

DALHOUSIE

UNIVERSITY



**GRADUATE STUDIES
CALENDAR**

1994/95

DALHOUSIE

U N I V E R S I T Y

GRADUATE STUDIES

**1994/95
CALENDAR**



IMPORTANT NOTICES

Students are advised that the matters dealt with in this Calendar are subject to continuing review and revision. This Calendar is printed some months before the year for which it is intended to provide guidance. Students are further advised that the content of this calendar is subject to change without notice, other than through the regular processes of Dalhousie University, and every student accepted for registration in the University shall be deemed to have agreed to any such deletion, revision or addition whether made before or after said acceptance. Additionally, students are advised that this calendar is not an all-inclusive set of rules and regulations but represents only a portion of the rules and regulations that will govern the student's relationship with the University. Other rules and regulations are contained in additional publications that are available to the student from the registrar's office, and/or the relevant faculty, department or school.

The University reserves the right to limit enrolment in any programme. Students should be aware that enrolment in many programmes is limited and that students who are admitted to programmes at Dalhousie are normally required to pay deposits on tuition fees to confirm their acceptance of offers of admission. These deposits may be either non-refundable or refundable in part, depending on the programme in question. While the University will make every reasonable effort to offer classes as required within programmes, prospective students should note that admission to a degree or other programme does not guarantee admission to any given class. Students should select optional classes early in order to ensure that classes are taken at the most appropriate time within their schedule. In some fields of study, admission to upper level classes may require more than minimal standing in prerequisite classes.

Dalhousie University does not accept any responsibility for loss or damage suffered or incurred by any student as a result of suspension or termination of services, courses or classes caused by reason of strikes, lockouts, riots, weather, damage to university property or for any other cause beyond the reasonable control of Dalhousie University.

Inquiries should be directed to:

The Registrar
Dalhousie University
Halifax, Nova Scotia
Canada
B3H 4H6
Tel: (902) 494-2480
Fax: (902) 494-1830

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Schedule of Academic Dates

1994-95

Classes offered at Dalhousie have one of the letters "A", "B" or "R" following the number. "A" classes are given in the first term of any session, "B" classes are given in the second term of any session, and "R" classes are given throughout the entire session

1994

May

- 4 Last day to register, Spring Session
- 9 Classes begin, Spring session
- 13 Last day to cancel registration in or to add "A" and "R" classes, Spring session
- 18 Last day to withdraw without academic penalty from "A" classes, Spring session
- 23 Victoria Day - University closed
- 24-27 Spring Convocations

June

- 1 "A" Classes end, Spring session
- 2 "B" Classes begin, Spring session
- 3 Last day to withdraw without academic penalty from "R" classes, Spring session
- 8 Last day to cancel registration in or to add "B" classes, Spring session
- 13 Last day to withdraw from "B" classes without academic penalty, Spring session
- 24 Classes end, Spring session
- 29 Last day to register, Summer session

July

- 1 Canada Day - University closed
- 4 Last day to apply to graduate in October
Classes begin, Summer session
- 8 Last day to cancel registration in or to add "A" and "R" classes, Summer session
Last day to register with late fee, Summer session
- 13 Last day to withdraw without academic penalty from "A" classes, Summer session
- 26 "A" Classes end, Summer session
- 27 "B" Classes begin, Summer session
- 29 Last day to withdraw without academic penalty from "R" classes, Summer session

Last day for those expecting PhD degrees in October to submit one unbound copy of completed thesis and submission form to Graduate Studies and four unbound copies of thesis to department

August

- 1 Halifax/Dartmouth Natal Day - University closed
- 3 Last day to cancel registration in or to add "B" classes, Summer session
- 8 Last day to withdraw from "B" classes without academic penalty, Summer session
- 19 Classes end, Summer session
- 26 Last day for those expecting Masters degrees in October to submit unbound theses to departments
- 30 MBA orientation begins

September

- 5 Labour Day - University closed
- 6 Registration ends in Law and Library and Information Studies
Registration ends and classes begin in MBA
- 7 Orientation begins, Human Communication Disorders (first year)
Classes begin in Library and Information Studies and Law
- 9 Last day to register without late fee, Regular session
Last day to have Leave of Absence approved by Graduate Studies
- 12 Classes begin, unless otherwise specified, Regular session
Last day for refund on first installment of fees - limited enrolment programmes
- 16 Last day for those expecting to receive graduate degrees in October to submit approved unbound copies of theses to Faculty of Graduate Studies Office
- 26 Last day to cancel registration in or to add "A" and "R" classes, Regular session
Last day to register with late fee

October

- 3 Last day to apply to graduate in February
- 10 Thanksgiving Day - University closed
- 15 Fall Convocation
- 24 Last day to withdraw from "A" classes without academic penalty

November

- 10 Last day for those expecting PhD degrees by approval of Senate in February to submit one unbound copy of completed thesis and submission form to Graduate Studies and four unbound copies of thesis to department
- 11 Remembrance Day - University closed

2 Definitions

- 30 Last day to change status (PT to FT, or FT to PT), Graduate Studies

December

- 1 Last day to apply to graduate in May
6 Classes end
8 Examinations begin
9 Last day for those expecting Masters degrees by approval of Senate in February to submit unbound theses to departments
17 Examinations end

1995

January

- 2 University closed
3 Classes resume, second term begins
10 Last day for those expecting to receive graduate degrees by approval of Senate in February in submit approved unbound copies of theses to Faculty of Graduate Studies office
16 Last day to cancel registration in or to add "B" classes
Last day to withdraw from "R" classes without academic penalty
31 Last day for partial refund - regular session
Second installment of fees due

February

- 3 Munro Day - University closed
13 Last day to drop "B" classes without academic penalty
17 Last day for those expecting PhD degrees in May to submit one unbound copy of completed thesis and submission form to Graduate Studies and four unbound copies of thesis to departments
20 Study break begins
27 Classes resume

March

- 17 Last day for those expecting Masters degrees in May to submit unbound theses to departments

April

- 7 Classes end, Regular session
12 Examinations begin, Regular session
13 Last day for those expecting to receive graduate degrees in May to submit approved unbound copies of theses to Faculty of Graduate Studies Office
14 Good Friday - University closed
27 Examinations end, Regular session
30 Last day for submission of annual Thesis Report Forms to Graduate Studies

May

- 23-26 Spring Convocations

Definitions

The following definitions are intended to facilitate an understanding of the calendar and not to define all words and phrases used in the calendar which may have specific meanings.

Academic Dismissal: A student's required withdrawal from a programme due to unsatisfactory academic performance.

Academic sessions:

Regular session:..... September - April

First term:.....September - December

Second term: January - April

Spring session: May - June

Summer session: July - August

Audit Student: A student permitted to attend classes but not expected to prepare assignments, write papers, tests or examinations. Credit is not given nor is a mark awarded for classes. Classes appear on the transcript with the notation "Aud". Audit students must apply, select classes and register in the normal way.

Class: A unit of instruction in a particular subject identified by a name and number.

Co-requisite: Requirement which must be fulfilled prior to or concurrently with the class being considered.

Prerequisite: Requirement which must be fulfilled prior to registering in a specific class.

Course: The term "class" is used in place of the word course.

Credit: A unit by which University class work is measured. A full year class is normally worth one credit.

Exclusion: Students may not register for a class which lists, as an exclusion, a class the student is also taking or has already passed.

Full-time Students: Those carrying more than two and one-half (2 1/2) full-credit classes during the 12-month academic year of a student who has not yet completed the minimum number of years of full-time study required for a particular degree programme.

Part-time Students: Those carrying not more than two and one-half (2 1/2) full-credit classes during the 12 months, September to August or a student who has not yet completed the minimum number of years of part-time study required to complete the residency requirement for a particular degree programme.

Special Students: see Section 4.2 of this calendar.

Transcript: A transcript is a complete history of a student's academic record at Dalhousie. Partial transcripts, e.g. a portion of a student's record pertaining to registration in a particular degree or faculty only, are not issued.

Visiting Student: A person permitted to take classes at Dalhousie for transfer of credit to another university.

Dalhousie University

For over 129 years, Dalhousie University has played a crucial role in Nova Scotian higher education. Building upon a strong undergraduate base, the University has developed internationally recognized programmes of graduate and professional studies. The scope of its research is far-reaching, as is its public and community service. The range of the University's programmes, and in particular the obligations it has assumed for professional and graduate education, give it a unique role in higher education in Nova Scotia and in the Maritime region.

Dalhousie's enrolment stands at over 11,500 students. To accommodate them, Dalhousie occupies more than 80 acres in a residential area of Halifax. University facilities include buildings for teaching and research, libraries, residential housing for students, a Student Union Building, an Arts Centre for music, theatre, and an art gallery and facilities for physical recreation. The Nova Scotia Archive building, the Atlantic Regional Laboratory of the National Research Council, major provincial hospitals, and the Dr. D.J. MacKenzie Laboratories are located close to the University. Dalhousie benefits from a variety of arrangements for teaching and research collaboration with hospitals and federal and provincial research laboratories.

The University of King's College, situated adjacent to Dalhousie campus, is an affiliated institution, and its students in Arts and Science receive Dalhousie degrees in the name of both institutions. By agreement with Mount Saint Vincent University students have access to various courses and services. Cooperative arrangements for engineering and computer science studies have been made with the Technical University of Nova Scotia. By arrangement with the Nova Scotia Teachers College, graduates of that institution may complete education degree requirements at Dalhousie. Cooperation in a number of academic programmes, in administrative services, and in use of library resources is provided for in working arrangements with Saint Mary's University and other institutions in Halifax. Degrees in agriculture, awarded to students of the Nova Scotia Agricultural College, are awarded by Dalhousie in cooperation with the College.

Dalhousie University is a non-denominational co-educational university. Founded in 1818, the University is a member of the Association of Universities and Colleges of Canada, the Atlantic Association of Universities, and the Association of Commonwealth Universities.

Executive Officers

President and Vice-Chancellor

Howard C. Clark, BSc, MSc, PhD, ScD, FRSC

Vice-Presidents

Academic and Research

Deborah W. Hobson, BA, MA, PhD

Finance and Administration

Bryan G. Mason, BA

Student Services

Eric A. McKee, BA, MA

External

Henry Eberhardt, AB

Associate Vice-President Research

Robert O. Fournier, BSc, MA, PhD

Deans of Faculties

Arts and Social Sciences

Graham D. Taylor, BA, PhD

Dentistry

William A. MacInnis, DSc, DDS, MEd, F.I.C.D.

Graduate Studies

Judith Fingard, BA, MPhil, PhD

Health Professions

Lynn McIntyre, MD, MHSc, FECPC(C)

Law

Joseph A. Ghiz, BComm, LLB, LLM, LLD

Management

James D. McNiven, BA, MA, PhD

Medicine

John Rusdy, MDCM, FRCPC(C), FACP

Science

W.C. Kimmins, PhD

Henson College of Public Affairs and Continuing Education

J. Douglas Myers, BA, BEd, MA, PhD

School of Education

K.C. Sullivan, BSc, BEd, MEd, PhD, Director

College of Arts and Science

W.C. Kimmins, PhD, Provost

Administrative Officers

University Secretary and Legal Counsel

Brian C. Crocker, QC, BA, LLB

University Librarian

William F. Birdsall, BA, MA, PhD

University Registrar

Gudrun E.L. Curri, MA

Executive Directors

Computer and Information Services

H.S. Peter Jones, BSc, MSc, FBCS, FIMA

Instructional Development and Technology

W. Alan Wright, BA, MA, PhD

Lester Pearson Institute

Barry D. Lesser (Acting)

Office of Institutional Affairs

Brian Christie, BSc, MA, Assistant to the President for Planning

Directors

Alumni Affairs

Elizabeth Flinn, BSc

Arts Centre

Robert C. Reinholdt

Athletics and Recreational Services

F.A. (Tony) Martin, BSc, MA

Counselling and Psychological Services

Judith Hayashi, BA, MA

Development

Charlotte Sutherland, BA, MEd

Environmental Health and Safety

William J. Louch, PhD

Financial Services

Ian Nason, BComm

Health Services

Joyce Curtis, MD

Housing and Conferences

Heather Sutherland, BSc, MEd

Personnel Services

Michael J. Roughneen, CPIR, BA, MSc, FIPM

Physical Plant and Planning

William Lord, BASc, PENG

Public Relations

Marilyn MacDonald, BA, MA

Student Resources

A. Susan McIntyre, MPA

Board of Governors

Under the University's statutes, the Board of Governors is responsible for the operation of the University. The Board consists of representatives named by the Government of Nova Scotia, the alumni, the Student Union and certain other bodies. Internal regulation of

the University is the primary concern of the Senate, subject to approval of the Board of Governors.

The President and Vice-Chancellor is the Chief Executive Officer of the University, responsible to the Board of Governors and Senate for supervision of the University's administrative and academic work.

Chancellor

H. Reuben Cohen, OC, BA, LLB, LLD

Chancellor Emeritus

Lady Beaverbrook, LLD

Officers

Dr. Howard C. Clark, BSc, MSc, PhD, ScD,
President & Vice-Chancellor

Mr. Allan C. Shaw, Chair

Mr. James S. Cowan, Vice-Chair

Miss Barbara Walker, Vice-Chair

Mrs. Ann Petley-Jones, Honourary Secretary

Mr. John C. Risley, Honourary Treasurer

Members

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Dr. D. Wayne Bell, M.D.

Mr. Dov Bercovici

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Mr. Aubrey D. Browne

Mr. Robin N. Calder

Mr. Daniel M. Campbell

Dr. Mona L. Campbell

Mrs. Charlotte Cochran

Mr. J. Dickson Crawford

Her Worship Mayor Moira Ducharme (ex officio)

Dr. Kenneth A. Dunn

Mr. Brian Felming

Mr. Fred Fountain

Mrs. Cynthia Gorman

Dr. Margaret M. Hansell

Dr. William Hare

Chief Justice T. Alex Hickman

Mr. Lewis Jacobson

Ms. Carolyn Johnson

Mr. Donald A. Kerr

Dr. Patricia Lane

Mr. Thomas E.G. Lynch

Ms. Bernadette Macdonald

Mr. George W. MacDonald

Ms. Suzan MacLean

The Hon. Jacqueline R. Matheson

Dr. Carmen F. Moir

Dr. Sharon Oliver

Dr. Norman G.O. Pereira

Mr. George C. Piercay

Mr. Jefferson Rappell

Ms. Josie Richard

Dr. Cedric E. Ritchie

Mrs. Patricia Rooses

Mr. Kenneth C. Rowe

Mr. Byron G. Sarson

Dr. Donald C.R. Sobey

Ms. Tina Sweeney

Ms. Maxine N. Tynes

Mrs. Carol Young

Mr. Robert Zed

Secretary

Joann Griffin

Observer for Faculty Association

Dr. Colin Stoddard, BA (Mod), PhD

Senate

The Senate consists of the President, Vice-Presidents, Deans of Faculties and academic department heads, Registrar, full professors, other members of the academic staff elected from and by each Faculty, six students elected by students, and certain other persons.

Subject to the general approval of the Senate, faculties are responsible for supervision of programmes of study, of teaching and research, and for the recommendation of candidates for degrees, diplomas, and university prizes.

Chair of Senate

Kenneth A. Dunn, BSc, MSc, PhD

Vice-Chair of Senate

Raymond W. Carlson, BA, MSW, PhD

Secretary of Senate

Robert N. Bérard, BA, BEd, MA, PhD

6 Academic Degrees and Diplomas

Academic Degrees and Diplomas

Master of Arts

1 or 2 years with thesis in: Classics, Computing Science, Economics, Education, English, French, German, Health Education, History, Leisure Studies, Mathematics, Philosophy, Political Science, Psychology, Sociology, and Social Anthropology

Master of Science

1 or 2 years with thesis in: Agriculture, Anatomy and Neurobiology, Atmospheric Science, Biochemistry, Biology, Chemistry, Community Health and Epidemiology, Computing Science, Earth Sciences, Human Communication Disorders (3 years) (Audiology or Speech Pathology), Kinesiology, Mathematics, Microbiology and Immunology, Oceanography, Oral and Maxillofacial Surgery (4 years), Pathology, Pharmacology, Pharmacy, Physics, Physiology and Biophysics, Psychology, and Statistics, also Neuroscience (combined with Anatomy and Neurobiology, Biochemistry, Pharmacology, Physiology and Biophysics, and Psychology).

Doctor of Philosophy

2 or 3 years, with thesis in: Anatomy and Neurobiology, Atmospheric Science, Biochemistry, Biology, Chemistry, Classics, Earth Sciences, Economics, Education, English, French, History, Interdisciplinary Studies, Mathematics, Microbiology, Oceanography, Pharmacology, Pharmacy, Philosophy, Physics, Physiology and Biophysics, Political Science, Psychology and Statistics, also Neuroscience (combined with Anatomy and Neurobiology, Biochemistry, Pharmacology, Physiology and Biophysics, and Psychology).

