1 for January (winter); September 1 for May (summer); January 1 for September (fall). For **domestic students**, complete applications with supporting documents must reach the office no later than **three months** in advance of intended start of program.

Application Fee (non-refundable) – A fee of \$60 Canadian must accompany each application (including McGill students), *otherwise it cannot be considered*. This sum must be remitted using one of the following methods:

1. Certified personal cheque in Cdn.\$ drawn on a Canadian bank;
2. Certified personal cheque in U.S.\$ drawn on a U.S. bank;
3. Canadian Money order in Cdn.\$;
4. U.S. Money Order in U.S.\$;
5. Bank draft in Cdn.\$ drawn on a Canadian bank;
6. Bank draft in U.S.\$ drawn on a U.S. bank;
7. Credit card (by completing the appropriate section of the application form).

Transcripts – Two official copies of all transcripts are required for admission. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent. **DOCUMENTS SUBMITTED WILL NOT BE RETURNED.**

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a Bachelor's degree equivalent to a McGill Honours degree in a subject closely related to the one selected for graduate work. 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 minimum cumulative grade point average (CGPA) is 3.0/4.0 (second-class upper) or 3.2/4.0 during the last two full-time years of university study. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program.

Letters of Recommendation – Two letters of recommendation on letterhead and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization, are required. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English – Non-Canadian applicants whose mother tongue is not English and who have not completed an undergraduate degree using the English language are required to submit documented proof of competency in oral and written English, by appropriate exams, e.g. TOEFL (minimum score 550) or IELTS (minimum 6.5). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); department code is 31 (graduate schools), Biological Sciences - Agriculture.

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

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

Acceptance to all programs depends on a staff member agreeing to serve as the student's supervisor and the student obtaining financial support. Normally, a student will not be accepted unless adequate financial support can be provided by the student and/or the student's supervisor. Academic units cannot guarantee financial support via teaching assistantships or other funds.

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

66.5 Program Requirements

M.Sc.

Candidates must complete a 45-credit course and research program established by their advisory committee. The program will consist of:

1. Two 3-credit graduate level courses or their equivalent; (Awaiting University approval)
2. M.Sc. Thesis I 367-664A,B,C;
3. M.Sc. Thesis II 367-665A,B,C;
4. M.Sc. Thesis III 367-666A,B,C;
5. Attendance at 367-665, 367-666, 367-767 and 367-768; and at invitational seminar (367-690).
6. Additional courses may be required at the discretion of the candidate's supervisory committee.

Plant Science research programs normally require two years for completion.

Ph.D.

Students will follow the program of study established by their advisory committee. This program will consist of:

1. Ph.D. comprehensive examination 367-701D,N, which must be taken within 1 year of registering;
2. Ph.D. Thesis I (367-766A,B,C);
3. Ph.D. Thesis II (367-767A,B,C);
4. Ph.D. Thesis III (367-768A,B,C);
5. Other courses deemed necessary for the chosen area of specialization.
6. Attendance at all thesis progress and program reports (367-665, 367-666, 367-767 and 367-768) and at invitational seminar (367-690).

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

66.6 Courses for Higher Degrees

● Denotes not offered in 1999-2000.

★ Denotes courses offered in alternate years.

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

● **356-500A,B,E TECHNIQUES IN PLANT MOLECULAR GENETICS.** (3)

356-501B TOPICS IN PLANT MOLECULAR BIOLOGY AND GENETICS. (3) Photosynthesis, plant development, plant genome mutagenesis and analysis, and plant stress are discussed. Journal articles and reviews on all aspects of plant molecular biology and genetics.
Professor Fortin

★**360-611B EXPERIMENTAL DESIGNS.** (3) (3 hours lectures and 1 hour conference) (Prerequisite 360-310 or equivalent) (Given in alternate years.) General principles of experimental design, incomplete block designs and unbalanced designs, analysis of repeated measures, multivariate and modified univariate analysis of variance, spatial heterogeneity and experimental design, plasticity experiments and genotype-by-environment interaction.
Professor Dutilleul

★**360-614B TEMPORAL AND SPATIAL STATISTICS.** (3) (3 hours lectures) (Prerequisite 360-310 or equivalent) (Given in alternate years) Temporal statistics: analysis in the time domain, Box-Jenkins forecasting methodology, analysis in the frequency domain; Spatial statistics: mapping, autocorrelation analysis, geostatistics; Statistical inference with autocorrelated sample data.
Professor Dutilleul

367-525B ADVANCED MICROPROPAGATION. (3) (one 3-hour lecture) A detailed study of the principles and techniques of plant micropropagation.
Professor Donnelly

★**367-535B PLANT BREEDING.** (3) (Given in alternate years) Principles and practices of plant breeding, including reproduction of crop plants; plant hybridization; sources of genetic variation; selection methods used for self- and cross-pollinated crops and for clonally reproduced crops; breeding for disease and pest resistance; and applications of biotechnology in plant breeding.
Professor Mather

● **367-600A PLANT-MICROBE INTERACTIONS.** (3) (3 hours lectures)

● **367-603A POMOLOGY.** (3)

367-604A VEGETABLE CROPS. (3) Discussion and reading assignments on the application of plant physiology and other sciences to the production of vegetable crops.
Professor Stewart

367-614A,B ADVANCED PLANT BREEDING. (3) Directed readings and discussion on the application of genetics to the development of improved crop cultivars.
Professor Mather

367-619A,B CROP PHYSIOLOGY. (3) (3 hours conference) Growth and development of crops, with emphasis on canopy structure and arrangement, light interception, temperature, water and salt stress.
Professor Stewart

367-622A,B BIOLOGICAL CONTROL OF UNDESIRABLE VEGETATION. (3) Directed reading and discussion on the use of plant-feeding organisms and disease to reduce the density of undesirable vegetation in favour of more useful plant species.
Professor Watson

367-623A,B BIOCHEMISTRY AND PHYSIOLOGY OF HERBICIDES. (3) Mechanisms of penetration, translocation, selectivity and modes of action of herbicides and their interactions with the environment.
Professor Watson

367-626A BIOCHEMISTRY AND PHYSIOLOGICAL ROLE OF PLANT LIPIDS. (3) (2 hours lectures) A detailed study of the current theories and models of the structure, biogenesis and function of plant membranes and lipids.
Professor Sparace

367-628B HIGHER PLANT NITROGEN FIXATION AND MYCORRHIZAL ASSOCIATIONS. (3) A detailed examination of the chemistry, biochemistry, anatomy, physiology, ecology and agricultural application of biological nitrogen fixation and mycorrhizal associations in higher plants. **Professor Smith**

367-633A,B PLANT PATHOGENIC FUNGI. (3) Techniques to diagnose plant diseases based on culturing and identification of plant pathogenic fungi in the laboratory. Students will make a collection of fungi, and become familiar with monographs, host indices, taxonomic keys, and other literature for fungal identification. **Professor Paulitz**

367-636B EPIDEMIOLOGY AND MANAGEMENT OF PLANT DISEASE. 3) Concepts and principles of plant disease epidemiology. Quantification of factors influencing epidemiological processes. Influence of host, pathogen and environmental factors on the rate of disease development. Disease forecasting and timing fungicide application. Management of crop diseases, including chemical and biological control. Immunological and molecular techniques to detect pathogens. **Professors Kushalappa and Paulitz**

367-650B ADVANCED SYSTEMATIC BOTANY. (3) This course deals with the literature and philosophy of plant classification, processes of speciation in higher plants, sources and interpretation of data, biosystematic methods and plant nomenclature. **Professor Waterway**

367-662A OR B LABORATORY RESEARCH INSTRUMENTATION. (3) (3 hours lab) Physical and chemical methods applied to biology. Students are required to perform a formal project centered around the use of one or more instruments covered and provide a written and/or oral report of the project. **Professor Sparace**

367-664A,B,C M.Sc. THESIS I. (9) Written and oral presentation of thesis proposal to the research supervisory committee.