Doctor of Philosophy with Doctor of Medicine

(Doctor of Philosophy thesis in: Anatomy, Biology, Microbiology, Pharmacology, Physiology, Biophysics)

7 years

Doctor in the Science of Law

2 years, with thesis

Master of Arts in Teaching (French)

2 years

Master of Business Administration

2 years

Master of Business Administration with Bachelor of Laws

4 years

Master of Education

1 year

Master of Environmental Studies

1 or 2 years

Master of Health Services Administration

2 years

Master of Health Services Administration with Bachelor of Laws

4 years

Master of Laws

1 year

Master of Library and Information Studies

2 years

Master of Library and Information Studies with Bachelor of Laws

4 years

Master of Marine Management

1 year

Master of Public Administration

2 years

Master of Public Administration with Bachelor of Laws

4 years

Master of Development Economics

2 years

Master of Nursing

2 years

Master of Social Work

1 or 2 years

Diploma in Aquaculture

1 year

Diploma in Public Administration

1 year

Special Institutes

A number of special institutes for study and research in specific fields are based at the University. Among these are:

Atlantic Institute of Criminology

Director: D.H. Clairmont, BA, MA, PhD

The Atlantic Institute of Criminology has been established to provide a centre for research in the areas of criminology, policing, and other concerns of the justice system. In this focus and in its contribution to the associated career development, the Institute is equivalent to those existing in other regions of the country. Research awards for graduate students in Criminology are available. Seed funding is also available for research relating to the justice system.

Policy for the Atlantic Institute of Criminology is developed with the assistance of an Advisory Board comprising representatives from the academic and professional community of the region.

Associate memberships are available to interested and qualified persons. Workshops and training courses also provide opportunities for professional development for employees of the Criminal Justice system in the Atlantic Region.

Atlantic Region Magnetic Resonance Centre

Director: Chair, Department of Chemistry

Manager: D.L. Hooper, BSc, MSc, PhD

Established in 1982 with assistance from the Natural Sciences and Engineering Research Council, the Centre is concerned with teaching and research programmes in magnetic resonance. The Centre has modern nuclear magnetic resonance (NMR) and electron spin resonance (ESR) instruments including Bruker AC 260 and AMX 400 NMR instruments and a Bruker MSL 200 NMR for solid state studies.

In addition to providing well-equipped laboratories and instrumentation for resident and visiting faculty, research scientists and students, the Centre provides NMR spectra and expertise to scientists of eleven universities and research institutes in the Atlantic Region.

Atlantic Research Centre

Director: H.W. Cook, MSc, PhD

Established in 1967, the Centre conducts basic biomedical research and population studies in the fields of human genetics, cell membranes, neurobiology, and developmental nutrition. It also provides education in these

fields to undergraduate and graduate students and the general public. Special tests and consultative services for the prevention and treatment of diseases causing metabolic disorders and mental handicap are provided by the Centre. The Centre's professional staff hold appointments in various departments of the Faculty of Medicine. Its work is supported by grants from agencies such as the Medical Research Council of Canada, the Dalhousie Medical Research Foundation, the governments of the three Maritime provinces, and the Network of Centres of Excellence on Neural Regeneration, and by private donations.

Centre for African Studies

Director: J.L. Parpart, MA, PhD

This Centre, established in 1975, coordinates instruction, publication, research and development education programmes in African Studies. Associated faculty hold appointments in departments and units concentrated in the social sciences and humanities. The Centre organises academic and informal seminars and public policy conferences on Africa and encourages interdisciplinary interaction at all levels on African subjects and issues. It cooperates with the International Development Studies programme and with the Pearson Institute and International Students Centre.

Centre for Foreign Policy Studies

Director: T.M. Shaw, PhD

Established in 1971 the Centre is concerned with teaching, research, publication, policy advice and other professional activities in the various aspects of foreign policy, security studies and international politics. It is funded through the Military & Strategic Studies Programme of the Department of National Defence and other foundations, government agencies and contracts.

The Centre's work is concentrated in the area of Canadian and comparative maritime policy and strategy but it also deals with international political economy and regional and global development. Its geographical specializations include foreign policy in Canada, Europe, Third World (especially Africa, Asia and the Caribbean), and the U.S. The Centre encourages activities in these areas by Research & Doctoral fellows and advances communication among local and international communities in these fields through seminars, workshops, conferences and colloquia, often co-sponsored by local, national and/or international organizations. It publishes occasional papers or monographs plus a monthly Defence Newsletter on Canadian defence and security policy issues.

8 Special Institutes

The Centre is an integral part of the Department of Political Science. Centre faculty offer courses through the Department in foreign and defence policy, international relations and development, and maritime affairs at both undergraduates (majors & honours) and graduate (MA and PhD) levels. They also supervise masters and doctoral theses in these fields.

Centre for International Business Studies

Director: M.R. Brooks, BOT, MBA, PhD

The Centre was established in 1975 and is funded by External Affairs and International Trade Canada. Its purposes include the provision of specialist training in international business studies, research and outreach activity in international business. It carries out these functions within the administrative framework of the School of Business Administration.

Centre for Marine Geology

Director: Paul T. Robinson, BSc, PhD

The Centre for Marine Geology was founded in 1983 to promote the interdisciplinary study of the continental margins and the sea floor. The Centre draws on the faculty and resources of the Departments of Geology, Oceanography and Physics and others. The objectives of the Centre are: (1) to expand the university's leading role in international studies of the oceanic crust, (2) to participate with industry and government in the geological aspects of oil and gas development on Canada's east coast and (3) to continue research on sedimentation and the recent history of the Canadian offshore.

Dalhousie Health Law Institute

Director: Robert G. Eigle, QC, BA, LLB, MD, FRCS(C)

Assistant Directors: Stephen G. Coughlan, BA, MA, LLB, Ph.D., Diana E. Ginn, BA, LLB, LLM

The Health Law Institute is an interdisciplinary institute which conducts and coordinates research and teaching in the Faculties of Law and Medicine, and in Dentistry and Health Professions as well. Supported by the Donner Canadian Foundation and the Law Foundation of Nova Scotia, the Director and his Faculty Associate are cross-appointed to the Faculties of Law and Medicine. They work with an advisory board and with colleagues in those and other Faculties on grant and contract funded research, teach and coordinate the teaching of law as it applies in the broad field of health to students in Dentistry, Health Professions, Law

and Medicine, supervise graduate students and conduct continuing education courses for health professionals on a contract basis. The initial focus of the Health Law Institute is on aspects of health law of particular relevance to aging.

Lester Pearson Institute for International Development

Interim Director: B. Lesser, BComm, MA, PhD

Assistant Director: P. Rodee, BA, MBA

The Lester Pearson Institute for International Development (LPI) was founded in 1985 to promote Dalhousie's involvement in international development activities. In mid-1987, LPI was merged with the Centre for Development Projects and was given responsibility for oversight of all externally financed development programmes and projects at Dalhousie. In addition to its administrative functions within the university, LPI undertakes major activities such as a development education programme for the campus and local community, a lecture and seminar series, conferences, research, a publications programme, and input to public policy on Canada's role in international development. Although LPI does not participate directly in academic degree programmes, it encourages and supports the study of international development issues and houses the Lester Pearson Chair in Development Studies.

Neuroscience Institute

Interim Director: I.A. Meinertzhagen, BSc, PhD

The Neuroscience Institute was founded in 1990 to promote and coordinate research in neuroscience, the modern interdisciplinary study of the brain and nervous systems. The development of the Institute parallels the establishment of many such institutes throughout the world and marks dramatic recent progress in understanding the workings of the brain, as signalled for example by U.S. President Bush's declaration of the 1990's as the Decade of the Brain.

Currently housed in the Life Sciences Centre, the Institute serves as an umbrella organization to foster research and training in neuroscience at Dalhousie. A major objective is to increase understanding of the functions of the nervous system in health and disease and, to this end, the Institute coordinates the activities of neuroscientists in the Faculty of Medicine and of Science, facilitating collaboration between clinical and basic scientists in the two Faculties. Some foci of current research activity include: the autonomic nervous system; development and plasticity of the nervous system; and, sensory physiology. The Institute also provides a

vehicle to seek new sources of funding, and will encourage new initiatives in all areas of neuroscience research at Dalhousie. In addition, the Institute promotes and coordinates training programmes in neuroscience currently offered through constituent departments at both the undergraduate and graduate levels. Associated with the latter it sponsors a seminar series annually.

Oceans Institute of Canada/Institut canadien des océans

Executive Director: Judith Swan, BA, LLB, LLM

The Oceans Institute of Canada/Institut canadien des océans is a federally incorporated, non-profit organization established in 1978 and dedicated to promoting responsible management of the world's oceans.

The Institute serves the public and private sectors at national and international levels. Work is carried out by a permanent staff and experts drawn from a multidisciplinary panel of associates.

The location of its head office in Halifax promotes full collaboration with many other establishments concerned with ocean affairs, including Dalhousie University. The Institute has a Pacific Office in Vancouver.

Trace Analysis Research Centre

Director: L. Ramaley, BA, MA, PhD

With the assistance of a grant from the National Research Council, the Centre was established in 1971 to train analytical chemists and, through research, to contribute to the advancement of analytical chemistry. A major facility of the Centre is a low-power nuclear reactor (SLOWPOKE) which is available to researchers within Dalhousie and elsewhere.

Resources and Services

Advisory Committee on Sexual Harassment

Dalhousie University is committed to an environment free of sexual harassment. A policy and procedures exist to deal with complaints of sexual harassment. Sexual harassment can take many forms, from constant joking to physical or sexual assault. It may involve threats that you will fail in class or that you will lose your job. It may make your work or study environment uncomfortable through continued sexual comments, suggestions, or pressures. Harassment is harassment, whether it's by a professor, a teaching assistant, a staff member, a student, or even a patient or customer.

If you believe you are being sexually harassed at Dalhousie you are encouraged to discuss your questions or concerns with the Sexual Harassment Advisor, 1226 Le Marchant, 494-1137, or phone the Sexual Harassment Information Line, 494-1859. Advice and information is available about what can be done. All discussions will be kept confidential, and nothing is done without your consent.

Students found guilty of sexual harassment can be subject to a range of penalties, up to and including expulsion from the university.

Alumni Association

The Alumni Association is composed of over 58,000 former students. Chapters scattered across the world keep alumni informed and involved with the Association. It coordinates a number of programmes including homecomings, reunions, branch meetings, sports events, information lectures, a Student Alumni Association, a Student Leadership Conference, Scholarships and Bursaries, and the Alumni Award for Teaching Excellence and the Outstanding Alumnus Award. The Association publishes the Dalhousie Alumni Magazine which is sent to all alumni and friends.

The alumni play a vital role in the University in a wide variety of ways including representation on the Board of Governors.

Athletics

Athletics and Recreational Services offers a wide range of programmes for every Dalhousie student. More than fifty clubs and intramural programmes offer fun, fitness and companionship while 13 varsity sports provide excitement for players and spectators alike.

10 Resources and Services

For those who prefer less competitive activities, there are a great number of fitness, leisure and aquatic instructional programmes.

Recreation facilities on campus include: Daiplex—offering a 50,000 sq. ft. fieldhouse, olympic-size pool, two weight rooms, two hardwood basketball courts, numerous "no-fee" racket courts, and an indoor jogging track; the Dalhousie Memorial Arena, Studley Gym, and The F.B. Wickwire Memorial Field. For details on fitness and recreation at Dalhousie contact Daiplex at 494-3372 or the Intramural Office at 494-2049.

Black Students

The Black Student Advising Centre is available to assist and support new, prospective and returning Black Students (African, American, Canadian, Caribbean, etc.) The Advisor may organize programme activities which assist Black students in developing contacts with other Black students both on campus and in the Black Community. The Centre is intended to foster a sense of support and community among the Black students, with other students and to increase intercultural awareness.

The Advisor will provide confidential services and programmes individual and/or group assistance, impartial observation, relevant resource materials, along with a referral service which may benefit your academic, personal and social development on and off campus. There is a small lounge area for meeting, peer support, reading and/or studying. Awards, scholarships, employment, community information and upcoming events are also made available.

The position of the Black Student Advisor was created by Dalhousie University to provide information to prospective students, increase access and promote retention of Indigenous Black students.

The Centre may be beneficial to all students, faculty and staff as a means of increasing awareness of Black students within the University community.

For further information contact: Office - Black Student Advisor, Student Union Building, Halifax, Nova Scotia, B3H 4J2 (902) 494-8648.

Chaplaincy at Dalhousie

The University provides facilities for chaplains appointed by various churches. There are five chaplains at Dalhousie, representing the Anglican, Baptist, Roman Catholic, Lutheran, and United Church traditions. In addition, contact ministers are designated by the Jewish, Presbyterian, and Orthodox traditions and can be reached through the Chaplains' Office on campus. The Chaplains' Office is located on the fourth floor

of the Student Union Building, telephone 494-2287. Office hours are Monday to Friday 9 - 4. Appointments can be made for other convenient times. The chaplains are available at any time for emergencies. Outside office hours, chaplains may be reached by calling the answering machine at 494-2287 to hear emergency numbers.

Counselling and Psychological Services

The Counselling and Psychological Services Centre offers programmes for personal, career and educational concerns. Counselling is provided by professionally trained Counsellors and Psychologists. Strict confidentiality is ensured. Counselling is available both individually and on a group basis. Topics covered by regularly offered group programmes include Study Skills, Career Decision Making, Exam Anxiety Reduction, Public Speaking Anxiety Reduction, Assertiveness, Resume Writing and Job Search Skills. Information on a wide variety of careers and academic programmes is available in the Frank G. Lawson Career Information Centre. Students wishing to get a first hand view of careers they are considering entering, may contact alumni willing to discuss their career experiences through the Centre's Mentors and Models programme. Interest testing is also available to students.

The Counselling and Psychological Services offices and its Frank G. Lawson Career Information Centre are located on the 4th Floor of the Student Union Building. Inquire or make appointments by dropping in or calling 494-2081.

Dalhousie Arts Centre

Designed as a multipurpose facility, the Dalhousie Arts Centre is home to four University departments: Dalhousie Arts Centre (Administration), Dalhousie Art Gallery, and the two academic departments of Music and Theatre. The Arts Centre remains, after twenty-one year, an integral part of the cultural experience in our community and stands as the only arts complex of its kind in Nova Scotia.

Of the numerous performing arts spaces in the Dalhousie Arts Centre, the Rebecca Cohn Auditorium, or "The Cohn", as it is affectionately called, is the most familiar and prestigious. The 1040 seat concert hall is the home of Symphony Nova Scotia, as well as the venue of choice for a wide variety of performers ranging from The Royal Winnipeg Ballet to Blue Rodeo, The Chieftans, and Ravenel to name a few. Other performing and visual arts space in the Arts Centre include: The Sir James Dunn Theatre (240 seats), the David MacK. Murray Studio, Studio II, The MacAloney Room, and the Art Gallery.

The Dalhousie Art Gallery offers the public access to national and international touring exhibitions and initiates many ambitious and exciting exhibition programmes.

Further information on the Music and Theatre Departments can be found in their separate listings.

Dalhousie Student Union

Every Dalhousie student is automatically a member of the Dalhousie Student Union. The Student Union is recognized by an agreement with the University Administration and by an Act of the Nova Scotia legislature as the single voice of Dalhousie students. All student activities on campus are organized through the Student Union, and the Student Union is the focus of all student representation. The business of the Student Union is conducted by a Council made up of 40 members. Every student is represented by one or more representatives of their faculty, elected within their faculty in the spring. As well, students who live in residence and international students also elect their own representatives because they are uniquely affected by certain university policies. Also on the Council are the student representatives elected to the Senate and Board of Governors.

One of the most important resources of the Student Union is the Student Union Building located on University Avenue between Seymour and LeMarchant Streets. The SUB, which is exclusively operated by the Student Union and is paid for through Student Union fees, was opened in 1968 as a centre for student activity on campus. Every student has the opportunity to take advantage of the Union's financial, physical and organizational resources. To use that opportunity you should know who represents you on Council and who are the members of the Executive. The Student Council office is located on the second floor of the SUB and is open from 8:30 a.m. to 4:30 p.m. Monday through Friday, phone number 494-1106. Council members have mail boxes located in that office. Union Executive officers also have offices in the SUB.

Housing/Residence Services

For the 55 per cent of Dalhousie University students whose homes are outside the Halifax Metropolitan area, where to live while attending university is a major question. The supply of University owned housing does not meet the demand and the vacancy rate in the various private, commercial units is low. It is therefore very important that students planning to attend Dalhousie think well in advance about their accommodation needs.

Students should be aware of the following points in reference to residence accommodation. You must indicate your interest in residence accommodation on your Application for Admission to a programme of study. Upon admission to a programme of study, those students who have indicated an interest will receive a Residence Application Form. It is important to return the Residence Application Form promptly as the applications will be considered as they arrive. Residence Application Forms will not be distributed to, nor received from, individuals who have not gained admission to a programme of study.

Students with disabilities are encouraged to contact the Residence Office at (902) 494-1054, for information and assistance.

The traditional style residences at Dalhousie are chiefly for undergraduate students; very few graduate spaces are allocated and in many cases students pursuing advanced degrees are not prepared to live with the exuberance of first and second year students.

The information below gives a description of A. traditional on-campus residences, B. off-campus housing owned by the university and C. the services offered by the off-campus housing office listing service. For information on housing fees, see the Fees section of the Calendar.

Please Note: Academic acceptance by the University, i.e., admission to a course of study, DOES NOT GUARANTEE admission to University Housing or provision of off-campus accommodation.

It is the responsibility of the individual student in all cases to make separate application for the university housing of her/his choice, or to avail him/herself of the listing services provided by the Off-Campus Housing Office.

Early application for university residences and housing is strongly recommended. However, no decisions regarding residence accommodation will be made until April 1, when the Department of Housing and Conferences is advised of students who have been offered early academic acceptance.

A. Traditional Style On Campus Residence

Howe Hall

Centrally located on campus, Howe Hall, provides accommodation for 520 undergraduate students. The sprawling, grey ironstone complex is divided into five houses: Henderson, Cameron, and Studley are for men only; Bronson and Smith Houses are co-ed. Each house has its own distinctive identity and student government. The ratio of seniors

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to first-year students is approximately 50/50, except in Henderson house which is predominantly for first year students.

The houses offer both double and single rooms with the singles generally reserved for senior undergraduates and the doubles for first-year students. Facilities include two dining rooms, lounges, television rooms in each house, a canteen, games room, squash courts, weight room, study areas, laundry rooms and computer room.

Shirreff Hall

The women's residence on the Dalhousie campus, Shirreff Hall, provides accommodation for 445 female students. Located in a quiet corner of the campus, it is minutes from classes, the library, Dalplex and other facilities as well as from the scenic Northwest Arm. It is divided into three houses - Newcombe, Old Eddy and New Eddy (which includes the Annex). Old Eddy and New Eddy have both single and double rooms while Newcombe has single rooms only. The Annex houses only 14 senior students and is distinct from the remainder of Shirreff Hall in that it has a separate outside entrance and is not directly accessible from the main residence.

Shirreff Hall offers a dining room, an elegant library and visitors' lounge, study hall, study area, games room, television lounges, exercise room, kitchenettes, canteen, laundry room and reception desk. Students have access to two pianos.

Eliza Ritchie Hall

Opened in 1987, Eliza Ritchie Hall is a co-ed residence. It provides traditional residence accommodation for 84 students in predominantly single rooms.

The three-storey building of powder blue clapboard is located close to the Dalplex and to Shirreff Hall, where students take their meals. Facilities include study rooms, a multipurpose room, reception area, laundry facilities and leisure lounges with kitchenettes.

B. Off Campus, University Owned Housing

Fenwick Place

Dalhousie's 33-storey Fenwick Place offers students the privacy and some of the independence of apartment living. Located in Halifax's south end, it is only a 15-minute walk or a short bus ride from the campus. Because Fenwick houses both single and married students, the mix of people provides a harmonious living environment.

Many of the 252 apartments in Fenwick Place are furnished to accommodate students in groups of two, three or four. Priority is given to students who apply in groups and who are currently living in a Dalhousie residence. Each of these apartments has a full

kitchen and bathroom, furnished living room and dining area and a balcony. Bedrooms have desks and a mate-style bed. Heat, hot water, electricity, and satellite television are included in the residence fee.

Fenwick also has a number of unfurnished bachelor, one and two-bedroom apartments which are rented to married and single students. Each of these apartments has a full kitchen and bathroom. Heat, hot water, and satellite television are included in the rent.

Laundry facilities are available on every floor of Fenwick Place. The front desk is open 24 hours a day with staff available to provide security, information and advice to students.

Glengary Apartments

Located on the campus on Edward Street, Glengary Apartments is a four-storey brick building offering co-ed accommodation to 52 students. Preference is given to students in second and third year and especially to those who apply in groups of four.

Glengary has 12 furnished apartments, each with space for four students. The apartments feature two single rooms, double room, kitchen, living room and bathroom. There are also four bachelor apartments which are always in high demand. Laundry facilities are located in the basement, where there is also a limited amount of storage space.

Coordinators are available for security and administrative services and also act as a resource for students who may need advice or assistance.

Co-ed Apartment Units

Dalhousie has two co-ed apartment buildings which are open to students in graduate programmes. Located on University Avenue, on the main campus, the buildings include bachelor, one and two-bedroom apartments and accommodate a total of 20 students.

Each apartment has a living area and kitchen facilities with a fridge, stove and sink, a full bathroom and ample cupboard space but is otherwise unfurnished. A laundromat is located in the neighbourhood. Heat and hot water are included in the rent.

Residence Houses

Dalhousie also has 13 residence houses, five of which are now co-ed. All were once single family homes, and have their own kitchens, living rooms and bathrooms. The character of these homes has been maintained as much as possible. The houses are all on campus. Although they are generally occupied by students in graduate programmes or professional schools, a few of the 90 spaces are reserved for undergraduates.

Two of the houses are designated as 24-hour quiet areas for students who want a particularly quiet environment in which to live and study. One of the houses is designated as a French house, reserved for male and female students who would like to live in a French-speaking environment.

All of these houses have both single and double rooms, each with a bed, dresser, study desk, lamp and chair. Linen, cooking utensils and small appliances are not provided. Students share kitchen and living room areas which are maintained by the cleaning staff. A trained senior student acts as a house coordinator and liaises with the Howe Hall Residence Co-ordinator and Facility Manager to provide administrative and resident-related services.

Living Off-Campus

Dalhousie's Off-Campus Housing Office assists students who do not want to live on campus or who have been unable to find a place in residence or in University apartments and houses. Located in the Student Union Building, this office is designed to help students find privately-owned accommodation.

The Off-Campus Housing Office provides centralized information on available housing in the Halifax metro area, including apartments, rooms, condos and houses. Up-to-date computerized printouts of these listings are available for viewing as well as telephones for calling landlords and material such as maps and transit schedules.

Although the housing staff cannot arrange, inspect or guarantee housing, they will do everything they can to help students find accommodation that is pleasant, inexpensive and close to campus.

Because of the low vacancy rate in Halifax, it is advised that students start looking for off-campus housing well ahead of the academic year.

General Information

- Application forms must be accompanied by an application fee and a deposit in Canadian funds, payable to Dalhousie University. Deposit amounts are listed on the application form.
- Acceptance into an academic programme does not mean that application for a place in residence has been approved.
- To live in any of the University-owned buildings, students must maintain full-time status at Dalhousie throughout the academic year.

For further information on living at Dalhousie, or for additional copies of the residence application form, do not hesitate to contact:

Director of Housing and Conferences
Room 122, Student Union Building
Dalhousie University
Halifax, N.S. B3H 4J2
(902) 494-3365

For Howe Hall, Eliza Ritchie Hall, Shirreff Hall, Glengary Apartments and the Residence Houses:

Residence Office
Howe Hall
Dalhousie University
6230 Coburg Road
Halifax, N.S. B3H 4J5
(902) 494-1054

For Fenwick Place and Co-ed Apartment Units:

Accommodation Office, Fenwick Place
Dalhousie University
6599 Fenwick Street
Halifax, N.S. B3H 1R2
(902) 494-2075

For Off-Campus Housing Assistance:

Off-Campus Housing Office
Student Union Building, Room 120
Dalhousie University
6136 University Avenue
Halifax, N. S. B3H 4J2
(902) 494-3831

Instructional Development and Technology

The Office of Instructional Development and Technology (OIDT) is mandated to initiate, lead, and coordinate activities which encourage reflection upon and improvement in teaching and learning at Dalhousie.

Workshops - To fulfill this primary goal, the OIDT develops and presents a variety of sessions and workshops to faculty and teaching assistants at Dalhousie. Annual events include the Orientation to teaching at Dalhousie for new faculty and the Graduate Teaching Assistant Orientation for new GTAs. During the year, workshops are presented monthly or bi-monthly and are open to the Dalhousie community. The OIDT also cooperates with other universities in Nova Scotia to disseminate information about teaching improvement.

Publications - Focus on University Teaching and Learning, the OIDT newsletter, is published five times a year. Three other publications - Recording Teaching Accomplishment: A Dalhousie Guide to the Teaching Dossier; University Teaching and Learning: An Instructional Resource Guide for Teaching Assistants At Dalhousie University;

Learning Through Writing: A Compendium of Assignments and Techniques - may be purchased or borrowed from the OI.D.T. The extensive bibliography of materials available for loan includes both print and video resources on topics related to teaching. These may be borrowed by faculty, teaching assistants, and students.

Instructional Media Services - To complement its primary goal, the OI.D.T. also has responsibility for the provision of instructional media services to the campus (excluding Medicine and Dentistry). These services include audiovisual equipment, videotaping, photography, and graphics. Facilities for borrowing discipline-specific audio and video tapes are located in the Learning Resource Centre in the basement of the Killam Library.

Distance Education - Through its support for the development of distance education courses, primarily in the Health Professions, the OI.D.T. assists Dalhousie to respond to the needs of those who wish to upgrade their education. General inquiries about these courses should be directed to the Registrar's Office.

Information, teaching resources, and private consultations are available through the Office of Instructional Development and Technology. The Office is located in the Killam Library Courtyard (494-1622).

International Student Centre

The International Student Centre provides services and programmes for Dalhousie's students from around the world. It is a resource and activity post for international students, and is dedicated to ensuring that international students make the most of their stay in Canada.

The Centre provides information and advice on financial, legal, immigration, employment and personal matters and acts as a referral point to other services on campus. It organizes reception and orientation programmes that assist international students in adjusting to the new culture and in achieving their educational and personal goals. A variety of social, cultural and educational programmes are also held throughout the year. The Centre coordinates activities that facilitate fostering of relationships with the university and city communities.

The Centre has a lounge where students can meet and a reading room where students can study or read international publications. For further information, contact: The Advisor, International Student Centre, Dalhousie University, Halifax, N.S., Canada, B3H 3H6 or phone (902) 494-7077.

Libraries

The Dalhousie University Library System is organized to accommodate the needs of the undergraduate teaching programmes, graduate and faculty research projects, and professional schools. The system is made up of the following components: the Killam Memorial Library - Humanities, Social Science, and Sciences, the Sir James Dunn Law Library, and the Kellogg Health Sciences Library.

As of April 1, 1993, the total Dalhousie University Library System holdings include over 1,456,500 volumes of books, bound periodicals, documents, and bound reports, 465,500 microfiche microcards, maps, and other media. Approximately 9,000 serials titles are currently received, and dead title holdings number over 11,000.

Dalhousie libraries participate in Novanet, a network which shares a single automated online catalogue of the holdings of the member libraries (Mount Saint Vincent University, Nova Scotia College of Art & Design, Saint Mary's University, Technical University of Nova Scotia, University College of Cape Breton, University of King's College, and the Atlantic School of Theology). Users borrow from Novanet libraries upon presentation of their University ID card.

Ombud's Office

The Dalhousie Ombud's Office offers assistance and advice to students experiencing problems while at Dalhousie, including difficulties associated with finances, academics, or accommodations. The Ombud's Office can help students resolve particular grievances and also attempts to ensure that existing policies are fair and equitable. Jointly funded by the University and the Dalhousie Student Union, the Ombud can provide information and direction to students on any University-related complaint. Students retain full control over any action taken on their behalf by the Ombud's Office, and all inquiries are strictly confidential.

The Dalhousie Ombud's Office is located in the Student Union Building, Room 403. Regular office hours are posted on the door at the beginning of each Semester. The Ombud's Office can also be reached by calling 494-6583. In no one is available to take a call, students are requested to leave a message on the answering machine.

Registrar's Office

The office is responsible for high school liaison, admissions, awards and financial aid, registration, maintenance of student records, scheduling and coordinating formal examinations, and convocation. Of greater significance to students, however, is the role played by members of the staff who provide

information, advice, and assistance. They offer advice on admissions, academic regulations and appeals, and the selection of programmes. In addition, they are prepared to help students who are not quite sure what sort of assistance they are looking for, referring them as appropriate to departments for advice about specific major and honours programmes or to the office of Student Services or to specific service areas such as the Counselling Services Centre.

Among the staff are people with expertise in financial aid and budgeting who are available for consultation.

The summer advising programme for first year students in Arts and Social Sciences, Management, Engineering and Science is directed from the Registrar's Office. Prospective students may arrange a tour of the campus through this office.

The fact that the Registrar's Office is in contact with every student and every department means that it is ideally placed to provide or to guide students and prospective students to the source of the advice or assistance they need.

Services for Students with Disabilities

Dalhousie University is committed to providing an accessible environment in which members of the community can pursue their educational goals. Ongoing efforts consistent with a reasonable and practical allocation of resources are being made to improve accessibility and provide special services.

The Advisor provides support and advocacy for students with disabilities. In co-operation with faculty, staff, and other student services at the university, the Advisor endeavours to provide appropriate support services as needed by the student. Students are encouraged to contact the Advisor as early as possible, (902) 494-2836.

Student Advocacy Service

The Student Advocacy Service was established by the Dalhousie Student Union and is composed of qualified students from the University. The main purpose of the Service is to ensure that the student receive the proper information when dealing with the various administrative boards and faculties at Dalhousie. An Advocate may also be assigned to assist students with appeals or in a disciplinary hearing for an academic offence. Our goal is to make the often unpleasant experience of challenging or being challenged by the University less intimidating.

The Advocates may be contacted through:
Student Advocacy Service
Room 402
Dalhousie Student Union Building

Telephone: (902) 494-2205

Student Clubs and Organizations

Students seeking information on clubs and societies should call the GET INVOLVED LINE 494-3527.

Extracurricular activities and organizations at Dalhousie are as varied as the students who take part in them.

Organizations range from small informal groups to large well organized ones; they can be residence-based, within faculties, or university-wide.

Some are decades old with long traditions, others arise and disappear as students' interests change.

The Student Handbook publishes a list of clubs, societies and organizations, and every fall new students are encouraged to select and participate.

Student Employment Centre

The main function of the Dalhousie Student Employment Centre is to aid Dalhousie students in their efforts to obtain permanent, summer, or part-time employment. It is located on the fourth floor of the Student Union Building, and operates Monday through Friday from 9:00am to 4:30pm. Telephone: (902) 494-3537.

The Employment Centre also has useful information on résumé preparation, interview techniques, and job-search skills.

Interviews for graduating students are arranged with over 80 employers who visit Dalhousie each year (mid-October to mid-November are usually the busiest months).

Summer employment listings are received as early as October, while new part-time jobs are posted daily for both "on campus" and "off campus" locations.

Student Services

Located in Room 410 of the Student Union Building, Student Services provides a point of referral for any student concern. The Vice-President is the chief Student Services officer and coordinates the activities of Athletics and Recreational Services, the Dalplex, the Bookstore, Student Counselling and Psychological Services, Health Services, Housing and Conference Services, Office of the Registrar, Writing Workshop and the Ombud Office. Student Resources including Black Student Advising, Advising for Students with Disabilities, Chaplaincy, International Student Centre and the Student Employment Centre are coordinated out of this office as well. Students who experience difficulties with their academic programmes or who are uncertain about educational goals, major selection, workload management, social or

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personal matters affecting their academic performance, inadequate study skills, or conflicts with faculty and regulations can seek the assistance of the Academic Advisors in the Vice-President's office.

University Bookstore

The University Bookstore, owned and operated by Dalhousie, is a service and resource centre for the university community and the general public. The Bookstore has all required and recommended texts, reference books and supplies, as well as workbooks, self help manuals and other reference material. The general book (trade) department has on of the largest selections in the city, including classics, bestsellers, new releases, and books by Dalhousie authors.

The Health Sciences department has the largest and most complete medical book section in Atlantic Canada, with over 2000 titles in stock. Thousands of other titles are specifically ordered annually, and the department ships out books to medical personnel and hospitals throughout the region.

The Stationery department carries all necessary and supplementary stationery and supplies, including scientific and engineering items. The Campus shop carries gift items, mugs, clothing and crested wear, cards, Jewellery, posters, class rings, backpacks, novelties, briefcases, and general University paraphernalia. A Special Order department is available to students and is located in the office area.

The Bookstore is situated on the lower level of the Student Union Building on University Avenue, and is open year round, Monday to Friday.

University Computing and Information Services

University Computing and Information Services (UCIS) provides computing and communication services for students, faculty, and staff for instructional, research, and administrative purposes. It is responsible for all centrally managed computing and communications facilities.

UCIS manages a campus-wide communications network which interconnects office systems, laboratories systems, departmental computers, and central facilities. This network is connected to the Nova Scotia Technology Network, which in turn is connected to the national network CA*net which has worldwide connections. UCIS is also responsible for University telephones.