367-665A,B,C M.Sc. THESIS II. (9) Oral presentation of a proposal to the department and progress report on the thesis research project to the supervisory committee.

367-666A,B,C M.Sc. THESIS III. (15) Preparation and submission of an acceptable thesis. Oral presentation of the thesis research to the department.

367-670A OR B SPECIAL TOPICS I. (3) Prescribed reading, conference and practical work on selected topics in the student's area of specialization. **Staff**

● **367-687A,B SEMINAR IN PLANT SCIENCE.** (3) (2 hours seminar)

367-690D,N AND 367-691D,N RESEARCH HORIZONS IN PLANT SCIENCE. A series of seminars presented by invited speakers, staff and senior graduate students. The topics are selected to integrate the many fields of plant science. **Staff**

367-701D,N DOCTORAL COMPREHENSIVE EXAMINATION.

367-766A,B,C Ph.D. THESIS I. Written and oral presentation of thesis proposal to the research supervisory committee.

367-767A,B,C Ph.D. THESIS II. Oral presentation of a proposal to the Department and progress report on the thesis research project to the supervisory committee.

367-768A,B,C Ph.D. THESIS III. Preparation and submission of an appropriate final thesis. Oral presentation of the thesis research and thesis defense to the Faculty.

367-770A OR B SPECIAL TOPICS II. (3) Prescribed reading, conference and practical work on selected topics in the student's area of specialization.

67 Political Science

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Canada H3A 2T7
Telephone: (514) 398-4800
Fax: (514) 398-1770
Website: <http://www.arts.mcgill.ca/programs/polisci>

Chair — Hudson Meadwell

Director of Graduate Program — Christopher Manfredi

67.1 Staff

Professors Emeritus

James Mallory; B.A., M.A.(UNB), LL.B.(Edin.), M.A.(Dal.)
Baldev Raj Nayar; B.A., M.A.(Punj.), M.A., Ph.D.(Chic.)

Professors

William J. Booth; B.A., M.A.(McG.), Ph.D.(Harv.)
Michael Brecher; B.A.(McG.), M.A., Ph.D.(Yale), F.R.S.C.
(on leave winter 2000)
Alain-G. Gagnon; B.A.(Que.), M.A.(S. Fraser), Ph.D.(Carl.)
Christopher Manfredi; B.A., M.A.(Calg.), M.A., Ph.D.(Claremont)
Richard Schultz; B.A.(York), M.A.(Manc.), Ph.D.(York)
Blema Steinberg; M.A.(C'nell), Ph.D.(McG.)
Harold M. Waller; M.S.(Northwestern), Ph.D.(Georgetown)

Associate Professors

Jerome H. Black; B.A.(Tor.), M.A.(Kent & Roch.), Ph.D.(Roch.)
Stephen Bornstein; B.A.(Tor.), Ph.D.(Harv.)
Mark R. Brawley; B.A., M.A., Ph.D.(Calif.)
Rex Brynen; B.A.(Vic.,B.C.), M.A., Ph.D.(Calg.)
Elisabeth Gidengil; B.A.(Lond.), M.A.(N.Y.), Ph.D.(McG.)
(on leave 1999-2000)
Barbara Haskel; A.M., Ph.D.(Harv.)
Antonia Maioni; M.A.(Carl.), Ph.D.(Northwestern) (
on leave 1999-2000)
Hudson Meadwell; B.A.(Man.), M.A., Ph.D.(Duke)
Paul Noble; B.A.(Montr.), Ph.D.(McG.)
Samuel J.Noumoff; B.A.(Clark), M.A., Ph.D.(N.Y.)
Philip Oxhorn; B.A.(Redlands), M.A.(Cant.), Ph.D.(Harv.)
T. V. Paul; B.A., M.A.(Kerala), M.Phil.(J. Nehru U.), M.A.,
Ph.D.(Calif.)
Filippo Sabetti; B.A.(McM.), Ph.D.(Ind.)

Assistant Professors

Alan Patten; M.A., Ph.D.(Oxf.)
Narendra Subramanian; B.A.(Prin.), M.A., Ph.D.(M.I.T.)

67.2 Programs Offered

The Department offers programs leading to the M.A. (with or without thesis) and Ph.D. degrees. These programs combine depth of specialization in a particular field with breadth of knowledge in related fields. The staff offers courses and supervises research on most of the important areas of political science. Students may specialize in any of the following: Canadian Government and Politics; Comparative Politics of Developed or Developing Countries, Political Theory and International Relations.

The Department awards a number of teaching assistantships each year and students who are admitted to the graduate program are automatically considered for such an award. The announcements listing the positions expected to be available will be posted by October 15 for Winter Term courses and March 31 for Fall and Full Year courses.

Because this Calendar is prepared early in the year, changes may take place after it has been printed. Students are advised to contact the Department Office for supplementary information which may be important to their choice of program.

67.3 Admission Requirements

All applicants, including those who have done their undergraduate work at McGill, must submit at least two letters of reference. Transcripts from all universities attended must be sent to the Department.

Master's

Students holding a B.A. degree may be eligible for admission to the M.A. program. Preparation equivalent to a McGill Honours Program in Political Science is desirable. Students who have inadequate preparation in Political Science but are otherwise judged to be qualified are admitted to a qualifying year, in which they undertake advanced undergraduate work.

Ph.D.

Students holding a Master's degree in Political Science may be eligible for admission to the Ph.D. program. In some instances, students may be admitted directly into the Ph.D. program without having completed an MA degree. They will be considered Ph.D. 1 and some previous political science course work could be applied to the requirements of the program, provided that it did not count towards any other degree.

GRE and TOEFL Exams

GRE results are required for applications to the Doctoral Program; this includes McGill Master's students applying to the Doctoral Program. GRE results are not required for students applying to the Master's Program or Qualifying term or year.

Non-Canadian students from countries where English is not the first language and who have not studied at a university in which teaching is conducted in English must submit TOEFL scores. A minimum score of 600 is required for admission. Files will not be considered unless TOEFL scores are received before the application deadline.

GRE information booklets and, when appropriate, TOEFL information booklets are included in the application package mailed to prospective students.

67.4 Application Procedures

Applications will be considered upon receipt of:

1. application form;
2. transcripts;
3. two letters of reference;
4. \$60 application fee;
5. test results: TOEFL (if applicable) and GRE (for Ph.D. applicants).

All applications should be submitted to the Graduate Coordinator in the Department of Political Science.

The normal deadline for applications for admission to the Department is January 31. Applications must be received by that time in order to guarantee the fullest consideration. Later applications will be considered up to April 15.

67.5 Program Requirements

Requirements for the M.A. Degree (48 credits)

Students may select Option A (Thesis Option) or Option B (Research Project Option) in completing M.A. degree requirements. Students may switch from one option to the other while completing their coursework.

A. Thesis Option

There are two requirements:

1. Five one-semester courses (5 x 3 credits). Where special requirements of a student's area of concentration so warrant, the Director of Graduate Studies may allow one of these courses to be taken at the upper undergraduate level. The substitution of one course outside Political Science in related disciplines may also be allowed if it is appropriate to the program.

2. A thesis to demonstrate proficiency in research. The thesis is normally about 100 pages long, and is subject to evaluation by one examiner internal to the Department and one examiner external to the Department.

B. Research Project Option

1. Seven one-semester courses (7 x 3 credits). Where special requirements of a student's area of concentration so warrant, the Director of Graduate Studies may allow one of these courses to be taken at the upper undergraduate level. The substitution of up to two courses outside Political Science in related disciplines may also be allowed if appropriate to the program.
2. A research paper to demonstrate proficiency in research. The research paper is normally about 50 pages in length and involves revision of a paper written for one of the graduate courses completed in the program. The research paper is evaluated by two faculty members in the Department.

For both the above options a course in either the Philosophy of Social Sciences (160-616 or 160-617) or Empirical Methods (160-612), and preferably both, will be required.