Central computer systems include digital VAX4500 which is used primarily for academic purposes; an Alliant FX/2B16, which is a very powerful parallel processing

system used for research; an IBM 4381 supporting the university's central administrative systems; and a SUN minicomputer providing UNIX services for undergraduates. UCIS also manages numerous micro computer teaching laboratories which are situated throughout the campus, including laboratories in the School of Business, Engineering, English, Sociology, Law, Physics, Biology, Earth Sciences, Dentistry, Psychology, and at the central Computer Centre in the basement of the Killam Library.

All students may have access to these computing facilities on an individual basis or in conjunction with the classes that they take.

UCIS also manages the campus computer store (PCPC); provides short, non-credit computer related courses in conjunction with Henson College; and offers a hardware maintenance service for micro-computers.

University Health Services

The university operates an out-patient service, in Howe Hall, at Coburg Road and LeMarchant Street staffed by general practitioners and a psychiatrist. Further specialists' services are available in local hospitals and will be arranged through the Health Service when indicated. All information gained about a student by the Health Service is confidential and may not be released to anyone without signed permission by the student.

Appointments are made during the clinic's open hours, from 9 a.m. to 10 p.m. in the event of emergency, students should telephone the University Health Service at 494-2171 or appear at the clinic in person. The university maintains health services on a 24-hour basis with a physician on call.

All students must have medical and hospital coverage approved by the Health Service. All Nova Scotia students are covered by the Nova Scotia Medical Services Insurance. All other Canadian students must maintain coverage from their home provinces. This is especially important for residents of any province requiring payment of premiums. All non-Canadian students must be covered by medical and hospital insurance prior to registration. Details of suitable insurance may be obtained from the University Health Service prior to registration. Any student who has had a serious illness within the last 12 months, or who has any chronic medical condition, should contact and advise the Health Service, preferably with a statement from the doctor.

The cost of any medication prescribed by a physician is recoverable under a prepaid drug plan administered by the Student Union.

Writing Workshop

The Writing Workshop programme recognizes that students in all disciplines are required to write clearly to inform, persuade, or instruct an audience in term papers, laboratory reports, essay examinations, critical reviews and more. This English language resource centre offers classes in language and writing, a tutorial service, guidelines for acceptable standard language usage, and provides information about sources for reference. For more information about the Writing Workshop, please call 484-3379.

Financial Aid

General Information

Please note that the contents of this section are subject to change without notice.

The University reserves the right to publicize the recipients of merit awards.

Government Student Loans

Canada Student Loans Plan: Canadians, other than Quebec residents, are to apply for governmental assistance to the appropriate agency in that province or territory in which the applicant is a bona fide resident. The addresses for Canada Student Loan authorities of those provinces and territories participating in the Plan are listed below:

Alberta:

Alberta Students' Finance Board
10th Floor, Baker Centre
10025-108 Street
Edmonton, Alberta
T6J 1G7
(403) 427-2740

British Columbia:

Student Services Branch
Ministry of Advanced Education,
Training and Technology
2nd Floor, 1108 Cook Street
Victoria, British Columbia
V8V 3Z9
(604) 387-6100/6101

Manitoba:

Student Financial Assistance Branch
Manitoba Education and Training
Box 6, 693 Taylor Avenue
Winnipeg, Manitoba
R3M 3T9
(204) 945-6321/6322

New Brunswick:

Student Services Branch
Department Of Advanced Education and
Training
P.O. Box 6000
Fredericton, New Brunswick
E3B 5H1
(506) 453-2577
1-800-667-5625
(Atlantic Provinces, Ontario and Québec only)

Newfoundland:

Department of Education
Student Aid Division
Thompson Student Centre
Memorial University of Nfld.
St. John's, Newfoundland
A1C 5S7
(709) 729-4235/5849

Northwest Territories:

Manager-Student Services

Department of Education
Government of the Northwest Territories
Yellowknife, Northwest Territories
X1A 2L9
(403) 873-7190
or
1-800-661-0793

Nova Scotia:

Student Aid Office
Department of Advanced Education and Job
Training
P.O. Box 2290, Station M
Halifax, Nova Scotia
B3J 3C8
(902) 424-8420
1-800-565-8420
(Street location: Trade Mart Building 2021
Brunswick at Cogswell Streets Halifax, N.S.)

Ontario:

Student Support Branch
Ministry of Colleges and Universities
P.O. Box 4500
Thunder Bay, Ontario
P7B 6G9
(807) 343-7260

Prince Edward Island:

Student Aid Office
Department of Education & Human Resources
P.O. Box 2000
Charlottetown, Prince Edward Island
C1A 7N8
(902) 368-4640

Saskatchewan:

Student Financial Assistance Branch
Saskatchewan Education
1855 Victoria Avenue
Regina, Saskatchewan
S4P 3V5
(306) 787-5620

Yukon Territory:

Students' Financial Services
Department of Education
P.O. Box 2703
Whitehorse, Yukon Territory
Y1A 2C6
(403) 667-5310
or
(403) 667-5929

These authorities also administer provincial bursary and/or loan plans in conjunction with the Canada Student Loan, if applicable.

The Province of Québec has its own student loan and bursary plans which are open to its residents:

Québec:

Residents of Québec Province are to apply to:
Ministère de l'enseignement supérieur et de la
Science
Direction générale de l'aide financière aux
étudiants,

1033, rue de la Chevrotière
Québec, Québec
G1R 5K9
(418) 643-3760
(514) 864-4505 (24-hour automated service)

Applicants for funding under either the CSL or QSL plans are strongly urged to make early application, i.e., by June.

Dalhousie Graduate Bursaries

Students who find themselves in financial difficulty due to unforeseen expenses may apply for Dalhousie Graduate Bursary funds. Applications are available from the Faculty office and completed forms may be submitted to that office at any time.

All graduate students currently registered in a degree programme are eligible to apply.

General Information about Bursaries

It should be noted that Canada Student Loans (with or without provincial bursaries and/or loans) are expected by provincial authorities to meet the financial deficiencies of the students and that bursaries subsequently awarded by the University must be reported and are liable to be deducted (in part or in whole) from the amounts originally allocated under the Canada Student Loan Plan or provincial aid programmes.

Government Notification

Holders of Dalhousie University bursaries should note that the University is required, upon written request, to report its award winners to the respective Provincial Student Aid Authority.

Fees

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Student Accounts Office

The Student Accounts Office is located on the basement level of the Arts & Administration building.

Address: Dalhousie University, Student Accounts (Financial Services), Room 29 Arts & Administration Building, Halifax, Nova Scotia, B3H 4H6
Telephone: (902) 494-3998
Fax: (902) 494-1534
Office Hours: 10:00 - 4:30 Monday to Friday (or by appointment)

NOTE: All the regulations in this section may not apply to Graduate Students. Please refer to the "Faculty of Graduate Studies" section of the Graduate Studies Calendar.

This section of the Calendar outlines the University Regulations on academic fees for both full-time and part-time students enrolled in programmes of study during the fall, winter and regular sessions. A section on University residence and housing fees is also included. Students wishing to register for the Spring or Summer session should consult the Summer School Calendar for information on registration dates and fees. Should you have any questions regarding these regulations or on the payment of fees generally, please contact the Student Accounts Office.

All fees are subject to change by approval of the Board of Governors of Dalhousie University. An Academic Fee Schedule will be available in April. A list of miscellaneous fees is included in Table I.

Students should make special note of the registration deadlines contained in the calendar on pages 1 & 2. Students should also be aware that additional fees and/or interest will be charged when deadlines for payment of fees as contained herein are not met.

Mail Registration

For the convenience of students, registration material and non-cash payments are accepted by mail. Registrations with cheques post-dated to September 9, 1994 will also be accepted. Please allow sufficient time to ensure that material sent by mail is received on or before the specified dates. Please note that after August 26th we are unable to retrieve post-dated cheques.

General Regulations

The following general regulations are applicable to all payments made to the University in respect of fees.

- Fees must be made in Canadian funds by cash or negotiable cheque.
- If payment is by cheque and returned by the bank as non-negotiable, there will be an additional fee of \$20.00 and the account will be considered unpaid. Furthermore, if the bank returns a cheque that was to cover the first payment of tuition, the student's registration will be cancelled and, if permitted to re-register, a late fee will apply.
- Invoices for fees will not be issued. The receipt obtained from Student Accounts each time a payment is made will show the date and amount of the payment.
- Cash, certified cheque, or money order is required for payment of any account in arrears beyond the current academic year.

Admission Deposit

A non-refundable deposit of \$200.00 is required by all new students in Specified Limited Enrolment Programmes within three weeks of receiving an offer of a place at Dalhousie. (Please refer to Table II for the definition of Specified Limited Enrolment Programmes.) Further information on the regulations governing the refund of admission deposits is contained in the section below on Changes, Refunds and Withdrawals (page 25):

Foreign Students

Students registering at Dalhousie University who are not Canadian citizens or permanent residents are required to pay an additional fee referred to as a "Differential Fee". Students registering in an existing programme will pay \$1700.00, while students registering for the first time in their programme of study will pay \$2700.00. There is a proportionate charge for part-time foreign students. The differential fee is payable with the first instalment of fees each year.

Academic Fees

Academic fees are comprised of:

- (a) the tuition fee;
- (b) an incidental fee comprised of Student Union, Society and Athletic fees.

The complete 1994-95 academic fee schedule is not yet available. The Academic Fee Schedule shows the 1994-95 approved tuition and athletic fees, and the 1993-94 Student Union and Society fees. Once all fees are approved for 1994-95 the complete fee schedule will be made available. The official schedule will be included in the registration packages.

For purposes of this section of the Calendar, a full-time undergraduate student is one who is registered for the regular session for more than three full credits (21 credit hours or more), or, if registered for only one term, for more than three one-half credits.

Changes from full-time to part-time and part-time to full-time status often have cost implications beyond what the student expects (see table VI). Any part-time student planning to add classes, or full-time students who are considering part-time status (dropping classes) should consult with Student Accounts to determine the impact these changes will have on the fees assessed.

Students registered in more than one programme are required to pay separate academic fees for each programme. Full-time students taking classes not credited towards their degree or programme will be required to pay additional fees for these classes.

Registration

The final step in registration is the payment of fees. A student is considered registered only after financial arrangements have been made with Student Accounts.

All students:

- a) must submit to the Student Accounts Office on or before the specified registration dates the first instalment of academic fees unless they are receiving a scholarship, fellowship, Canada Student Loan, a fee waiver, or their fees are paid by external organizations;
- b) those holding external scholarships or awards paid by or through Dalhousie University must provide at registration documentary evidence of the scholarship or award;
- c) those whose fees are to be paid by a government or other agency must provide a signed statement from the organization at registration. (Please note: upon request, account status information will be made available to the sponsor.)
- d) those whose fees are to be paid by Canada Student Loan must indicate such on the appropriate section of the registration form. (Please note: Students registering by Canada Student Loan must negotiate the Loan or provide the letter of declination issued by Student Aid by September 26. A late registration fee and/or interest may be charged after September 26. Failure to comply or arrange an alternative method of payment may result in deregistration).

- e) those whose fees are paid by a Dalhousie University staff tuition fee waiver must present the approved waiver form and pay applicable incidental fees at time of registration.
- f) those who are Canadian citizens or permanent residents, 65 years of age or over and enrolled in an undergraduate degree programme will have their tuition fees waived but must pay applicable incidental fees.

The completion of the registration process shall be deemed to be an agreement by the student for the payment of the balance of fees unless written notification to withdraw is submitted to the Office of the Registrar. Students withdrawing in person must attend the Office of the Registrar and the Student Accounts Office before the withdrawal process is official. Students in Graduate and Professional programmes wishing to withdraw should initiate formal action to withdraw at the office of the appropriate Dean.

Payment of Academic Fees

The complete 1994-95 academic fee schedule is not yet available. The Academic Fee Schedule shows the 1994-95 approved tuition and athletic fees, and the 1993-94 Student Union and Society fees. Once all fees are approved for 1994-95 the complete fee schedule will be made available. The official schedule will be included in the registration package.

The payment of academic fees will be received at the Student Accounts Office located on the basement level of the Arts & Administration building.

Fees paid by mail must be received by Student Accounts on or before the deadlines specified below in order to avoid late payment and/or delinquency charges.

The following regulations apply to the payment of academic fees. For further information on regulations regarding withdrawal of registration, please refer to the Changes, Refunds and Withdrawals section. (page 25)

- a) Should students prefer to pay in two instalments, the first instalment is due on or before September 9 and the second instalment is due January 31, or the first subsequent working day.
- b) Students registering for either the fall or winter terms only must pay fees on or before September 9 and January 3, respectively.
- c) Scholarships or awards paid by or through Dalhousie University will be applied to tuition and residence fees.

- d) When Canada Student Loan, Provincial Loan or co-payable bursary is presented at the Student Accounts Office, any unpaid academic, residence fees and/or Temporary Loans will be deducted.
- e) Fees cannot be deducted from salaries paid to students who are employed at Dalhousie University.
- f) Subsequent to August 26, 1994 we are unable to retrieve post-dated cheques.
- g) Any payments received will first be applied to overdue accounts.

Audit Classes

Full-time students may audit classes which are related to their programmes without additional fees. Part-time students auditing a class pay one-half of the regular tuition. In such cases, the student is required to complete the usual registration process.

A student registered to audit a class and during the session wishes to change to registration for credit must receive approval from the Registrar and pay the difference in class fees plus a transfer fee of \$25.00. This must be done on or before the last day for withdrawal without academic penalty. The same deadline applies for a change from credit to audit.

Late Registration

Students are expected to register on or before the specified registration dates. Students wishing to register after these dates must receive the approval of the Registrar and pay a late registration fee of \$50.00. This fee is payable at the time of registration and will be in addition to the first instalment of fees.

Changes, Refunds and Withdrawals

Please consult Student Accounts for all financial charges and the Office of the Registrar for Academic regulations. Refer also to the Academic Fees section (page 26 and Table III, IV and VI.)

A refund of fees will not be granted unless the following conditions are met:

NON-ATTENDANCE AT CLASSES DOES NOT CONSTITUTE WITHDRAWAL.

- a) Written notification of withdrawal must be submitted to the Office of the Registrar.
- b) After the approval of the Registrar has been obtained, (in the case of graduate and professional school, the appropriate Dean) application for a refund or adjustment of fees should be requested from the Student Accounts Office immediately. For students withdrawing in person, the withdrawal process is official on the date that application for withdrawal is made at the Student Accounts Office. Therefore, the calculation of the

refundable portion of fees will be based on this date. (Retroactive withdrawals will not be permitted.)

- c) No refunds will be made for 30 days when payment has been made by personal cheque.
- d) A student who is dismissed from the University for any reason will not be entitled to a refund of fees.
- e) Refunds will not be made to a student who has paid an admission deposit for a Specified Limited Enrolment Programme.
- f) In any Specified Limited Enrolment Programme (See Table II and IV), the first instalment of fees is not refundable after the first day of classes except on compassionate grounds (eg. illness).
- g) Refunds will be made to the Bank if a student has received a Canada or Provincial Student Loan.
- h) Refunds will be prorated on fees paid by Scholarships.
- i) A valid Dalhousie University ID must be presented in order for the student to receive a refund cheque.

Dates for Refund - Regular Session

A student withdrawing or changing a class after September 26 will be charged full incidental fees and may receive a refund of tuition fees on a proportional basis. Please refer to Tables III and IV.

A student withdrawing or changing a class in January will be charged the full first instalment of fees.

A student changing from full-time to part-time status before February 1, must have the approval of the Registrar and will then be eligible for an adjustment in tuition fees for the remainder of the session.

No refunds will be made to students withdrawing after January 31.

Dates for Refund - First Term

A student withdrawing or changing a class after September 26 will be charged full incidental fees and may receive a refund of tuition fees on a proportional basis. Please refer to Tables III and IV.

No refunds will be made to students withdrawing after October 24.

Dates for Refund - Second Term

A student withdrawing or changing a class after January 3 will be charged full incidental fees and may receive a refund of tuition fees on a proportional basis. Please refer to Tables III and IV.

No refunds will be made to students withdrawing after February 13.

Dates for Refund - Commerce Co-op Summer session

A student withdrawing after May 17 will be charged the BComm Co-op fee and may receive a refund of tuition on a proportional basis. Please contact Student Accounts for complete details.

No refunds will be made to students withdrawing after June 20.

Delinquent Accounts

Accounts are considered delinquent when the balance of fees has not been paid by September 26 (January 3 or the first subsequent working day, for students registered for the winter term only). Where payment in two instalments is permitted, the remaining balance is due January 31 or the first subsequent working day.

Interest at a monthly rate set by the University will be charged on delinquent accounts for the number of days overdue.

At the time of printing the monthly rate of interest is 0.75% (9% per annum).

A student whose account is delinquent for more than 30 days will be denied University privileges including access to transcripts and records of attendance and Dalplex. The student will be reinstated upon payment of the fees outstanding, the arrears interest and a \$50.00 reinstatement fee. Students will not be permitted to register for another session until all outstanding accounts are paid in full. Subsequently, if the bank returns the cheque, the student may be deregistered.

Students whose accounts are delinquent on March 15 may not be eligible, at the sole discretion of the University, for graduation at the May convocation. For October or February graduation the dates are Sept. 1 and Jan. 1 respectively.

Accounts which become seriously delinquent may be placed on collection or further legal action may be taken against the individual. Students will be responsible for charges incurred as a result of such action.

Canada Student Loans

Students planning to pay the first instalment of fees from a Canada Student Loan should apply to their Province in April or May so that funds will be available in time for registration. The University will deduct fees/charges from the loan at the time of endorsement. Please contact the appropriate provincial office to determine eligibility as well as course load requirements.

Provincial Bursaries and University Scholarships

These cheques are distributed by the Student Accounts Office. Any unpaid Fees and/or Temporary Loans along with charges, if applicable, are deducted and a University cheque will be issued within one week of endorsement for any balance remaining. A valid Dalhousie University ID and Social Insurance Number must be presented in order to receive these cheques. Please contact the appropriate provincial office to determine eligibility as well as course requirements for Provincial Bursaries. For more information on Student Loans, Bursaries or Scholarships inquiries should be directed to the Awards Office located on the first floor of the Arts & Administration building, Room 125. Telephone (902) 494-2416.

Income Tax Credit from Academic Fees

The amount of academic fees constituting an income tax credit is determined by Revenue Canada, Taxation. Currently, the tax credit for students is calculated by deducting the following from Academic Fees: Student Union fees, Society fees, and Athletic fee. Seventeen percent (17%) of the remaining balance constitutes the tax credit.

A special income tax certificate will be available at Student Accounts annually no later than February 28. Replacement tax receipts will be provided within 3 weeks of the request for a charge of \$5.00 per receipt. On request, a replacement tax receipt will be provided within 2 days for a charge of \$10.00 per receipt.

Identification Cards

All full and part-time students should obtain identification cards upon registration and payment of proper fees. If a card is lost, a fee of \$15.00 is charged. Regular academic year ID cards remain valid until the beginning of the following academic year (including summer session).

Laboratory Deposits

A deposit for the use of laboratory facilities in certain departments is required. The deposit is determined and collected by these departments. Students will be charged for careless or wilful damage regardless of whether or not a deposit is required.

Athletic Fee

Membership at Dalplex for 1994-95 is included in the athletic fee for all full-time students at Dalhousie and all part-time students at Dalhousie taking a minimum of three full credit classes. Membership in

Dalplex for ALL other part-time students at Dalhousie may be obtained at the office of Dalplex at the prevailing rates.

Student Union Fee Distribution

Every student registered at Dalhousie is automatically a member of the Student Union and is therefore required to pay a Student Union fee as part of their registration procedure. These fees have been approved by students in referenda and, along with other revenue of the Union, are allocated each year by the Student Council in a budget.

What follows is the breakdown of how Student Union fees are spent. If you have any questions or comments please contact the Student Union Office located in Room 222 of the S.U.B.

Telephone No. 494-2148

1993 - 94 Student Union Fee

(For Information Only)

Full-Time (3 credits or more)	General Income
General Operations	\$41.15
Student Health Plan Insurance	44.00
Contributions to DSU	
Capital Campaign	15.00
Capital Payback for	
Student Union Building	10.00
C K D U - FM	9.00
Yearbook Fee	5.00
Canadian Federation of	
Students' Membership	4.00
Students' Union of	
Nova Scotia Membership	2.00
Course Evaluation	1.00
South African Trust Fund	1.00
Public Interest Research Group	4.00
WUSC	.50
Women's Centre Fund	2.00
Accessibility Fund	1.75
TOTAL	\$141.00

Table I

Miscellaneous Fees - Quick Reference

Fee	Amount	Payable To
Replacement Tax Receipt	\$5.00	Student Accounts
Priority Replacement Tax Receipt	\$10.00	Student Accounts
Late Registration	\$50.00	Student Accounts
Reinstatement Fee	\$50.00	Student Accounts
Returned Cheque	\$20.00	Student Accounts
Distance Education Fee, per class	\$100.00	Student Accounts
Admission Deposit	\$200.00	Registrar
Application Fee	\$30.00*	Registrar
Confirmation of Enrolment	\$5.00	Registrar
Late Graduation Application	\$50.00	Registrar
Letter of Permission per class - maximum \$50.00	\$10.00	Registrar
Reassessment Fee	\$25.00	Registrar
Replacement ID	\$15.00	Registrar
Transfer Credit Assessment	\$25.00	Registrar
Transcript	\$5.00	Registrar
Priority Transcript Fee	\$10.00	Registrar
FAX Fees		
Metro	\$5.00	Registrar
Canadian	\$10.00	Registrar
International	\$15.00	Registrar
Residence Application Fee	\$25.00	Residence

*Except for the following programmes which require payment of a \$50.00 application fee: Occupational Therapy, Pharmacy, Physiotherapy, Recreation, Social Work, Education (including all combined programmes) and all programmes in the Faculties of Medicine, Dentistry (including Dental Hygiene), Law, and Graduate Studies.

Table II

Limited Enrolment Programmes

- Master of Business Administration
- Master of Environmental Studies
- Master of Library and Information Studies
- Master of Public Administration
- Bachelor of Education
- All programmes in the following faculties:
 - Faculty of Dentistry
 - Faculty of Law
 - Faculty of Medicine
 - Faculty of Health Professions

Table III

Fee Refunds (Withdrawals)

All Faculties (except Specified Limited Enrolment Programmes), including Graduate Studies

Student Union Fee: Non-refundable after Sept. 26 (Second Term Jan 3)

Athletic Fee: Non-refundable after Sept. 26 (Second Term Jan 3)

Society Fee: Non-refundable after Sept. 26 (Second Term Jan 3)

BComm and Science Co-op Fees: Non-refundable after September 26 (Second Term Jan 3)

Differential Fee: Non-refundable after November 30

Tuition Fee: As follows:

Withdrawal Date	Regular Session	Graduate Students	Full-Time & Thesis	Full-Time & Thesis	Part-Time Students ³			
	Full-time ¹	Thesis Term Only	1st Term Only ²	2nd Term Only ²	A Class	B Class	C Class	R Class
Up to Aug 19	100%	100%	100%	100%	100%	100%	100%	100%
Aug 20 - Sept 26	95%	95%	95%	100%	95%	100%	95%	95%
Sept 27 - Oct 24	85%	85%	67%	100%	67%	100%	85%	85%
Oct 25 - Nov 15	70%	70%	0%	100%	0%	100%	70%	70%
Nov 16 - Dec 15	50%	50%	0%	100%	0%	100%	50%	50%
Dec 16 - Dec 31	50%	50%	0%	95%	0%	95%	50%	50%
Jan 1 - Jan 16	40%	40%	0%	95%	0%	95%	40%	40%
Jan 17 - Jan 31	40%	40%	0%	67%	0%	67%	40%	40%
Feb 1 - Feb 13	0%	0%	0%	67%	0%	67%	0%	0%
After Feb 13th	0%	0%	0%	0%	0%	0%	0%	0%

¹ Applicable to undergraduate students registered in regular session (Sept - Apr) taking more than three credits (21 credit hours or more). Applicable to graduate students with full-time and part-time status.

² Undergraduate students registered in one term only taking more than three one-half credit classes (more than 9 credit hours). Graduate students registered as "Thesis Only" for one term.

³ Applicable to undergraduate students registered in regular session (Sept - Apr) taking less than three and one-half credit classes (less than 21 credit hours). Undergraduate students registered in one term only taking three one-half credit classes or less (9 credit hours or less).

Table IV

Fee Refunds - Specified Limited Enrolment Programmes

Admission Deposit: Non-refundable

Student Union Fee: Non-refundable after Sept. 26 (Second Term Jan 3)

Athletic Fee: Non-refundable after Sept. 26 (Second Term Jan 3)

Society Fee: Non-refundable after Sept. 26 (Second Term Jan 3)

Tuition Fee: As follows:

Withdrawal Date	Regular Session	First Term Only	Second Term Only
Up to August 19	100%	100%	100%
August 20 - September 12	95%	95%	100%
September 13 - December 15	40%	0%	100%
December 16 - January 3	40%	0%	95%
January 4 - January 31	40%	0%	0%
After Jan. 31	0%	0%	0%

ACADEMIC FEES - 1994-95

The complete 1994-95 academic fee schedule is not yet available. In order to provide some indication of the fee requirements, the schedule below shows the 1994-95 approved tuition and athletic fee as well as 1993-94 incidental fees. Once all fees are approved for 1994-95, a complete schedule showing total academic fees and the minimum instalments will be made available. The official schedule will be included in the registration package.

	Approved for 1994-95		(for information only) 1993-94 figures		Approved for 1994-95		(for information only) 1993-94 figures		
	Tuition	Athletic	DSU fee	Society	Tuition	Athletic	DSU fee	Society	
Law					Science (including Interdisciplinary Studies)				
Full-time	3,760	50	141	46	Doctorate				
Part-time Year 1 & 2 (4)	1,880		71	23	Full-time	3,490	50	141 24	
Legal Aid Clinics (3)	1,590	50	141	46	Masters				
Term after Legal Aid (3)	2,180	50	141	46	Full-time	3,360	50	141 24	
LL.M	3,895	50	141	24	Part-time	1,120	-	60 12	
JSD	4,030	50	141	24	Health Professions (except MSW, Pharmacy & Human Communication Disorders)				
Medicine					Masters				
MD	4,145	50	141	30	Full-time	3,615	50	141 24	
Postgrad Interns & Residents	895	50	-	-	Part-time	1,205	-	60 12	
Dentistry (5)					Masters of Social Work				
DDS (1)	4,145	50	141	70	Full-time	3,250	50	141 25	
Masters - Oral Surgery	4,290	50	141	24	Part-time	1,085	-	60 13	
Dental Hygiene (2)	3,360	50	141	35	Pharmacy & Human Communication Disorders				
Graduate Studies					Doctorate				
Arts & Social Science					Full-time	3,910	50	141 24	
Doctorate					Masters				
Full-time	3,185	50	141	24	Full-time	3,790	50	141 24	
Masters					Part-time	1,260	-	60 12	
Full-time	3,055	50	141	24	Thesis Only - All Programmes				
Part-time	1,020	-	60	12	Full-time	700	50	141 24	
Education					Part-time	700	-	71 12	
Doctorate					Full-time Term	350	50	141 -	
Full-time	3,380	50	141	24	Part-time Term	350	-	71 -	
Masters					Qualifying Year, Visiting and Special Graduate Students				
Full-time	3,250	50	141	24	Full-time	3,055	50	141 24	
Part-time	1,055	-	60	12	Full-time Term	1,530	50	141 -	
Management (6)					Part-time				
Masters (except MBA and MEd) (6)					3 Credit Course	1,890	50	141 12	
Full-time	3,055	50	141	24	1 Credit Course	630	-	30 -	
Part-time	1,030	-	60	18	1/2 Credit Course	315	-	15 -	
Master of Business Administration (6)					See notes to fee schedule on the next page.				
Full-time	3,055	50	141	35					
Part-time	1,030	-	60	18					
Master of Environmental Studies (6)									
Full-time	3,360	50	141	24					
Part-time	1,120	-	60	12					

Notes

- (1) DDS requires Instrument fee (see dentistry section) and \$500 user fee payable with the first instalment.
- (2) Dental Hygiene requires user fee of \$250 payable with the first instalment of fees.
- (3) Students will pay student union, society, and athletic fees only once during the academic session.
- (4) Part-time law fees for year 3 and beyond are calculated using the credit hours taken divided by 31.50 credit hours and multiplied by the full-time law fee.
- (5) Candidates with advanced standing admitted to special programmes in D.D.S. and Dental Hygiene that meet Provincial Professional Qualifications are required to pay twice the tuition fee paid by students in the regular programme.
- (6) In 1994/95 students registered in the Master of Business Administration, Master of Public Administration, Diploma in Public Administration, Master of Library and Information Studies, and Master of Environmental Studies programmes may be required to pay auxiliary fees. Details of these fees will be included in the registration package which will be available in June, 1994.

Foreign Students - Students registering at Dalhousie University who are not Canadian citizens or permanent residents are required by Government regulation to pay an additional fee referred to as a "Differential Fee". Students registering in an existing programme will pay \$1,700.00, while students registering for the first time in their programme of study will pay \$2,700.00. There is a proportional charge for part-time foreign students. The differential fee is payable with the first instalment of fees each year. Graduate Students please see Section 4.5 of the Graduate Studies Calendar to determine the number of years a student is required to pay the differential fee.

Health Insurance - foreign students (1993-94 rates for information only)

Visa Students	Postgraduate Medicine
Single - \$ 540	Single - \$ 713
Married - \$ 1080	Married - \$ 1426

Audits - Students auditing a class pay one-half the regular tuition fee.

Changes, Refunds and Withdrawals - For all financial charges contact STUDENT ACCOUNTS, or please refer to Tables III & IV. Please note non-attendance at classes does not constitute withdrawal. Written notification of withdrawal is required. Refer also to Academic Fee section (page 26).

Table VI

Fee Adjustments (Class Changes)

Students contemplating a change in class activity should consider the financial implications as well as academic.

Please contact Student Accounts if you have any questions regarding changes, refunds or withdrawals.

Students changing to part-time³ from full-time¹ after September 27 will be assessed the same percentage of full-time fees as students withdrawing from the University. Please refer to the refund schedule above to determine the percentage. Fees for classes remaining will be assessed according to part-time fees less the percentage used to calculate the portion owing for full-time fees.

Part-time students³ dropping a class will be assessed the same percentage as part-time students³ withdrawing from the University. Please refer to the refund schedule above to determine the cost of classes being dropped. Additions are assessed according to the fee schedule:

- ¹ Applicable to undergraduate students registered in regular session (Sept - Apr) taking more than three credits (21 credit hours or more). Applicable to graduate students with full-time and part-time status.
- ² Undergraduate students registered in one term only taking more than three one-half credit classes (more than 9 credit hours). Graduate students who are registered as "Thesis Only" for one term.
- ³ Applicable to undergraduate students registered in regular session (Sept - Apr) taking less than three and one-half credit classes (less than 21 credit hours). Undergraduate students registered in one term only taking three one-half credit classes or less (9 credit hours or less).

Residence Fees

Please note the following are general statements. Given the diversity of residence facilities, available practices vary slightly from locale to locale.

Applications for accommodation in all residences are accepted on the understanding that the student will remain for the whole academic session.

When students who have chosen to live in residence and have secured a room withdraw from residence before the end of the school year, there are serious financial penalties.

Written notice to withdraw is always required by the Residence Co-ordinator or Fenwick Manager. Complete information on withdrawal from residence is available from the Residence Co-ordinator or Manager and is detailed in the residence lease agreement to be signed by all residence students. No refund will be made to any resident who is dismissed for misconduct. Discretionary power in exceptional circumstances remains with the Director of Housing and Conferences or designates. Residence Application Forms will not be distributed until the student has been accepted by the University for the coming session. To be considered for accommodation, a completed Residence Application Form and the \$125.00 residence application fee and deposit must be received. All residents, new and returning, who have accepted a room assignment, will be required to pay a second rent deposit of \$200.00 by July 1 to reconfirm the assigned space. Failure to make a second deposit by July 1 will result in automatic cancellation of room assignment. Once the \$200.00 deposit is paid it (along with the \$125.00) is not refundable; it is our guarantee of your intention to live in residence.

Deposits may be made by cheque, bank draft, or money order in Canadian funds and payable to Dalhousie University. No reservations will be held on post-dated or "NSF" cheques. Deposits cannot be deducted from scholarships, fellowships, or similar awards.

Payment of Residence Fees

Payment may be made in full at registration, or for an extra charge of \$10.00, in two instalments. Scholarships may be applied to residence charges only after tuition fees for the full session are paid. The first instalment must be paid in full by September 30. Interest at a monthly rate as set by the University will be charged on all accounts outstanding after September 30 and on any second instalment outstanding after January 31. At the time of printing the monthly rate of interest is 0.75% (9% per annum). The student will not be permitted to register for

another session until all accounts are paid in full. A student whose account is delinquent for more than 30 days will be denied university privileges including access to transcripts and records of attendance and Dalplex. The student will be reinstated upon payment of the fees outstanding, the arrears interest, and a \$50.00 reinstatement fee.

For Howe Hall, Eliza Ritchie Hall, Shirreff Hall, Glengary Apartments and the Residence Houses fees are paid at the Student Accounts Office. For Fenwick Place and Co-ed Apartment Units fees are paid at Fenwick Place.

Students should make an appointment as soon as possible with the Associate Director of Residence Life, Fenwick Manager, or the Supervisor of Student Accounts if they are having financial difficulties.

Regulations and Additional Charges

The room and board session is defined as being from the Wednesday in September before classes begin in the College of Arts and Science to the last day of regularly-scheduled examinations in the College of Arts and Science in April. Please note that, except at Fenwick Place, students must vacate the residence twenty-four hours after their last exam and that residences are closed over the Christmas holidays.