Candidates for the M.A. degree follow a program approved on an individual basis by the Department. All students who wish to be considered for the Ph.D. program are evaluated on the basis of their M.A. program. Only a small number of students are permitted to go on for their doctorate and students currently enrolled in the M.A. program must formally re-apply for admission into the Ph.D. program. A pass for the M.A. degree does not necessarily imply permission to proceed to the doctorate.

Requirements for the Ph.D. Degree

Superior applicants, normally understood as students who are at least in the top 10 percent of their graduating class or who have a CPGA of at least 3.5 or its equivalent, will be eligible for admission into the Ph.D. track and receive a Ph.D. degree after successfully completing the requirements of the Ph.D. track. These are:

- A. Successful completion of 13 3-credit courses.
- B. Distribution of Courses:
 1. Two major fields in political science (satisfied by four courses and a written comprehensive examination in each field, as well as one integrated oral comprehensive examination covering both major fields).
 2. One minor field (satisfied by 2 courses). Minor fields can be in any one of the five fields offered by the Department. Students may also petition the Graduate Committee to approve as a minor some special combination of courses which is suitable to a particular student's planned course of study.
 3. An additional 3-credit course in either of the student's major fields or minor field, according to what best meets the particular student's needs.
 4. Students are required to take one 700-level Ph.D. Research Seminar in each major field, as part of the four course requirement. In each of these 700-level seminars, students are expected to complete a paper which focuses on a clearly defined research problem and is comparable in scope to an article in a professional journal. The papers should demonstrate the student's familiarity with the relevant scholarly work and his/her ability to carry out research and organize the results of the research. Each paper will be evaluated by two faculty members in the Department.
 5. Methodology Requirements: All students are required to complete a course in the Philosophy of Social Sciences (either 160-616 or 160-617) and a course on Methods (160-612). Students who are given an exemption from a methodology course requirement because of course work completed prior to entering the M.A.-Ph.D. program will still be required to complete 13 3-credit courses.
- C. Advanced Research Tools: The Department feels that it is essential that its Ph.D. students demonstrate a high level of proficiency in one of the two principal research tools of modern

political science: languages or quantitative methods. Language Requirement: Students must pass an advanced-level translation test from a language other than English. In selecting a language to fulfil this requirement, the student must demonstrate in writing how the chosen language is related to the research. Quantitative Methods: To fulfil this requirement, students must complete a course in advanced statistical methods. For additional information, students should consult the "Information Bulletin for Ph.D. Program".

- D. All students in the Ph.D. program are expected to take their written comprehensives and their oral comprehensive in the second semester of their third year in the program. Students are expected to have completed all of their required course work in their major and minor fields, as well as their methodology requirement (13 one-semester courses), by no later than the end of the first semester of their third year.
- E. Students are expected to submit dissertation proposals by the end of the second semester of their third year in the program.
- F. The student must write a doctoral dissertation which makes an original contribution to knowledge in the discipline.

Transfer students and students with Master's degrees from other universities: Transfer students will be treated as M.A. students who change tracks. Previous course work at the graduate level can be applied towards the requirements of the program, provided the Admission Committee is confident that the quality of such work is on par with McGill standards. Students transferring into the M.A.-Ph.D. track must fulfill a minimum residency requirement of two years, including a minimum of 6 courses and at least one 700-level Ph.D. research paper. All students will be required to pass the comprehensive written and oral exams.

67.6 Courses for Higher Degrees

Undergraduate Courses for Qualifying Program and Graduate Students When it is appropriate to their programs, graduate students may take an undergraduate course approved by the Director of Graduate Studies. These courses are listed in the Calendar of the Faculties of Arts and Science and in the annual course list prepared by the Department in the fall.

● Denotes not offered in 1999-2000.

□ Denotes limited enrolment.

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

160-521B SEMINAR: CANADIAN POLITICS AND GOVERNMENT. (3) (Open to graduate students, final year honours students, and other advanced undergraduates with the permission of the instructor.) (Prerequisite: at least one upper-level course in Canadian Politics.) Selected problems of Canadian socio-economic and political structures, political culture, constitutional development, and governmental structure. Topic for 1999-2000: Issues in Constitutional Reform. **Professor Schultz**

160-522A SEMINAR: THE POLITICS OF DEVELOPING AREAS. (3) (Open to graduate students, final year honours students, and other advanced undergraduates with the permission of the instructor.) (Prerequisite: at least one upper level course in the politics of developing areas.) Topic for 1999-2000: Politics of Gender and Community. **Professor Subramanian**

160-524B SEMINAR: THE POLITICS OF DEVELOPED AREAS. (3) (Open to graduate students, final year honours students, and other advanced undergraduates with the permission of the instructor.) (Prerequisite: at least one upper level course in the politics of developed areas.) This seminar deals with various aspects of the politics of developed areas. Topic for 1999-2000: The European Union. **Professor Haskel**

160-561B SEMINAR: POLITICAL THEORY. (3) (Open to graduate students, final year honours students, and other advanced undergraduates with the permission of the instructor.) (Prerequisite: at least one upper level course in political philosophy.) A topic in political philosophy such as democracy, liberty, property or national-

ism, or a political philosopher, is studied to enable students to research a topic in depth, to present their papers to the seminar, and to engage in and profit from discussion and debate. Topic for 1999-2000: Liberalism and Nationalism. **Professor Patten**

160-575A SEMINAR: INTERNATIONAL POLITICS. (3) (Open to graduate students, honours students and to other advanced undergraduates with the permission of the instructor.) A research oriented seminar dealing with selected topics in the field of International Politics. Topic for 1999-2000: Nuclear Proliferation

Professor Paul

160-599A/B PRACTICUM IN POLITICAL SCIENCE. (3) (Open, with permission, to final-year Honours and Joint Honours students, M.A. and Ph.D. students. The course does not count as a 500-level seminar under the Honours requirements.) The practicum shall consist of a minimum of 180 hours of work over a period of 12 weeks, plus a major research project based on the practicum. The major project will ordinarily consist of a major research paper, plus a substantial written record of the work conducted during the practicum. **Staff**

● **160-099A,B TEACHING METHODS.** (3)

160-612B EMPIRICAL METHODS. (3) Fundamental principles of empirical research, in which the emphasis will be placed on acquainting the student with the techniques most commonly used by political scientists. The topics include the design of research projects, procedure in carrying out research, problems of measurement, survey research, scaling, data processing, and data analysis. **Professor Black**

● **160-613A SELECTED THEMES IN POLITICAL THEORY.** (3)

● **160-615A CLASSICAL POLITICAL PHILOSOPHY AND ITS CONTEMPORARY INTERPRETATION.** (3)

● **160-616A MODERN POLITICAL ANALYSIS.** (3)

160-617A PROBLEMS IN POLITICAL THEORY. (3) An introduction to central normative issues in the study of politics. The seminar consists of lectures, oral presentations, discussion and research papers. **Professor Patten**

● **160-618A COMPARATIVE FEDERALISM.** (3)

160-619A IMMIGRANTS, REFUGEES, AND MINORITIES (3) A consideration of the different dimensions of politics associated with immigration and ethnoracial diversity. The course will emphasize the Canadian case in comparative perspective. **Professor Black**

● **160-620A SOCIETY AND POLITICS IN CANADA.** (3)

160-621A INTERPRETING THE CANADIAN POLITICAL PROCESS. (3) Strategies for studying the Canadian political process. Pluralist, Marxian and state autonomist approaches for analysing the relative significance and inter-relationships of basic components of the Canadian political system. Although one purpose of the course is to survey the literature on individual topics, a broader purpose is to employ individual research strategies to develop conclusions about the nature, distribution, and exercise of power in Canada. **Professor Schultz**

● **160-622A TOPICS IN CANADIAN POLITICS.** (3)

160-623B JUDICIAL POLITICS AND THE CONSTITUTION. (3) A research-oriented introduction to selected theoretical and empirical works on Canadian constitutionalism and judicial politics. The substantive focus of the course concerns the politics of constitutional change and the political impact of constitutional decisions by Canadian courts. **Professor Manfredi**