No reduction in the board charge will be made for meals not taken, except that a rebate of \$200.00 per month may be considered in the case of illness or other cause necessitating absence of four weeks or more.

In Fenwick Place the rental period is based on a 34-week period beginning on Labour Day. For more specific details on dates of semesters, students should contact the accommodations office at Fenwick Place.

In all other cases, an additional fee is payable by all residents who are registered in a Faculty where the academic session commences before or continues after the session of the College of Arts and Science. Special arrangements are to be made with the Residence Co-ordinator or Manager for accommodation for periods prior to or following the session as defined above.

RESIDENCE ROOM AND BOARD RATES 1993/1994 (1)

The residence term for Howe Hall, Shirreff Hall, Eliza Ritchie Hall, Glengary Apartments and the Residence Houses cover the time period from the Wednesday in September before classes begin in the College of Arts and Science to the last day of regularly-scheduled examinations in the College of Arts and Science in April (Christmas vacation excluded).

The residence term for Fenwick Place is as follows: First semester - Labour Day to December 31, 1994; and second semester - January 1, 1995, to April 30, 1995.

Note: Those students wishing to stay beyond the residence term may do so for a daily or weekly rate. Please contact the appropriate residence for details.

The student has two alternatives for payment after the first and second deposit have been paid:

- 1) Pay the balance in full by September 30th.
- 2) Pay the balance in two equal parts, first half by September 30th and the second half by January 31st, plus a \$10 service charge.

	FIRST DEPOSIT AND APP. FEE(3)	SECOND DEPOSIT AT JULY 15 (6)	BALANCE IF PAID IN FULL BY SEPT. 30	OR	PAY IN PART BY SEPT. 30	BALANCE DUE BY JAN. 31	TOTAL (4) (Includes \$10 Service Charge)
Howe Hall (2)							
Single Room	\$125	\$200	\$4,425	Or	\$2,215	\$2,220	\$4,760
Double Room	\$125	\$200	\$4,085	Or	\$2,045	\$2,050	\$4,420
Shirreff Hall and Eliza Ritchie Hall (2)							
Single Room	\$125	\$200	\$4,425	Or	\$2,215	\$2,220	\$4,760
Double Room	\$125	\$200	\$4,085	Or	\$2,045	\$2,050	\$4,420
Residence Houses							
Single Room	\$125	\$200	\$2,465	Or	\$1,235	\$1,240	\$2,800
Double Room	\$125	\$200	\$2,110	Or	\$1,055	\$1,065	\$2,445
Glengary Apartments							
Single Room	\$125	\$200	\$2,470	Or	\$1,235	\$1,245	\$2,805
Double Room	\$125	\$200	\$2,135	Or	\$1,070	\$1,075	\$2,470
Furnished Apts.	\$125	\$200	\$3,530	Or	\$1,765	\$1,775	\$3,865
Fenwick Place (4)							
2-Person (2-Bdrm)	\$125	\$200	\$3,295	Or	\$1,645	\$1,650	\$3,620
3-Person (3-Bdrm)	\$125	\$200	\$2,880	Or	\$1,490	\$1,490	\$3,305
4-Person (2-Bdrm)	\$125	\$200	\$2,830	Or	\$1,315	\$1,315	\$2,955

Meals Only - Special Rate For Session

2 Meals Per Day	\$1,905
3 Meals Per Day	\$1,840

Meals only plans may be purchased from Beaver Foods Office, Student Union Building.

Please note the following:

- (1) The above fees will be superseded on July 1, 1994, when the 1994/1995 residence fee schedule will be published.
- (2) Howe Hall, Shirreff Hall and Eliza Ritchie Hall rates include a residence council membership fee and a mandatory 21-meal plan.
- (3) For all residences the prepaid deposit of \$125 includes a \$25 non-refundable application fee.
- (4) At Fenwick Place \$100 of the \$125 prepaid is a damage deposit. See application form for details. The \$10 service charge is not applicable.
- (5) The second deposit due on July 15 is a \$200 non-refundable deposit to confirm the room.

University Regulations

General

1. The Senate is charged with the internal regulations of the University, including all matters relating to academic affairs and discipline, subject to the approval of the Governors. Within the general policies approved by Senate, academic requirements are administered by the Faculty concerned.
2. All students must agree to obey all the regulations of the University already made or to be made; in addition to the above University regulations, students must also comply with the regulations of the Faculty in which they are registered, and pay the required fees and deposits before entering any class or taking any examinations. Additionally, students are advised that this Calendar is not an all-inclusive set of rules and regulations but represents only a portion of the rules and regulations that will govern the student's relationship with the University. Other rules and regulations are contained in additional publications that are available to the student from the Registrar's Office and/or the relevant Faculty, Department or School.
3. For the purpose of admission to the University, the place of residence of a student is the place of domicile. This is normally presumed to be the place (country, province, etc.) where the parents' or guardian's home is located. That place remains unchanged unless the Registrar is satisfied that a place of residence is established elsewhere. No person under sixteen years of age is admitted to any class except by special permission of the Senate.
4. All students must report their local address while attending the University to the Office of the Registrar, on registration or as soon as possible thereafter. Subsequent changes must be reported promptly.
5. Students taking classes in another Faculty as part of an affiliated course must conform to the regulations of that Faculty with respect to these classes. It should be noted, however, that regulations pertaining to the degree programme are those of the "home" Faculty.
6. In the interests of public health in the University, students are encouraged to have a tuberculin test. This is compulsory for Dental, Dental Hygiene, Physiotherapy and Nursing students. Facilities for testing are arranged by the University Health Services.
7. Except for university purposes, transcripts, official, or unofficial, will be issued only on the request of the student on payment of the required fee. A student may receive only an unofficial transcript. Official transcripts will be sent at a student's request to other universities, or to business organizations, etc.
8. Students withdrawing voluntarily from the University should consult the individual faculty regulations and the Fees section of this Calendar.
9. When the work of a student becomes unsatisfactory, or a student's attendance is irregular without sufficient reason, the faculty concerned may require withdrawal from one or more classes, or withdrawal from the Faculty. If a student is required to withdraw from a Faculty such a student may apply to another Faculty. However, in assessing the application, previous performance will be taken into consideration.
10. Any graduating student who is unable to appear at the convocation is expected to notify the Registrar in writing prior to May 1, for Spring convocations (or October 1 for Fall convocations), giving the address to which the diploma is to be mailed. Students whose accounts are delinquent on May 1 will not receive their degree/diploma parchment nor their transcripts. For October or February graduation the dates are Sept. 1 and Jan. 1 respectively.
11. Students should be aware that certain classes at the University involve required laboratory work where radioactive isotopes are present and are used by students. Since there are potential health risks associated with the improper handling of such radioactive isotopes, Dalhousie University requires that, as a condition of taking a class where radioactive isotopes are to be used, students read and agree to comply with the instructions for the safe handling of such radioactive isotopes. In the event that students do not comply with the instructions for the safe handling of radioactive isotopes, students will receive no credit for the required laboratory work unless other acceptable alternatives are arranged with the instructor. In many cases, alternate arrangements are not possible and students should consider enrolling in a different class.

Release of Information About Students

1. Disclosure to students of their own records

- (a) Students have the right to inspect their academic record. An employee of the Registrar's Office will be present during such an inspection.
- (b) Students will, on submission of a signed request and payment of the appropriate fee, have the right to receive transcripts of their own academic record. These transcripts will be marked "ISSUED TO STUDENT". The University will not release copies of transcripts if students owe monies to the University.

2. Disclosure to Faculty, Administrative Officers, and Committees of the University

Information on students may be disclosed without the consent of the student to University officials or committees deemed to have a legitimate educational interest.

3. Disclosure to Third Parties

- (a) The following information is considered public information and may be released without restriction:
 - Name
 - Period of Registration
 - Certificates, Diplomas, Degrees awarded
- (b) Information will be released without student consent to persons in compliance with a judicial order or subpoena or as required by federal or provincial legislation.
- (c) Necessary information may be released without student consent in an emergency, if the knowledge of that information is required to protect the health or safety of the student or other persons. Such requests should be directed to the Registrar.
- (d) Other than in the above situation, information on students will be released to third parties only at the written request of the student, or where the student has signed an agreement with a third party, one of the conditions of which is access to her/his record (e.g. in financial aid). This restriction applies to requests from parents, spouses, credit bureaus and police.

offenses at one end of the spectrum or substandard work warranting lowered or falling grades at the other. The seniority of the student concerned, the presence of a dishonest intent, and other circumstances may all be relevant to the seriousness with which the matter is viewed.

2. Plagiarism or Self-Plagiarism

Dalhousie University defines plagiarism as the presentation of the work of another author in such a way as to give one's reader reason to think it to be one's own. Plagiarism is a form of academic fraud.

Plagiarism is considered a serious academic offence which may lead to loss of credit, suspension or expulsion from the University, or even the revocation of a degree.

In its grossest form plagiarism includes the use of a paper purchased from a commercial research corporation, or prepared by any person other than the individual claiming to be the author.

Self-plagiarism is the submission of work by a person which is the same or substantially the same as work for which he or she has already received academic credit.

3. Irregularities in the Presentation of Data from Experiments, Field Studies, etc.

Academic research is predicated on the presentation of accurate and honestly derived data. The falsification of data in reports, theses, dissertations and other presentations is a serious academic offence, equivalent in degree to plagiarism, for which the penalties may include revocation of degrees, loss of credits or suspension or expulsion from the University.

4. Inaccurate or Inadequate Attribution.

The University attaches great importance to the contribution of original thought to scholarship. It attaches equal importance to the correct attribution of authorities from which facts and opinions have been derived.

The proper use of footnotes and other methods of attribution varies from discipline to discipline. Failure to abide by the standards of the discipline concerned in the preparation of essays, term papers and dissertations or theses can result, at the discretion of the instructor or faculty member involved, in lowered grades. It can also lead to the requirement that an alternative assignment be prepared. Such grading penalties can be involved even in

Intellectual Honesty

1. A University should epitomise the quest for intellectual honesty. Failure to measure up to the quest for such a standard can involve either academic

the absence of any INTENTION to be dishonest.

Students who are in any doubt about the proper forms of citation and attribution of authorities and sources should discuss the matter in advance with the faculty member for whom they are preparing assignments. In many academic departments, written statements on matters of this kind are made available as a matter of routine or can be obtained on request.

Discipline

1. Members of the University, both students and staff, are expected to comply with the general laws of the community, within the University as well as outside it.
2. Alleged breaches of discipline relating to student activities under the supervision of the Dalhousie Student Union are dealt with by the Student Union. Alleged breaches of discipline relating to life in the residences are dealt with by the appropriate Dean or Director of Residence in consultation with the relevant Residence Council. Senate is charged with the authority to deal with cases of alleged academic offenses (as delegated to the Senate Discipline Committee), as well as with certain other offenses that are incompatible with constructive participation in an academic community.

3. Examples of Academic Offenses

Plagiarism

As indicated above, plagiarism and self-plagiarism are considered serious academic offenses which can lead to loss of credit and suspension from the University.

Irregularities in Presentation of Data

As defined above, the presentation of falsified data in reports, theses, dissertations and other presentations is a serious academic offense, equivalent in degree to plagiarism for which the penalties may include revocation of degrees, loss of credits, or suspension or expulsion from the University.

Irregularities in Admissions Procedures

A person who gains admission or assists any other person in gaining admission by any irregular procedure, for example, by falsifying an academic record or by forging a letter of recommendation or by impersonating any other person, commits an academic offense and is liable to a penalty (see Senate Discipline Committee).

Irregularities in Evaluation Procedures

A member of the University who attempts or who assists any other person in an attempt to obtain, by irregular procedures, academic standing in a course related to any degree, diploma or certificate programme, commits an academic offence and is liable to a penalty. Without limiting possible irregularities in evaluation procedures that may be considered by the Senate Discipline Committee, the following examples shall be considered irregular procedures:

- (a) arranging for or availing oneself of the results of any personation at any examination or test, or,
 - (b) attempting to secure or accepting assistance from any other person at any examination or test, or,
 - (c) having in one's possession or using any unauthorized material during the time that one is writing any examination or test, or,
 - (d) without authorization procuring a copy of an examination, test or topic for an essay or paper, or,
 - (e) in the absence of any enabling statement by the Faculty member in charge of that course, submitting any thesis, essay, or paper for academic credit when one is not the sole author, or,
 - (f) without authorization submitting any thesis, essay or term paper that has been accepted in one course for academic credit in any other course in any degree, diploma or certificate programme.
4. On report of a serious breach of the law, or a serious academic offence deemed by the President, or in his or her absence by a Vice-President or the Dean of a Faculty, to affect vital University interests, a student involved may be temporarily suspended and denied admission to classes or to the University by the President, Vice-President or Dean, but any suspension shall be reported to the Senate, together with the reasons for it, without delay.
 5. No refund of fees will be made to any student required to lose credit for any course taken, required to withdraw or who is suspended or dismissed from any class or any Faculty of the University.

Official Examination Regulations

1. Candidates will not be admitted to the Examination Room more than thirty minutes after the beginning of the examination. Candidates will not be permitted to leave the examination within the first thirty minutes.

2. Candidates are required to present their valid Dalhousie ID card at all examinations scheduled during the official examination periods and sign the signature list.
 3. No articles such as books, papers, etc. may be taken into the examination room unless provision has been made by the examiner for reference books and materials to be allowed to the students. All books, papers, etc. not specified on the printed paper must be deposited with the invigilator. Calculators may be used at the discretion of the instructor.
 4. Smoking is not permitted in the examination room.
 5. Candidates may not leave their seats during an examination except with the consent of the invigilator.
 6. Answers to questions must be written on the right hand pages and properly numbered. The left hand pages may be used for rough work, but no sheets may be detached.
 7. Each question should be started on a separate page.
 8. If more than one book is used, the total number should be marked in the space provided above. The other books should be properly marked and placed inside the first book. All books supplied must be returned to the invigilator.
 9. Candidates found communicating with one another in any way or under any pretext whatever, or having unauthorized books or papers in their possession, even if their use be not proved, shall be subject to expulsion.
 10. After the first thirty minutes have elapsed, students may hand in their examination book(s) to an invigilator and quietly leave the examination room. Candidates may not leave the examination room during the last fifteen minutes of the examination.
- (b) The Senate Discipline Committee shall assume jurisdiction when a complaint or allegation respecting offenses or irregularities of an academic nature are brought to its attention by the Secretary of Senate.
 - (c) The Senate Discipline Committee, when it finds that a member of the University who is a student has committed an academic offence or irregularity may impose one or more penalties as indicated in 3. below.
 - (d) The Senate Discipline Committee shall report its findings and any penalty imposed to the Secretary of the Senate. The Secretary of the Senate shall forward a copy of the report to any member of the University community whom the Senate Discipline Committee has found to have committed an offence or irregularity and if the member concerned be other than a student a copy shall also be sent to the Vice-President (Academic).
 - (e) If the member of the University found to have committed an offence or irregularity is a student, she/he may appeal to Senate any finding or any penalty imposed by the Senate Discipline Committee by advising the Secretary of the Senate in writing within 30 days of receipt of the report by the student.
3. Academic Penalties
- (a) loss of all credit for any academic work done during the year in which the offence occurred;
 - (b) suspension of rights to attend the University for a specified period;
 - (c) dismissal from the University;
 - (d) such lesser penalty as the Committee deems appropriate where mitigating circumstances exist.

Senate Discipline Committee

1. Composition

Academic Offences are dealt with by the Senate Discipline Committee, which consists of five members, three of which are members of the Senate and two of which are students.

2. Terms of Reference

- (a) The Senate Discipline Committee is vested with original jurisdiction to consider all complaints or allegations respecting offenses or irregularities of an academic nature, including those relating to admissions procedures and evaluation procedures, and to impose penalties in cases where the Committee finds an offence or irregularity has occurred.

Guide to Responsible Computing

In recognition of the contribution that computers can make to furthering the educational and other objectives of the University, this Guide is intended to promote the responsible and ethical use of University computing resources. It is in the best interests of the community as a whole that these resources be used in accordance with certain practices which ensure that the rights of all users are protected and the goals of the University are achieved.

This Guide applies to all computer and computer communication facilities owned, leased, operated, or contracted by the University. This includes word processing

34 University Regulations

equipment, micros, mainframes, minicomputers, and associated peripherals and software, regardless of whether used for administration, research, teaching, or other purposes.

It should be noted that system administrators of various campus computing facilities and those responsible for the computer access privileges of others may promulgate regulations to control use of the facilities they regulate. System administrators are responsible for publicizing both the regulations they establish and their policies concerning the authorized and appropriate use of the publicly available equipment for which they are responsible.

Basic Principles

Individuals should use only those University computing facilities they have been authorized to use. They should use these facilities:

- a. with respect to the terms under which they were granted access to them;
- b. in a way that respects the rights of other authorized users;
- c. so as not to interfere with or violate the normal, appropriate use of these facilities;
- d. so as not to impose unauthorized costs on the University without compensation to it.

Elaboration

- 1). Individuals should use only those University computing facilities they have been authorized through normal University channels to use. They should use these resources in a responsible and efficient manner consistent with the objectives underlying their authorization to use them.
- 2). Individuals should respect the rights of other authorized users of University computing facilities. Thus, they should respect the rights of other users to security of files, confidentiality of data, and the benefits of their own work. Users should respect the rights of others to access campus computing resources and should refrain from:
 - (a) using the computer access privileges of others without their explicit approval;
 - (b) accessing, copying, or modifying the files of others without their permission; and
 - (c) harassing others in any way or interfering with their legitimate use of computing facilities.
- 3). Individuals should respect the property rights of others by refraining from the illegal copying of programs or data acquired by the University or other users or putting software, data files, etc. on

University computers without the legal right to do so.

- 4). Individuals should not attempt to interfere with the normal operation of computing systems or attempt to subvert the restrictions associated with such facilities. They should obey the regulations affecting the use of any computing facility they use.

Disciplinary Actions

Reasonable suspicion of a violation of the principles or practices laid out in this Guide may result in disciplinary action. Such action will be taken through normal University channels.

Nothing in this Guide diminishes the responsibility of system administrators of computing services to take remedial action in the case of possible abuse of computing privileges. To this end, the system administrators with the approval of the President and with due regard for the right of privacy of users and the confidentiality of their data, have the right, to suspend or modify computer access privileges, examine files, passwords, accounting information, printouts, tapes, and any other material which may aid in an investigation of possible abuse. Whenever possible, the cooperation and agreement of the user will be sought in advance. Users are expected to cooperate in such investigations when requested. Failure to do so may be grounds for cancellation of computer access privileges.

- Passed by Dalhousie Senate, 24 November 1986.

Final Dates for Receipt of Applications for Admission

Regular Session

College of Arts & Science

Foreign Students (except USA)	April 1
BEd Programme	April 1
Students entering from Canada or USA ¹	June 1
Returning Dalhousie Students	August 15

Health Professions

Pharmacy	February 1
BSc (Nursing), Outpost and Community Health Nursing, Occupational Therapy, Physiotherapy, Pharmacy, Social Work	March 1
BSc (Nursing) for Post RN ¹ , Recreation ^{1,7} , BSc (Kinesiology) ⁷ , Physical and Health Education ^{1,7}	June 1

Management

Foreign Students (except USA)	April 1
Students entering from Canada or USA ¹	June 1

Internal Transfers⁵

Fall term	September 27
Winter term	January 17

Dentistry

DDS	December 1
Dental Hygiene	February 1

Medicine

MD	November 15
Post-Graduate	December 1

Law	March 1
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Graduate Studies ⁴ (except as below)	June 1
Non-Canadian Students (Graduate Studies)	April 1
Law (doctoral level)	January 1
Environmental Studies	February 15
Human Comm. Disorders, Marine Management and Social Work	March 1
Nursing	April 1
Health Ser. Admin. and Law (master's level)	May 1
Oral and Maxillofacial Surgery ²	June 1

Winter Term

Diploma/Outpost & Community Health Nursing for RN's	October 1
BA and BSc programmes only ³	November 15
Returning Dalhousie Students ⁶	November 15

¹ Late applications may be considered up to August 1.

² Of year preceding commencement of programme

³ Part-time and transfer students only

⁴ All supporting documentation must be submitted by the appropriate deadline.

⁵ For students currently registered at Dalhousie wishing to change degree programmes.

⁶ For students returning to BA or BSc programmes, or attending as Special Students in any faculty.

⁷ Effective for students applying for admission for September of 1995, the deadline will be April 1 for all programmes in the School of Recreation, Physical and Health Education, including Kinesiology.

Note: In order to be considered for entrance scholarships, applications for admission (from high school students) must be received by March 1.

Faculty of Graduate Studies

Location: Arts & Administration Building,
Room 314, Halifax, N.S. B3H
4H6
Telephone: (902) 494-2485
Fax: (902) 494-8797

Administrative Officers

Dean

J. Fingard, BA (Dal), MPhil, PhD (London)

Associate Dean

J. G. Rutherford, BA (Cornell), MS (Syracuse),
PhD (SUNY)

Secretary

D. McNeil, BA (Concordia), MA (UNB), PhD
(McM)

Administrative Assistant to the Dean

A.R. Thomson

Admissions and Programme Officer

B.A. Maynard

Council and Standing Committees

The figure following a member's name is that individual's year of completion of term.

Faculty Council

P. Pacey, Secretary, '96 Chemistry
J. Ritchie, '96 Nursing
H. Blair, '96 Biochemistry
V. Li, '96 English
B. Rusak, '96 Psychology
T. MacRae, '96 Biology
D. Sutherland, '96 History
B. Archibald, '95 Law
M. Horackova, '95 Physiology and Biophysics
K. Fierbeck, '95 Political Science
E. Ricker, '95 Education
T. Vinci, '95 Philosophy
M. Bishop, '94 French
J. Clements, '94 Math. Stats. and C.S.
E. Frick, '94 Library & Info Studies
M. Martin, '94 Business Admin.
M.A. White, '94 Chemistry
W. Birdsall, University Librarian
Janet Lee Brannon, DAGS Representative -
School of Business
Jeff Chisholm, DAGS Representative -
Biochemistry
J. Fingard, Dean
J. G. Rutherford, Associate Dean

(Each discipline to have only one elected member on Council at a given time.)

Academic Planning Committee of Council

M. Bishop, '94 French
Clements, '94 Math, Stats, & Computing
Science
E. Frick, '94 Library & Information Studies
E. Ricker, '95 Education
D. Sutherland, '95 History
J. Ritchie, '96 Nursing
J. G. Rutherford, Associate Dean
J. Fingard, (Chair) Dean

Curriculum and Calendar Committee

T.H. MacRae, '96 Biology
M. Martin, '94 Business Administration
K. Fierbeck, '95 Political Science
H. Melanson, Killam Library
A.R. Thomson, Administrative Assistant &
Calendar Coordinator
J. Rutherford (chair), Associate Dean

Dalhousie and Killam Scholarship Committee

K. Johnson, '94 Math, Stats, & Computing
Science
C. Neville, '94 History
E. Butler, '95 Pharmacy
W. Hyde, '95 Oceanography
M. Kelly, '96 Pharmacology
C. Stuttard, '96 Microbiology
T. Scassa, '96 Law
N. Butlin, French - DAGS Representative
J. G. Rutherford (Secretary), Associate Dean

Killam Postdoctoral Fellowship Committee

R. Bérard, (Co-chair) '94 Education
A. Coley, '94 Math, Stats, & Computing
Science
D. Kiang, '94 Physics
B. Boudreau, '95 Oceanography
I. Oore, '95 French
V. Thiessen, '95 Sociology and Social
Anthropology
T. Shaw, '96 Political Science
W. Currie, '96 Anatomy
C. Marfels, '96 Economics
J. G. Rutherford (Co-chair), Associate Dean

Research Development Fund Committee (Humanities & Social Sciences)

S. Brooke, '94 History
V. Thiessen, '94 Sociology and Social
Anthropology
M. Sullivan, '95 Psychology
R. Tetreault (Co-chair), '95 English
C. Marfels, '96 Economics
M. Sandhu, '96 French
J. Fingard (Co-chair), Dean

Research Development Fund Committee in the Sciences

M. Kelly, '96 Pharmacology
 B. Mathieson, '98 Anatomy
 Chairperson, Biology
 Chairperson, Chemistry
 Chairperson, Earth Sciences
 Chairperson, Math, Stats, & Computing
 Science
 Chairperson, Oceanography
 Chairperson, Physics
 Chairperson, Psychology
 J. G. Rutherford (Chair), Associate Dean

Killam Lecture Committee

M. Bradfield, '94 Economics
 R. Rosen, '94 Physiology/Biophysics
 P. Welle, '94 Resource and Environmental
 Studies
 W. Schleich, '95 Medicine, Microbiology and
 Immunology, Community Health and
 Epidemiology
 B. Christie, '95 Institutional Affairs
 G. Taylor, '95 History
 J. Fingard (Chair), Dean

Panel of PhD Defence Chairs

D.R. Arnold, Chemistry
 A.J. Bowen, Oceanography
 D. Braybrooke, Professor Emeritus
 D.M. Cameron, Political Science
 M.S. Cross, History
 M.W. Gray, Biochemistry
 B.K. Hall, Biology
 W.F. Hare, Education/Philosophy
 D.A. Hopkins, Anatomy
 R.M. Husbert, English
 R.A. Jamieson, Earth Sciences
 R. Klein, Psychology
 C.B. Lazier, Biochemistry
 K.T. Leffak, Chemistry
 K.W. Ranton, Pharmacology
 H.A. Robertson, Pharmacology
 S.B. Sherwin, Philosophy
 A.M. Sinclair, Economics
 P.N. Stewart, Math, Stats, & Computing
 Science
 A.C. Thompson, Math, Stats, & Computing
 Science
 J.A. Wainwright, English
 J.H.M. Willison, Biology
 John Rutherford, Associate Dean, Coordinator

Human Ethics Review Committee

M. Binkley, '94 Sociology and Social
 Anthropology
 B. Earhard, '94 Psychology
 R. Sandhu, '94 Business Administration
 P. Campagna, '95 Recreation, Physical and
 Health Education
 V. Li, '95 English
 T. Sinclair-Faulkner, '96 Comparative Religion
 J. Manos, '96 Education
 J. McGlone, '96 Psychology

D. Ginn, '96 Law
 N. Brett, '96 Philosophy
 J. Rutherford (Chair), Associate Dean

Academic Appeals Committee

A. Andrews (Chair), '94 Theatre
 L. Barnes, '95 Recreation, Physical, & Health
 Education
 J.G. Morgan, '96 Sociology and Social
 Anthropology

Reserve Panel for Academic Appeals Committee

P. DeMéo, '94 French
 D. Arnold, '95 Chemistry
 D. House, '95 Classics
 A. Trillo, '95 Pathology
 A. Wainwright, '95 English

Library Representatives on Faculty

J. Coughlan-Lambly, '92 Kellog Library
 Lai Hsiung, '92 Killam Library
 P. Lutley, '92 Macdonald Science Library
 H. Melanson, '92 Killam Library

Studley Audio-Visual Ad Hoc Committee

G. Gabor, Math, Stats, & Computing Science,
 Faculty Representative

Faculty Regulations

General regulations and administrative procedures are outlined in this section. Detailed information about particular programmes will be found in the Departmental entries in the subsequent sections of this calendar or may be obtained from Departmental publications. Graduate students are urged to familiarize themselves with the regulations which govern the conditions of their programmes of study at the University. Except where noted, Faculty of Graduate Studies regulations take precedence over Departmental regulations.

1. Degree Programmes

Departments in the Faculty of Graduate Studies offer programmes leading to the following degrees and diplomas:
 Doctor of Philosophy (PhD)
 Doctor of Philosophy/Doctor of Medicine (MD/PhD)
 Doctor in the Science of Law (JSD)
 Master of Arts (MA)
 Master of Business Administration (MBA)
 Master of Business Administration/Bachelor of Laws (LLB/MBA)
 Master of Development Economics (MDE)
 Master of Education (MEd)
 Master of Environmental Studies (MES)
 Master of Health Services Administration (MHSA)
 Master of Health Services Administration/Bachelor of Laws (LLB/MHSA)

Master of Laws (LLM)
Master of Library and Information Studies (MLIS)
Master of Library and Information Studies/Bachelor of Laws (LLB/MLIS)
Master of Marine Management (MMM)
Master of Nursing (MN)
Master of Public Administration (MPA)
Master of Public Administration/Bachelor of Laws (LLB/MPA)
Master of Science (MSc)
Master of Social Work (MSW)
Master of Teaching (French) (MAT)
Diploma in Aquaculture (Dip A)
Diploma in Public Administration (Dip PA)

2. Admission Requirements

The following are minimum requirements for admission to the Faculty of Graduate Studies. Individual Departments may require additional qualifications of their candidates.

2.1 Diploma Programme

Candidates must hold a Bachelor's Degree from a university of recognized standing with an average of at least B.

2.2 Master's Degree Programme

Candidates must hold a Bachelor's Degree from a university of recognized standing with:

- (a) honours or the equivalent of honours standing as granted by Dalhousie University, in the area in which graduate work is to be done, or
- (b) at least four (4) undergraduate classes, or their equivalent (taken at a senior undergraduate level), in the area in which graduate work is to be done, with an average of at least B.

Only candidates with honours or the equivalent of honours standing may be admitted to the one-year programme, but they should expect to take 18-24 months to complete the degree requirements.

2.3 Doctoral Degree Programme

Candidates must hold:

- (a) a Bachelor's Degree from a recognized university with first class honours standing as granted by Dalhousie University, or
- (b) a Master's Degree, or its equivalent, from a recognized university.

Students normally take 4/5 years to complete the degree.

A few departments admit Bachelor's graduates to the Master's programme and recommend them for transfer to the Doctoral programme at the end of the first year with retroactive registration in a three-year Doctoral programme.

2.4 English Language Competency

Candidates whose native language is not English must demonstrate their capacity to pursue a graduate-level programme in English before admission. The standard test is the TOEFL. The Faculty sets a minimum acceptable score of 580 for the TOEFL, but some programmes within the Faculty set a higher minimum.

Further information on the test may be obtained from Test of English as a Foreign Language, Box 899, Princeton, NJ, 08540, USA.

2.5 Graduate Examination

Some departments require GRE or GMAT scores of applicants (check departmental listing).

2.6 Advanced Standing

Credit for classes and other work completed before registration must be established at the time of admission. No advanced standing can be given for classes already counted towards a previous degree.

3. Application

Application for Admission forms may be obtained from the Registrar's Office, Dalhousie University, Halifax, NS, B3H 4H6, and should be returned to that office along with the application fee. All supporting materials should be sent directly to the Department to which the student is applying. Application deadlines for admission in September and, in exceptional circumstances, January, are April 1 for non-Canadian applicants and June 1 for applicants from Canada, except where special dates apply (see page 32). Applicants who wish to be considered for scholarship support are strongly advised to apply by January. All eligible Candidates should also apply for external awards.

4. Registration

4.1 Registration Procedures

Registration is the process by which the student officially establishes with the University (Registry and Faculty of Graduate Studies Office) the degree programme (MA, MSc, PhD, etc.) and status (full-time, part-time, etc.) and pays the appropriate academic fees (Student Accounts). Both aspects of the process (programme/status and fee payment) must be completed before a student can be said to be registered. (Most fees may be paid in two (2) instalments.)

Canadian and non-visa students may register by mail prior to the September deadline. Such students are reminded that

they must inform the Graduate Studies Office and the Registrar's Office of their current address so that forms can be sent to them. Students who do not register by mail (including all new visa students) must register in person on or before the day specified by the Faculty. Continuing students who require an extension to their programme will not receive registration material until the extension has been officially approved by Graduate Studies. Students unable to register on or before the specified date should apply to the Faculty Office for permission to register. A late registration fee will be assessed. Any student who fails to register in September will not be allowed to submit a thesis or obtain any service whatsoever from the University during that academic year.

Students who change their registration status by the addition or deletion of classes must report this to the Faculty Office. Changes in status, i.e. part-time to full-time or full-time to part-time, cannot be made after initial registration without permission of the Faculty of Graduate Studies. No changes will be allowed after 30th November. Withdrawal from a degree programme should be reported immediately to the Faculty Office since reimbursement of fees is calculated from the official date of withdrawal.

4.2 Registration Categories

All students must register in September of each year of their graduate programme in one of the following categories:

Full-Time: a student who is carrying more than two and one-half (2 1/2) full-credit classes during the 12-month academic year or a student who has not yet completed the minimum number of years of full-time study required for a particular degree programme. A student may register full-time and hold a job simultaneously only if the job involves not more than 16 hours' work per week, including a maximum of 10 hours as a teaching assistant.

Part-Time: a Master's student who is carrying not more than two and one-half (2 1/2) full credit classes during the 12 months, September to August or a student who has not yet completed the minimum number of years of part-time study required for a particular degree programme.

Continuing: a student who has completed the programme requirements (that is, years of residence) but has not yet finished all the degree requirements (usually the thesis).

Qualifying: A student having a Bachelor's degree, but without a sufficiently strong academic background in a particular discipline to be accepted directly into a Master's programme. Qualifying students may take

from one half-credit class to ten half-credit classes either at a graduate or undergraduate level as specified by the department. Permission to receive advanced standing for these classes must be stipulated on acceptance to the Qualifying programme.

Special: A student wishing to take classes outside of a programme, either regular or qualifying. Students who register in this category do so normally as an enrichment to their professional fields. A student who takes classes in this manner must meet normal entrance requirements. A maximum of two full-credit classes (four half-credit classes) may be taken as a special student. A student who has been rejected, for academic reasons, for admission to a graduate programme cannot normally take graduate classes as a Special Student.