● **160-624B COLLECTIVE/RATIONAL CHOICE THEORY.** (3)

● **160-625A COMPARATIVE POLICY ANALYSIS.** (3)

160-628A APPROACHES TO COMPARATIVE POLITICS. (3) An introduction for graduate students to the sub-discipline of comparative politics. The logic of comparative analysis as well as a number of alternative paradigms for analyzing and comparing political systems and processes. **Professor Sabetti**

● **160-629A APPROACHES TO THE STUDY OF SOVIET AND POST-SOVIET POLITICS.** (3)

160-630A TOPICS IN EUROPEAN POLITICS. (3) Examination of recent trends and current debates in the electoral politics, political economy and political sociology of Europe. The course will focus on developments at two levels: that of national political systems and that of the region as a whole, particularly as embodied in the European Union. **Professor Bornstein**

160-635B THEORIES OF U.S. POLITICS. (3) A critical examination of some of the major theoretical analyses of U.S. politics. The course will focus on several key issues in the study of American political life, including distribution of power, the policy process, state and society, and bargaining and coalition building. **Professor Waller**

160-636A QUEBEC POLITICS AND SOCIETY. (3) (This course will be conducted both in English and French; a reading knowledge and an ability to understand the two languages is recommended) Critical examination of some major approaches to the study of Quebec politics and society, with particular emphasis on issues of nationalism, social and political movements, ethnicity, language and class conflicts, federal-provincial relations, as well as an analysis of the role of intellectuals and party politics in the deliberation process. **Professor Gagnon**

● **160-639A TOPICS IN THE POLITICS OF DEVELOPED AREAS.** (3)

160-640A MIDDLE EAST POLITICS. (3) Examination of political and socio-economic development in the Middle East, with particular emphasis on the Arab world. Topics to be addressed include state formation and consolidation; Arab nationalism; civil society and state-society relations; the politics of Islam; petro-politics; the political economy of economic liberalization; and future patterns of political change. **Professor Brynen**

160-641A POLITICAL CHANGE IN SOUTH ASIA. (3) This course examines major political and social changes in South Asia. Explores such topics as colonialism and nationalism; trends in mass mobilization and electoral politics; regime changes; economic policies and their impact; and conflicts over authority patterns, policy agendas, and national boundaries. **Professor Subramanian**

● **160-642B AFRICAN POLITICS.** (3)

160-646B TOPICS IN THE POLITICS OF DEVELOPING AREAS. (3) A specific problem area in the Comparative Politics of Developing Areas. The topic for 19-2000 will be: Democracy and the Market. **Professor Oxhorn**

160-647A POLITICAL ECONOMY OF DEVELOPMENT: (3) Incorporation of subordinate groups into national systems in the developing countries of Africa, Asia, and Latin America. Specific topics include state formation, the emergence of civil society, modernization and dependency theories, alternative development models, democracy, authoritarianism, sustainable development and gender. **Professor Oxhorn**

160-648B LATIN AMERICAN POLITICS. (3) This course explores changing patterns of social, economic and political relations in Latin America, especially at the level of civil society. It examines such topics as state formation, institutional development, regime transformation and the insertion of Latin American countries in both the international capitalist economy and the inter-state system. **Professor Oxhorn**

160-649A THE MASS APPROACH TO POLITICAL DEVELOPMENT: CHINA. (3) The strategy of political and socio-economic development in contemporary China. Topics include: cultural and ideological foundations of socialization. The consequences of the disintegration of the USSR and the socialist countries of Europe, and the balance sheet of the post-1978 reform. **Professor Noumoff**

160-650B PEACEBUILDING. (3) An examination of transitions from civil war to peace, and the role of external actors (international organizations, bilateral donors, non-governmental organizations) in support of such transitions. Topics will include the dilemmas of humanitarian relief, peacekeeping operations, refugees, the

demobilization of ex-combatants, transitional elections, and the politics of socio-economic reconstruction. **Professor Brynen**

● **160-670A TOPICS IN INTERNATIONAL RELATIONS.** (3)

● **160-671B INTERNATIONAL RELATIONS THEORY.** (3)

● **160-672B INTERNATIONAL POLITICAL ECONOMY.** (3)

● **160-673B THE INTERNATIONAL POLITICS OF NORTH-SOUTH RELATIONS.** (3)

● **160-674A COMPARATIVE FOREIGN POLICY.** (3)

● **160-675B INTERNATIONAL SYSTEMS.** (3)

160-676B POLITICS AND PSYCHOLOGY. (3); Prerequisites: No previous course work in psychology is required. In addition to political science graduate students who are specializing in international relations and, subject to limitations of class size, this seminar is open to other interested political science graduate students and third year honours undergraduates in political science, history and psychology.) A psychological approach to understanding political phenomena focusing primarily on international politics. Emphasis on the insights of cognitive psychology (how we process information/errors we make), group dynamics (psychological impact of group pressures/'group think') and dynamic psychology (how emotions, ego defenses, and character traits impact on political behavior). **Professor Steinberg**

160-677A INTERNATIONAL CRISIS, CONFLICT, WAR. (3) This seminar is designed to explore the literature on the concepts of international crisis, conflict and war. Discussions will focus on: research designs and methods; decision-making models; crisis/conflict management; bargaining in crisis; UN and superpower crisis intervention; deterrence and war prevention; theories of war; and polarity, war, crisis and stability. **Professor Brecher**

● **160-678A STATE BEHAVIOUR.** (3)

160-679B INTERNATIONAL SECURITY. (3) Covers theoretical and historical literature on international security, strategy, war, and cooperation. Includes systemic, societal and normative explanations of war, peace, security, and change. **Professor Paul**

160-690A,B READING IN POLITICAL SCIENCE. (3) A graduate student may take a one-term reading course per academic year in a particular field and under the supervision of a member of staff.

160-693A,B M.A. RESEARCH PROPOSAL. (3)

160-694A,B RESEARCH PREPARATION I. (6)

160-695A,B RESEARCH PREPARATION II. (6)

160-696A,B RESEARCH PREPARATION III. (3)

160-697A,B RESEARCH PREPARATION IV. (3)

160-698A, B, D MASTER'S THESIS SUBMISSION. (12) A thesis to demonstrate proficiency in research. The thesis is normally about 100 pages long, and is subject to evaluation by one examiner internal to the Department and one examiner external to the Department.

160-699A, B, D MASTER'S RESEARCH ESSAY. (6) The Master's research paper should explore a clearly defined problem, show familiarity with the most important work previously done in the field, and demonstrate the ability to carry out research, organize results and present them in good literary style. Normally the paper will flow out of a previous graduate seminar and will be approximately 50 pages in length.

160-701A,B, D PH.D GRADUATE GENERAL WRITTEN EXAMINATION. First Field.

160-702A, B, D PH.D GRADUATE GENERAL WRITTEN EXAMINATION. Second Field.

SEMINARS

● **160-715B ISSUES IN CONTEMPORARY POLITICAL PHILOSOPHY.** (3)

● **160-720B TOPICS IN CANADIAN POLITICAL ECONOMY.** (3)

● **160-727B ÉTUDES SUR LA SOCIÉTÉ QUÉBÉCOISE.** (3) (The seminar will be given both in French and English; a reading ability and understanding of both languages is required.)

160-728B RESEARCH SEMINAR IN COMPARATIVE POLITICS. (3) (Suggested prerequisites: 160-612B and 160-628A.) A consideration of research on comparative politics in Western Europe and North America. Problems of research design and execution, the application of research methods, and the evaluation of findings. Selections from the literature will be examined critically.

Professor Meadwell

● **160-731A POLITICAL IDEOLOGIES.** (3)

● **160-747B DEPENDENCE AND DEVELOPMENT.** (3)

160-771B SECURITY AND DEVELOPMENT. (3) (Prerequisites: A graduate-level course in international relations or comparative politics/developing areas.) A seminar focusing on the multiple security concerns of developing states including developmental (political, economic) and traditional (military, power political) pressures; linkages between internal and external vulnerabilities; the changing security environment of the post Cold War era; alternative external/internal strategies. These issues will be examined in comparative perspective.

Professor Noble

● **160-777A RESEARCH SEMINAR ON INTERNATIONAL CRISES.** (3)

160-778A SECURITY AND POLITICAL ECONOMY WORKSHOP. (3) A workshop intended to help M.A. and Ph.D. students prepare their thesis proposals and chapters. Writing techniques and methodology will be covered. Students critique seminar presentations by leading scholars on their new works.

Professor Brawley

160-780A, 160-781B READING SEMINAR. (3) A research seminar on a topic that is not covered in the regular seminars, but which is of interest to a group of students and a faculty member. The exact topic for the research papers will be determined by mutual agreement among students and faculty members involved.

Staff

160-799A,B,D PH.D. ORAL COMPREHENSIVE EXAMINATION.

68 Psychiatry

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1033 Pine Avenue West
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Telephone: (514) 398-4176
Fax: (514) 398-4370
Email: mstaudt@med.mcgill.ca
Website: <http://www.mcgill.ca/Psychiatry/mscprog.html>

Chair — J. Paris

Chair of Graduate Program — J. Rochford

68.1 Staff

Emeritus Professor

T.L. Sourkes; M.Sc.(McG.), Ph.D.(C'nell.)

Professors

L. Annable; B.Sc.(Liver.), Dipl. in Stat.(Edin.)
P. Blier; B.Sc.(Bishop's), M.Sc., Ph.D., M.D.(Montr.)
G. Chouinard; B.A., M.D.(Montr.), Dipl.Psych.(McG.)
H. Davanloo; B.Sc., M.D.(Tehran)
C. de Montigny; B.A., M.D., Ph.D.(Montr.)
M. Dongier; M.D.(Aix-Marseille), Dipl.Psych.(McG.)
F.R. Ervin; B.S.(Texas), M.D.(Tulane)
S. Gauthier; B.A., M.D.(Montr.)
A.M. Ghadirian; M.Sc.(Ohio), M.D.(Tabriz)
H.A. Guttman; M.D.(Geneva)
L.T. Hechtman; B.Sc., M.D., C.M.(McG.)
J. Henry; B.Sc.(Tor.), M.Sc., Ph.D.(W.Ont.)
L.J. Kirmayer; B.Sc., M.D., C.M., Dipl.Psych.(McG.)
S. Lal; M.B., B.S.(Lond.), Dipl.Psych.(McG.)
C. Laroche; M.D., C.M., Dipl.Psych.(McG.)

E.P. Lester; M.D. (Athens);Dipl.Psych.(McG.)
M.J. Meaney; B.A.(Loyola), M.A., Ph.D.(C'dia.)
K. Minde; M.D.(Munich), M.A.(Col.)
B.E. Murphy; M.D.(Tor.), Ph.D.(McG.)
V.N.P. Nair; M.B., B.S.(Kerala), D.P.M.(Mys.)
J.C. Negrete; M.D.C.M., (Tucuman) Dipl.Psych.(McG.)
J. Paris; M.D.(McG.); Chair
J.C. Perry; M.D.(Duke)
G. Pinard; B.A.(Loyola), M.D., Dipl.Psych.(Montr.)
R. Quirion; B.Sc., M.Sc., Ph.D.(Sher.)
J.J. Sigal; B.Sc., B.Ed.(Alta.), M.A., Ph.D.(Montr.)
A. Young; B.A., M.A., Ph.D.(Penn.)
S. Young; B.A.(Oxon.), M.Sc., Ph.D.(Lond.)

Associate Professors

F. Abbott; B.Sc.(Trent), M.Sc., Ph.D.(McG.)
C. Benkelfat; M.D.(Rabat)
P. Boksa; B.Sc., Ph.D.(Montr.)
E.E. Corin; Ph.D.(Louvain)
B.O. Dubrovsky; M.D.(Buenos Aires)
N. Frasure-Smith; B.A., Ph.D.(Johns H.)
C. Gianoulakis; B.Sc.(Sir G.Wms.), Ph.D.(Rutgers)
A. Gratton; Ph.D.(C'dia)
S. King; M.Ed., Ph.D.(Va.)
C. Mercier; B.A., M.Sc.(Laval), Ph.D.(Stras.)
R. Palmour; B.A., Ph.D.(Texas)
J. Poirier; Ph.D.(Montr.)
J. Rochford; M.A.(Queen's), Ph.D.(C'dia)
S. Steinberg; M.D., C.M.(McG.)
M. Zoccolillo; B.Sc.(New Orleans), M.D.(Norfolk)

Assistant Professors

L. Beauclair; B.Sc., M.D.(Laval)
P. Beaudry; M.D.(Sher.), Dipl.Psych.(McG.)
S. Beaulieu; M.D./Ph.D.(Laval)
D. Bloom; B.Sc.(Regina), M.D.(Queen's)
D. Boivin; Ph.D.(Montr.)
D. Charney; M.D.(McG.)
G. Debonnel; M.D.(Lyon)
J.B. Debruille; M.D.,(Paris), Ph.D.(U Pierre et Marie Curie)
M. Elie; M.D.(McG.)
K. Gill; B.Sc.(Br.Col.), M.A., Ph.D.(C'dia)
S. Kar; Ph.D.(Lond.)
M. Leyton; Ph.D.(C'dia)
S. Lupien; Ph.D.(Montr.)
L.K. Srivastava; B.Sc., M.Sc.(Aild.), Ph.D.(New Delhi)
R. Tempier; M.D.(Aix-Marseille II)
C.-D. Walker; B.Sc., Ph.D.(Geneva)
S. Williams; Ph.D.(Montr.)

Adjunct Professors

L. Gaston; Ph.D.(Montr.)
S. Welner; Ph.D.(McG.)

Associate Members

R.G. Barr; M.A.(Tor.), M.D., C.M.(McG.)
R.O. Pihl; B.A.(Law.), M.A., Ph.D.(Ariz.)

68.2 Programs Offered

Master of Science (M.Sc.)

The M.Sc. program in Psychiatry is designed (1) to provide a mechanism for the training of medical scientists who intend to pursue a research career in psychiatry and (2) to provide a focus for basic science or social science students wishing to obtain advanced training in areas particularly relevant to psychiatric research. Students in this program receive no clinical training in psychiatry.

68.3 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 3.0 (on a 4 point scale).

A written statement of purpose, describing the specific reasons for seeking a Master of Science degree in Psychiatry.

An outline of the proposed thesis research, to be written by the prospective student in collaboration with an appropriate research supervisor.

Two letters of reference.

Proficiency in written English or French.

68.4 Application Procedures

Applications will be considered upon receipt of:

1. a completed application form;
2. two official transcripts;
3. two letters of reference;
4. Cdn \$60.00 application fee;
5. written agreement from the proposed research supervisor, and student's statement of purpose

All information is to be submitted directly to the Graduate Secretary at the address above.

Deadlines:

January term:

September 1 (August 15 for international students)

Summer term:

February 1 (January 15 for international students)

September term:

May 1 (April 15 for international students)

68.5 Program Requirements

Formal coursework: The M.Sc. in Psychiatry requires 45 credits, of which 36 are Thesis Research and 9 are to be taken in graduate level courses approved by the student's Supervisory Committee. These courses are selected on the basis of the area of research interest and the background of the student, and shall include a course in statistical analysis, if this is not presented upon admission.

Original research. Each student shall complete an original investigation of a scope appropriate to the presentation of a Master's Thesis. This thesis will be reviewed by the Supervisory Committee prior to its submission to the Graduate Faculty, and shall then be reviewed by external referees according to the usual regulations of the Faculty of Graduate Studies and Research.

Supervisory Committees. The M.Sc. in Psychiatry is administered by the Graduate Training Committee, which meets with each student during the first term of residence to assign a Supervisory Committee composed of the research supervisor plus 2-4 other faculty who are knowledgeable about the student's research area and who can advise both on appropriate coursework and on the thesis research project. The student will meet with this committee at least once during each year of matriculation for the purpose of evaluating academic and research progress of the student. The Supervisory Committee will also act as a resource body for the student, both with respect to academic and administrative matters.

Residence. Three terms of full-time study. No part-time study available.

68.6 Courses

□ Denotes limited enrolment.

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

□ **555-500B ADVANCES IN THE NEUROBIOLOGY OF MENTAL DISORDERS.** (3) (3 hours) (Prerequisites: 507-212B and 507-311A, or 507-312B, or 177-200A and 177-210B, or 552-311A, or 204-422B, or 204-308A and an upper level biological science course with permission of the instructors, or equivalent. Basic knowledge of cellular and molecular biology is required. Open to U3 and graduate students only. Strongly recommended for M.Sc. students in Psychiatry.) Current theories on the neurobiological basis of most

well known mental disorders (e.g. schizophrenia, depression, anxiety, dementia).

Professors Boksa and Srivastava

555-502A BRAIN EVOLUTION & PSYCHIATRY. (3) (Prerequisites: 177-115B or equivalent as authorized by instructor.) The course will focus on the transcendental importance of evolution of nervous systems for normal and pathological behavior. Studies of allometric brain growth and recent evolutionary theories of brain organization as they relate to normal and abnormal behavior will be emphasized.

Professor Dubrovsky

555-630B STATISTICS FOR NEUROSCIENCES. (3) Statistics needed for analysing the types of data generated in a laboratory setting, with emphasis on the neurosciences, will be covered. Hypothesis testing, parametric and non-parametric statistics will be studied with a practical approach, using data generated by the students. Computer analysis will be introduced.

Professor Rochford

555-691A,B,D THESIS RESEARCH IN PSYCHIATRY I. (12)

555-692A,B,D THESIS RESEARCH IN PSYCHIATRY II. (12)

555-693A,B,D THESIS RESEARCH IN PSYCHIATRY III. (12)

555-696A,B,D SPECIAL TOPICS IN PSYCHIATRY. (3) Supervised reading and discussion of selected issues and topics in contemporary psychiatry. Students will be responsible for assigned readings and for preparation of a graded paper.

Professor Rochford and Staff

555-711D CULTURAL PSYCHIATRY. (3) (Prerequisites: Knowledge of psychiatry and anthropology). Topics covered: cross-national epidemiological and ethnographic research of major and minor psychiatric disorders; culture-bound syndromes and idioms of distress; culture, emotion and social interaction; psychological and symbolic healing; mental health of immigrants and refugees; psychiatric theory and practice as cultural constructions; methods of cross-cultural research

Professor Kirmayer and staff

555-713C PSYCHIATRIC EPIDEMIOLOGY. (3) (Prerequisites: 513-606 or equivalent or permission of instructor.) An overview of the applications of epidemiology in psychiatry, including instruments and methods used in community studies; major recent population surveys of psychiatric disorders; study of treatment-seeking, pathways to care and use of services; interaction between psychological distress and physical health; methods used in specific populations; evaluation of treatment.

Professor Galbaud du Fort and Staff

69 Psychology

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Chair — A.A.J. Marley

69.1 Staff

Emeritus Professors

A.S. Bregman; M.A.(Tor.), Ph.D.(Yale)
V. Douglas; B.A.(Qu.), M.A., M.S.W., Ph.D.(Mich.)
G.A. Ferguson; B.A.(Dal.), M.Ed., Ph.D.(Edin.), F.R.S.C.
W.E. Lambert; M.A.(Colgate), Ph.D.(N. Carolina), F.R.S.C.
R. Melzack; B.Sc., M.Sc., Ph.D.(McG.) (*E.P. Taylor Emeritus Professor of Psychology*)
P. Milner; B.Sc.(Leeds), M.Sc., Ph.D.(McG.)

Professors

F.E. Aboud; B.A.(Tor.), M.A., Ph.D.(McG.)
I.M. Binik; B.A.(N.Y.U.), M.A., Ph.D.(Penn.)

M. Bruck; B.A.(Wheaton), M.A., Ph.D.(McG.)
 K.B.J. Franklin; B.A., M.A.(Auck.), Ph.D.(Lond.)
 F.H. Genesee; B.A.(W.Ont.), M.A., Ph.D.(McG.)
 A.A.J. Marley; B.Sc.(Birm.), Ph.D.(Penn.)
 D.S. Moskowitz; B.S.(Kirkland), M.A., Ph.D.(Conn.)
 D.J. Ostry; B.A.Sc., M.A.Sc., Ph.D.(Tor.)
 M. Petrides; B.Sc., M.Sc.(Lond.), Ph.D.(Cantab.)
 R.O. Pihl; B.A.(Lawrence), Ph.D.(Ariz.)
 J.O. Ramsay; B.Ed.(Alta.), Ph.D.(Prin.)
 B. Sherwin; B.A., M.A., Ph.D.(C'dia)
 T.R. Shultz; B.A.(Minn.), Ph.D.(Yale)
 Y. Takane; B.L., M.A.(Tokyo), Ph.D.(N. Carolina)
 D.M. Taylor; M.A., Ph.D.(W.Ont.)
 N. White; M.A., Ph.D.(Pitt.), B.A.(McG.)
 D.C. Zuroff; B.A.(Harv.), M.A., Ph.D.(Conn.)

Associate Professors

A.G. Baker; B.A.(Br.Col.), M.A., Ph.D.(Dal.)
 A. Chaudhuri; B.Sc., M.Sc.(Tor.), Ph.D.(U.C.Berk.)
 B. Ditto; B.S.(Iowa), Ph.D.(Ind.)
 D. Donderi; B.A., B.Sc.(Chic.), Ph.D.(C'nell.)
 K. Dunbar; B.A., M.A., (U.C.D.), Ph.D.(Tor.)
 R. Koestner; B.A., Ph.D.(Roch)
 J. Lydon; B.A.(Notre Dame), M.A., Ph.D.(Wat.)
 M.J. Mendelson; B.Sc.(McG.), A.M., Ph.D.(Harv.)
 L.A. Petitto; B.S.(Ramapo State), M.A.(N.Y.U.), Ph.D.(Harv.)
 M. Shapiro; B.A.(Colby Col.), M.A., Ph.D.(Johns H.)
 F.E. Wilkinson; B.A.(McG.), M.A., Ph.D.(Dal.)

Assistant Professors

J. Abela; B.A.(Brown), M.A., Ph.D.(Penn.)
 M. Baldwin; B.A.(Tor.), M.A., Ph.D.(Wat.)
 J. Gropen; B.A.(Ponoma), Ph.D.(M.I.T.)
 G. O'Driscoll; B.A.(Wellesley), Ph.D.(Har.)

Lecturers

N. Allard; R. Amsel

Associate Members

F. Abbott (*School of Nursing, Psychiatry*)
 C. Baker, F.A.A. Kingdom, K. Mullen (*McGill Vision Research Centre*)
 T. Coderre (*Clinical Research Institute of Montreal*)
 R. Hess, B. Jones, M. Jones-Gotman, B. Milner (*Montreal Neurological Institute*)
 V. Patel (*Centre for Medical Education*)
 H. Steiger, S. Welner (*Douglas Hospital Research Centre*)
 R. Zatorre (*Montreal Neurological Institute*)

Part-Time Appointments

I. Bradley; Ph.D.
 J. MacDougall; Ph.D.
 Y. Oshima-Takane; Ph.D.
 C. Schopflocher; M.A.
 Y. Steinert; Ph.D.
 C. Zaccchia; Ph.D.
 P. Zelazo; Ph.D.

Clinical Consultants

F. Azima, S. Benaroya, S. Burstein, C. Garson, P. Gregoire,
 Z. Rosberger, D. Sookman, E. Sokoloff, M. Spevack, H. Steiger,
 A. Surkis, L. Taylor

69.2 Programs offered

M.A. and M.Sc. degrees may be awarded in Experimental Psychology, but only as a stage in the Ph.D. in Experimental Psychology program.

Ph.D. in Clinical Psychology (there is no M.A. or M.Sc. program).

The Experimental program is to provide students with an environment in which they are free to develop skills and expertise that will serve during a professional career of teaching and research as a psychologist. Course work and other requirements are at a minimum. Success in the program depends on the student's ability to organize unscheduled time for self-education. Continuous involvement in research planning and execution is considered a very

important component of the student's activities. Students are normally expected to do both Master's and Doctoral study.

The Clinical program adheres to the scientist-practitioner model and as such is designed to train students for careers in university teaching or clinical research, and for service careers – working with children or adults in a hospital, clinical, or educational setting. Most of our clinical graduates combine service and research roles. While there are necessarily many more course requirements than in the experimental program, the emphasis is again on research training. There is no Masters program in Clinical Psychology; students are expected to complete the full program leading to a doctoral degree.

Research interests of members of the Psychology Department include animal learning, behavioural neuroscience, clinical, child development, cognitive science, health psychology, psychology of language, perception, quantitative psychology, social psychology, and personality psychology.

Facilities for advanced research in a variety of fields are available within the Department itself. In addition, arrangements exist with the Departments of Psychology at the Montreal Neurological Institute, Allan Memorial Institute, the Douglas Hospital, Jewish General Hospital, Lakeshore General Hospital, Lethbridge Rehabilitation Centre; MacKay Centre; Montreal Children's Hospital and the Montreal General Hospital, to permit graduate students to undertake research in a hospital setting.

For full information about all programs and financial aid, and for application forms, contact the Graduate Program Co-ordinator, Department of Psychology.

69.3 Admission Requirements

Admission to the graduate program depends on an evaluation of students' research interests and their aptitude for original contributions to knowledge and, if applicable, for professional contributions in the applied field.

The usual requirement for admission is an Honours or Majors degree (B.A. or B.Sc.) in Psychology. This usually includes an introductory course plus twelve courses in psychology (each equivalent to three semester hours). Courses in experimental psychology, the theoretical development of modern ideas in psychology, and statistical methods as applied to psychological problems (equivalent to an introductory course) are essential. Applicants' knowledge of relevant biological, physical, and social sciences is considered.

Applicants who hold a Bachelor's degree but who have not met these usual requirements should consult the Graduate Program Director to determine which (if any) courses must be completed before an application can be considered. Students with insufficient preparation for graduate work may register as special students in the Faculty of Arts or the Faculty of Science, and follow an appropriate course of study. Such registration requires the permission of the Department but carries no advantage with respect to a student's eventual admission to graduate studies.

69.4 Application Procedures

Applicants must submit to the Graduate Program Secretary in Psychology:

1. a completed application form;
2. two official copies and one photocopy of all university transcripts;
3. three letters of recommendation, preferably from professors of psychology;
4. a fee of \$60, in Canadian funds, by cheque or money order made payable to McGill University;
5. a completed application summary sheet for the Psychology Department;
6. a personal statement with their full name outlining their interests in psychology and their career goals; and
7. official reports and a photocopy of scores on the General and Subject Graduate Record Examination (GRE).

All applicants must take the GRE if they have studied at an

English speaking University. Canadians who have not studied in English are not required to submit either GRE or TOEFL. Non-Canadians whose first language is not English and who have not studied at university in English must take the "Test of English as a Foreign Language" (TOEFL). Canadian citizens are not required to take the TOEFL.

Applicants should note that the deadline for many scholarships and fellowships is about four months earlier than the application deadline and that applications for fellowships and scholarships should be submitted through their home university.

The application deadline is January 15th.

69.5 Program Requirements

Master's (M.A. and M.Sc. Degrees – 48 credits each)

There is no M.A. or M.Sc. program in Clinical psychology. M.A. and M.Sc. degrees may be awarded in Experimental Psychology, but only as a stage in the Ph.D. program.

Candidates must demonstrate a sound knowledge of modern psychological theory, of its historical development, and of the logic of statistical methods as used in psychological research. Candidates will be expected to have an understanding of the main lines of current work in areas other than their own field of specialization. The primary concern of the candidate is research. Final standing for the degree is based mainly on the student's research progress and on the results of course work and other required assignments.

Ph.D.

All candidates for the Ph.D. degree must demonstrate broad scholarship, mastery of current theoretical issues in psychology and their historical development, and a detailed knowledge of their special field. Great emphasis is placed on the development of research skills, and the dissertation forms the major part of the evaluation at the Ph.D. level.

All Ph.D. 2 and 3 students must register for at least one graduate seminar each term (see course numbers 204-710A/B to 204-758A/B); the seminars are conducted by different staff members each year and their content changes accordingly.

A special (doctoral) comprehensive examination is written in one of the following areas of psychology: clinical, behavioral neuroscience, learning and motivation, personality and social psychology, development and language, perception and cognition, quantitative and individual differences, or any other appropriate area.

Ph.D. students in clinical psychology must fulfill similar requirements to Ph.D. students in the experimental program and must also take a variety of specialized courses which include practicum and internship experiences.

The Department of Psychology does not ordinarily require an examination in a foreign language. It should be noted, however, that all students planning to practice in clinical psychology in the province of Québec will be examined on their proficiency in French before being admitted to the professional association.

69.6 Courses

- Denotes not offered in 1999-2000.

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

- **204-501A AUDITORY PERCEPTION.** (3) (2 lectures) (Prerequisite: 204-212A or equivalent, or permission of instructor.)
- **204-505A THE PSYCHOLOGY OF PAIN.** (3) (2 lectures; 1 conference) (Prerequisites: 204-308A or equivalent course in physiological psychology or physiology.)
- **204-510A STATISTICAL ANALYSIS OF TESTS.** (3) (2 lectures) (Prerequisites: 204-305 or 435B, 204-406 or permission of instructor.)
- **204-511B INFANT COMPETENCE.** (3) (one 3-hour seminar) (Prerequisites: 204-351A or 352B or 353A or 380D or 450D and permission of instructor.) Basic research on the nature of infant

competence – both the development of mental representations/operations and expressive/communicative ability – will be examined. Implications for clinical assessment and intervention including information processing procedures as an alternative to conventional tests and treatment procedures for developmental delays will be covered.

Professor Zelazo

- **204-513A SEMINAR ON THE MENTAL LEXICON.** (3) (Enrollment limit) (Prerequisites: 204-340A, 104-201B, or equivalent, and permission of instructor.)

204-526A ADVANCES IN VISUAL PERCEPTION. (3) (2 lectures) Examines in detail the structure of the visual system, and its function as reflected in the perceptual abilities and behaviour of the organism. Parallels are also drawn with other sensory systems to demonstrate general principles of sensory coding.

Professors Mullen and Kingdom

204-530A APPLIED TOPICS IN DEAFNESS. (3) (3 hour lectures) (Prerequisites: 204-304 or 204-316 or equivalent, and permission of instructor.) (Undergraduate enrolment limited.) Covers fundamental topics in deafness (sensory, perceptual, cognitive, social, linguistics, education and health issues) from an applied psychological perspective. Lectures and seminar presentations plus field work involving ASL/ASQ.

Professor MacDougall

- **204-531B STRUCTURAL EQUATION MODELS.** (3) (2 lectures) (Prerequisites: 204-651B, 435B or equivalent or permission of instructor.)

● **204-532A COGNITIVE SCIENCE.** (3) (Prerequisites: Admission to the Cognitive Science Minor or permission of instructor. Students should ideally have some cognitive science background in at least two disciplines.)

204-533A INTERNATIONAL HEALTH PSYCHOLOGY. (3) (one 3-hour lecture) (Prerequisites: 204-305 and 204-215 or 204-429 or 204-304 or 151-227) Focus on health and illness in developing countries, in particular, on health problems (malnutrition, alcohol abuse, mental illness, family planning, and HIV) where psychosocial factors play a large role in the problem and the solution. Attempted solutions based on community participation, health education, non-governmental and international agencies.

Professor Aboud

204-534A COMMUNITY PSYCHOLOGY. (3) (3 hours lectures) (Prerequisites: 204-337 and 204-338 and permission of instructor.) (Enrolment limited) Community psychology aims to promote health in groups and communities rather than expending resources solely on relieving dysfunction. The course reviews the conceptual rationale for community psychology and explores examples of successful and unsuccessful prevention programs. It also discusses crisis intervention, informal caregivings, self-help groups, and mental health education through the media.

Professor Koestner

204-535B ADVANCED TOPICS IN SOCIAL PSYCHOLOGY. (3) (3 hour lectures) (Prerequisites: 204-215 and 204-333 and one additional course from social and personality area of specialization or 204-380D and permission of instructor.) (Enrolment limited, password required.) Classic and contemporary readings in a specific content area within social psychology will be assigned in order to examine the subarea in depth. The focus will vary depending upon the speciality area of the instructor. These areas include interpersonal relationships, intergroup relations, the self, and social cognition.

Professor Lydon

● **204-540A COMPUTATIONAL MODELLING OF REASONING.** (3) (3 hours) (Prerequisites: one course in cognitive psychology, and knowledge of LISP or a willingness to teach it to oneself. Not open for credit to students who have taken 308-426B, 304-625B, or a graduate course in Artificial Intelligence.)

● **204-561A METHODS IN DEVELOPMENTAL PSYCHOLINGUISTICS.** (3) (one 3-hour lecture) (Prerequisites: 204-340A, 204-343B and 204-305A,B or permission of the instructor.)

204-601D GENERAL COMPREHENSIVE. (6) Reference number for comprehensive examination written by all first-year graduate students. **204-615D DIAGNOSTIC METHODS (CHILDREN).** (3)

- 204-616D PRACTICUM – CHILD DIAGNOSTICS.** (3)
- 204-617D DIAGNOSTIC METHODS (ADULTS).** (3)
- 204-618D PRACTICUM – ADULT DIAGNOSTICS.** (3)
- 204-620D PRACTICUM – PSYCHOTHERAPY.** (6) A professional training course including dealing with patients under supervision, and a "case conference" seminar.
- 204-625G RESEARCH IN CLINICAL PSYCHOLOGY** (3) (Summer)
- 204-630A PSYCHOPATHOLOGY.** (4) Review of major types of psychopathology with emphasis on research findings.
- 204-641D BEHAVIOUR DEVIATIONS.** (6) Appraisal and Modification. Psychotherapy, Theory and Research: traditional treatment modalities, cognitive therapy, family therapy, behaviour therapy, group therapy, etc.
- 204-650A ADVANCED STATISTICS I.** (3) A course in advanced statistics with specialization in experimental design.
- 204-651B ADVANCED STATISTICS II.** (3) A course in advanced statistics with specialization in multivariate techniques.
- 204-660D PSYCHOLOGICAL THEORY.** (6) Professors representing the various research areas within the Department discuss critical issues and developments within their fields of expertise.
- 204-690D MASTER'S RESEARCH I.** (15) Development of research topic, study and review of previous literature, preliminary experimental and/or theoretical thesis research.
- 204-699A/C MASTER'S RESEARCH II.** (12) Continuation of 204-690D. Further experimental and/or theoretical research. Data analysis (as needed). Writing of thesis.
- 204-701D DOCTORAL COMPREHENSIVE EXAM.** (6)
- 204-706G CLINICAL PRACTICUM.** (15)
- 204-707H CLINICAL INTERNSHIP I.** (15)
- 204-708H CLINICAL INTERNSHIP II.** (15)
- 204-710A/B TO 715A/B BEHAVIORAL NEUROSCIENCE SEMINARS.** (3)
- 204-716A/B TO 721A/B LEARNING AND MOTIVATION SEMINARS.** (3)
- 204-722A/B TO 727A/B PERSONALITY AND SOCIAL PSYCHOLOGY SEMINARS.** (3)
- 204-728A/B TO 733A/B CLINICAL PSYCHOLOGY SEMINARS.** (3)
- 204-734A/B TO 739A/B DEVELOPMENT AND LANGUAGE SEMINARS.** (3)
- 204-740A/B TO 745A/B PERCEPTION AND COGNITION SEMINARS.** (3)
- 204-746A/B TO 751A/B QUANTITATIVE AND INDIVIDUAL DIFFERENCES SEMINARS.** (3)
- 204-752D PSYCHOTHERAPY AND BEHAVIOUR CHANGE.** (6) A practice-oriented course. Staff and students discuss current cases being treated with a variety of psychotherapeutic and behavioural change techniques.
- 204-753A/B TO 758A/B HEALTH PSYCHOLOGY SEMINARS.** (3) (Awaiting University Approval)
- 204-780D SPECIAL TOPICS IN CLINICAL PSYCHOLOGY** (6)
- 204-797A/B TEACHING METHODS FOR PSYCHOLOGY I.** (3) Development of teaching skills for graduate students in psychology under the supervision of academic staff. Relevant skills: stating objectives and sequencing content; preparation and delivery of lectures; running discussion and laboratory sessions; techniques for preparing, marking and assessing evaluation instruments; obtaining feedback on teaching skills.
- 204-798A/B TEACHING METHODS FOR PSYCHOLOGY II.** (3) Continuation of 204-797A/B.

70 Québec Studies/Études sur le Québec

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Director — Alain-G. Gagnon; B.A.(Que.), M.A.(S. Fraser), Ph.D.(Carl.)

Visiting Professor Desjardins — TBA

In 1963-64 McGill University established a French Canada Studies Program. Some of the energies and resources of the Program are devoted to research on Québec and French Canada. In 1992, the name of the program was changed to Québec Studies to reflect its central focus.

The program is offered at the undergraduate level. Should their main field of study be Québec, graduate students must apply to the relevant departments.

Graduate students taking courses dealing in whole or in part with Québec, or who are studying Québec as their special field of study, are welcome to make use of the facilities of the Québec Studies Program.

En 1963-64, le programme d'études canadiennes-françaises fut créé à l'Université McGill. En collaboration avec les autres départements de l'Université, le programme a notamment pour but de développer la recherche sur divers aspects du Québec et du Canada français. Depuis 1992, l'appellation du programme a été modifiée pour celle de programme d'études sur le Québec afin de refléter clairement les objectifs poursuivis.

Les activités du programme se concentrent au premier cycle. Les étudiants qui désirent poursuivre des études en vue de l'obtention d'une maîtrise ou d'un doctorat portant sur le Québec ou le Canada français doivent s'adresser aux départements concernés.

Les étudiants dont les cours portent, en tout ou en partie, sur le Canada français ou qui se spécialisent dans ce domaine, sont toutefois invités à se prévaloir des services du programme d'études sur le Québec.

71 Religious Studies

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Dean, Faculty of Religious Studies — B. Barry Levy

71.1 Staff

Emeritus Professors

C.J. Adams; A.B.(Baylor), Ph.D.(McG.)
G.B. Baum; B.A.(McM.), M.A.(Ohio), D.Th.(Fribourg)
D.J. Hall; B.A.(W.Ont.), M.Div., S.T.M., Th.D.(U.T.S., N.Y.),
D.D.(Queen's), LL.D.(Wat.), D.D.(Presb. Coll.)
J.C. McLelland; B.A.(McM.), M.A.(Tor.), B.D.(Knox, Tor.),
Ph.D.(Edin.), D.D.(Mtl. Dio.Coll.), D.D. (Knox, Tor.)

Professors

M. Boutin; B.A., B.A., B.A., (Montr.), D.Th. (Munich)
(*J.W. McConnell Professor of Philosophy of Religion*)
R.C. Culley; B.A.(Tor.), B.D.(Knox, Tor.), M.A., Ph.D.(Tor.),
D.D.(Mtl. Dio.Coll.)
B. Barry Levy; B.A., M.A., B.R.E.(Yeshiva), Ph.D.(N.Y.U.)