Summer School: In cases where a student is required by his/her department to take classes offered only during summer school, the fee will be paid by the Faculty of Graduate Studies. One credit is allowed in each of the two Summer School sessions within the limits allowed by the student's programme. Recommendations should be submitted by the department before the beginning of the first summer session.

Registration dates for summer school appear in the almanac in the Graduate Studies calendar. Any student who is entitled to have the summer school fee waived must report to the Graduate Studies office before registration.

4.3 Leave of Absence

Students who need to suspend their programme of studies because of illness or other serious problems outside their control, may apply in writing through their department or school for a "leave of absence". If the department or school recommends to the Faculty of Graduate Studies that leave of absence be granted, and if the Faculty is also satisfied that the need is justified, such leave will be granted for the twelve-month academic year commencing the 1st of September. A legitimate leave of absence does not count as a year of study. Application for leave of absence (normally limited to one year) must be made by the final registration date (10th September, 1993) for the academic year for which leave is requested. During a leave of absence a student cannot study at another institution and have credit transferred to their Dalhousie programme.

4.4 Readmission of students

A student who voluntarily withdraws or whose registration has lapsed may apply for readmission within ten years of initial registration. Students must meet the normal application deadlines. Readmitted students

must pay fees for the years they were not registered at the current fee rate. Students in thesis programmes who have not maintained registration are normally required to have a satisfactory thesis in hand before they can be readmitted.

4.5 Fees

Graduate students pay "programme fees" for fixed periods either as full-time or part-time students, followed by continuing fees until the requirements have been completed.

Full Time Graduate Students pay the programme fee for the periods stated below. The fee is based on the total programme regardless of the number of formal classes. Payment is not by the class.

- Bachelor's degree to Diploma: one year
- Bachelor's degree with Honours or equivalent to MA, MSc, MEd, MMM: one year; to MES: two years
- Bachelor's degree with Honours in French plus BEd to MAT: one year
- Bachelor's degree without Honours to MA, MSc, MDE: two years
- Bachelor's degree to MSc (Human Communication Disorders): three years
- Bachelor's degree to MBA, MHSA, MPA, MLIS, MN: two years
- Bachelor's degree in Law to LL.M: one year
- Dental degree to MSc (Oral and Maxillofacial Surgery): three years
- Bachelor's degree with Honours to PhD: three years
- Master's degree to PhD or JSD (from LL.M): two years

Part Time Graduate Students pay the same programme fee as full-time students spread over a maximum of three part-time years of study for every full-time year, except for the LL.M degree where the maximum fee period for a one-year part-time programme is two years. If a part-time student completes the requirements for the degree before the normal full programme fees have been paid, the balance of those fees must be paid before graduation. Part-time students may take up to two and one-half (2 1/2) full credit classes in a 12 month academic year, and in exceptional circumstances, three classes with the Dean's permission.

NOTE: Under the programme or continuing fee students may take only those classes specified by the department as requirements for the degree.

Differential fee for non-Canadian Graduate Students must be paid for:

- Full-time Master's student (except Oral Surgery) 2 years (or equivalent)
- Full-time Master's student Oral Surgery 4 years
- Part-time Master's student 6 years

- Full-time PhD student (following a Master's degree) 3 years
- Full-time PhD student (following a Bachelor's degree) 5 years

4.6 Identification Cards

Full-time, part-time and continuing students in a degree programme, will receive ID cards entitling them to University services.

4.7 Notification of Address

Students are required to keep the Faculty Office, the Registrar's Office, the Payroll Department (for students on funding) and their Department office up to date on changes of address. Notifications from the University will be sent to the most recent address possessed by these offices; students will be held responsible for complying with these notifications, and non-receipt of material because of failure to report a change of address will not excuse students from such responsibility.

5. Degree Requirements

5.1 Length of Programme

The normal time limits for the completion of degrees are:

- One-year Master's, full-time: three years
- One-year Master's, part-time: four years
- Two-year Master's, full-time: four years
- Two-year Master's, part-time: seven years
- PhD and JSD, full-time only: five years

A first extension may be granted on the recommendation of the department. Requests for further extensions, to a maximum of 3 years beyond the normal time limits set out above will be considered. The request for extension should include a copy of the progress report form together with a detailed plan and timetable for completion of the thesis. A third extension will state clearly that this is a FINAL extension. Student must then complete and defend the thesis within that academic year.*

*Departments must forward requests for extensions to the Graduate Studies office no later than August 15th.

5.2 Requirements for the Master's Degree

Two types of Master's degree are offered: one based on research and the other on formal classes. The course of study for the research degree (MA, MSc, MDE, MES, MN, LL.M) may include graduate classes, seminars, preparation of fields of study, comprehensive examinations, demonstrations of foreign language proficiency, a thesis, and oral defence of the thesis. Requirements vary considerably from programme to programme, and even within the same programme,

depending upon students' previous experience. A thesis option is available in the MLIS and MSW.

Non-thesis Master's programmes include the MAT, MBA, MEd, MHSA, MLIS, MMM, MPA, MSc (Human Communication Disorders) and MSW. A non-thesis option is available in the LLM. The number of classes varies and a project is often required.

5.3 Requirements for the Doctoral Degree

A candidate must demonstrate the ability to carry out research of high quality leading to an advance of knowledge in his/her area of study. In general, at least two (2) years must be spent in full-time study on the Dalhousie campus. The candidate's course of study will be initiated with the advice of a supervising committee of at least three (3) members. The thesis and course of study will be directed by a committee consisting of the research supervisor and at least two (2) other members. The course of study must include a preliminary examination (to be taken not less than one (1) year before submission of the thesis) and preparation and oral defence of a thesis. The course of study may include classes, seminars, comprehensive examinations, qualifying examinations, preparation of fields of study, demonstrations of foreign language proficiency, and any other requirements considered necessary for the clear demonstration of post-Master's-level comprehension, scholarship, and ability in the candidate's particular area of study.

Candidates for graduate degrees frequently have teaching duties which are remunerated through the undergraduate and professional teaching faculties. The teaching duties of full-time graduate students must not exceed ten hours a week, including preparation.

5.4 Classes

Classes may be full or half year (full or half credit respectively) and may be designated by the candidate's committee as "Required" (pass mark B-) or "Ancillary" (normal undergraduate pass mark).

Grading Scheme: With the exception of a few classes for which a pass/fail grading scheme has been approved, grades available for graduate classes are: A+, A, A-, B+, B, B-, FM, F.

Ancillary: Classes which a department recommends as advisable additional background to the degree programme, but not specifically required for that programme, are termed ancillary classes and must be taken in a department other than the one in which the student is registered. The pass grade in these

is the same as for the undergraduate faculty unless otherwise specified by the department.

Audits: Students may take one audit for each residency year of their formal programme. Audits must be listed on the Programme of Graduate Studies form. Only audits relevant to the student's programme will be approved. Audits will not be approved as part of a Qualifying programme.

Withdrawal From Classes: The final date for withdrawal from classes shall be: for 'A' classes - 24 October, for 'R' classes - 16 January, for 'B' classes - 13 February; for summer session classes - the mid-point of the class. For withdrawals before these dates, the class and the withdrawal is not recorded on the academic record. After these dates, the student is responsible for the content of the class and receives a grade for it. Students must complete the appropriate registration change form, which must be approved by the instructor concerned.

Incomplete classes: A student who fails to complete the required work for a particular class during the normal period of the class will receive a grade of "F." However, where circumstances warrant it, a grade of "Incomplete" may be assigned. Subsequent completion of the work following the end of the class may result in a change of grade, as long as the work is completed before the following deadlines:

Full Year classes: May 31, or 8 weeks after the end of the class, whichever is the longer period.

A or B classes: January 31/May 31, or 8 weeks after the end of the class, whichever is the longer period.

Summer classes: July 31 (Spring session) and September 1 (Summer session), or 4 weeks after the end of the class, whichever is the longer period.

After these deadlines, an "Incomplete" grade cannot be changed without permission of the Dean and will appear on the official academic record of the student.

The grade of "In Progress" may be used only to report thesis classes and those designated as "open to independent completion of study."

6. Examinations

6.1 Class examinations

Examinations will normally be the method of grade assessment in graduate classes. There are no supplementary examinations.

Pass Standard:

- 1) Graduate students must achieve a minimum, or passing, grade of "B-" in all classes required of their degree programme, except those in programmes listed in 2) below. Any lower grade will be recorded as a failure. A student who fails to meet these requirements in any year is immediately automatically withdrawn (academically dismissed) from the programme. However, such a student may apply to the department for readmission.
- 2) In the following programmes—Business Administration, Health Services Administration, Library and Information Studies and Public Administration—full-time students are allowed one failing grade. However, no credit will be granted for the failing grade and the class must be repeated and a grade of "B-" or better obtained. (Failed core classes must be repeated, electives may be repeated or replaced at the discretion of the department). A part-time student must obtain a passing grade in each class.

6.2 Preliminary Examinations

These examinations for PhD students are conducted not less than one (1) year before the candidate submits a thesis. The examination may be oral, written, or both, at the discretion of the Department concerned, and will cover subjects relevant to the general area of the candidate's research. Failure to pass the examination may result in dismissal. However, the student may be permitted to repeat the examination within the subsequent twelve (12) months.

6.3 Comprehensive Examinations

These examinations in the candidate's area of study are part of both Master's and PhD degree courses of study in some Departments. Refer to particular departmental entries for details. It is the responsibility of Departments to make the necessary arrangements for these examinations.

7. Thesis Regulations

7.1 Ethical Review

All thesis research involving human subjects must be approved by the Human Ethics Review Committee of the Faculty of Graduate Studies.

7.2 Preparation of Manuscript

Thesis manuscripts must be prepared in accordance with Faculty of Graduate Studies rules. Detailed instructions may be obtained from the Faculty Office (Room 314, Arts and Administration Building).

7.3 Master's theses

Theses for the Master's degree must be presented to the Department for examination not later than March 7, for Spring Convocation, December 9 for February, or August 26, for the Fall awarding of degrees. Five (5) unbound copies are required (original and four copies). Oral defence of the thesis is required by some Departments. Theses will normally be graded as "approved" or "not approved".

7.4 Doctoral Theses

Doctoral theses must display original scholarship expressed in satisfactory literary form consistent with the discipline concerned and be of such value as to merit publication. The subject of the PhD thesis must be approved by the Faculty at least twelve (12) months before the date of final examination.

7.5 Regulations for the Defence of a Doctoral Thesis

Procedures

1. The candidate shall register the proposed title of the thesis with the Faculty of Graduate Studies, no later than six months before submission of the completed thesis.
2. The Chairperson of the Department shall recommend to the Dean or Associate Dean of Graduate Studies one name (with c.v.), from a list of three names submitted by the thesis supervisor for the appointment of an external examiner at least three months before the anticipated date of completion of the thesis. The persons suggested should be acknowledged experts in the field or discipline of the research being examined in the thesis. Initial contact with the external examiner should be made by the Chairperson of the Department.
3. Of the five copies of the thesis required, the candidate shall submit one unbound copy of the completed thesis (the External Examiner's copy) to the Faculty of Graduate Studies, together with the Thesis Submission Form and a c.v.. The deadlines for submitting unbound PhD theses to departments (see the Almanac in the Faculty of Graduate Studies calendar under August, November and February) are also the deadlines for submission of the one unbound copy (with completed Thesis Submission Form) to the Faculty of Graduate Studies office (see also item 6 below). This copy is then sent to the External Examiner by the Graduate Studies office. At that time the candidate shall provide a copy of the abstract page from their thesis for publication in a public notice of the defence.

4. The other four copies of the thesis will be submitted by the candidate to the departmental graduate coordinator, who will distribute them immediately to local members of the examining committee. One copy may be held in the departmental secretary's office for use by other interested faculty and students.
5. No arrangements will be made for the oral examination until all of these requirements are fulfilled. The examination will be held no earlier than four weeks after submission of the thesis, thereby allowing adequate time for the thesis to be read by the external examiner.
6. The Dean or Associate Dean of Graduate Studies will issue a formal invitation to the external examiner and will send a copy of the thesis (see paragraph 3) to him/her at least four weeks before the examination.
7. In consultation with the Chairperson of the Department, the graduate co-ordinator, and the research supervisor, the Faculty of Graduate Studies office will establish a time and place for the examination.
8. The external examiner will normally submit by mail a constructively critical and analytical report to the Associate Dean of Graduate Studies, who will send a copy to the graduate co-ordinator. Normally the external examiner will attend the defence, but in the rare event of the external examiner not attending, the written report should be submitted to the Associate Dean one week before the defence.
9. Notice of the public defence of the thesis will be published and sent to all relevant departments by the Faculty of Graduate Studies. All interested faculty, students, and members of the public will be welcome to attend.
10. Variation of the regulations outlined above may be permitted only with the written permission of the Dean of Graduate Studies.

Oral Examination

The oral examination of a doctoral thesis is the culmination of the candidate's research programme. It exposes the work to scholarly criticism and gives to the candidate the opportunity to defend the thesis in public. The Examination is chaired by the Dean, the Associate Dean of Graduate Studies or a member of the Panel of PhD Defence Chairs. The examining committee consists of the chairperson of the department (or a designate), the research supervisor or supervisors, and at least three additional members, one of whom shall be the external examiner from outside the University.

The candidate is questioned on the thesis following a summary presentation no longer than 20 minutes. The Chairperson will give

priority to questions from the external examiner and from the other members of the examining committee in some pre-arranged order. The audience will then be invited to ask questions. The Chairperson adjourns the examination when the examining committee decides that further questioning is unnecessary. He/she then chairs the examining committee during its deliberations *in camera*. The decision of the examining committee is based both on the thesis and on the candidate's ability to defend it.

No thesis shall be approved without the agreement of an external examiner, except that a negative opinion of an external examiner who does not attend the examination should not prevail over the unanimous opinion of the other examiners present and voting.

The thesis is graded "approved" or "not approved". A thesis can be accepted by the Examining Committee as submitted; accepted on condition that specific corrections are made; rejected with permission to submit a revised thesis; or rejected. It should be stressed that theses can be rejected on grounds of form as well as content.

If specific corrections are required, the thesis will be returned to the candidate and a time limit during which the corrections must be completed will be decided upon by the examining committee. Specific corrections will normally be left to the satisfaction of the local committee and research supervisor.

If the thesis is rejected with permission to submit a revised thesis (within 12 months of the first defence), the revised thesis will be re-read by an examining committee, at least two of whose members were on the original committee. The thesis shall be submitted to an external examiner who may be the original external examiner if the Associate Dean of Graduate Studies considers this to be desirable. The candidate shall defend the thesis before an examining committee in the usual way. There are no third chances.

The recommendation for degree must be approved by the Faculty of Graduate Studies and by the Senate.

Variation of the procedures stipulated above may be permitted only with the written permission of the Dean of Graduate Studies.

7.6 Binding

At the time of submitting unbound thesis (original and four copies) to the Graduate Studies Office, students will present a cheque for \$85.00* payable to the Faculty of Graduate Studies, Dalhousie University. This sum will cover the cost of binding. An additional charge will be made (where appropriate) to cover mailing costs.

The Faculty Office will arrange for the binding and subsequent distribution of theses as follows:

- (a) One (1) copy is sent to the author.
- (b) Two (2) copies are sent to the student's Department.
- (c) Two (2) copies are sent to the University Library which arranges for the production of microform copy to be retained in the National Library, Ottawa and listed in *Dissertation Abstracts International* or *Master's Abstracts International*. The National Library can then circulate such copy according to the International Inter-Library Loan Code, with full copyright protection; it also guarantees a permanent record of the thesis. The University Library retains one (1) bound copy in the University Archives.

* Subject to change without notice

8. Scholarships, Fellowships and Financial Assistance

Please note that the contents of this awards section are subject to change without notice.

The University reserves the right to publicize the recipients of merit awards.

Graduate Scholarships and Fellowships

(a) General Disciplines

Dalhousie Graduate Scholarships: Each department has a limited number of scholarships for students pursuing a degree programme on a full-time basis. Scholarships are not offered to anyone on leave from a job with salary continuation. In order to be eligible for a Dalhousie Graduate Scholarship, a student is expected to hold at least the equivalent of a Dalhousie honours degree in an appropriate field of study. Those wishing to be considered for scholarship assistance are advised to submit their applications no later than March 1. Maximum eligibility for scholarships is two Master's years and the first four Doctoral years, but some departments may have shorter maxima.

In general, the Dalhousie Graduate Scholarship will be paid to the student in regular monthly payments on the 27th of each month, after University fees have been deducted. Cheques are available from the Office of the Faculty of Graduate Studies, Rm. 314, Arts & Administration Building upon presentation of a current valid Dalhousie Student Identification card. Where warranted, with permission of the Dean of Graduate Studies, a student may receive scholarship funding for a maximum of 12 months while pursuing research off-campus.

Applicants for graduate scholarships should write to the graduate coordinator of the department concerned in addition to making their official application to the Registrar.

Very well qualified scholars who receive awards from federal agencies may also receive Dalhousie supplements within the limits set down by the agencies offering the awards.

The Izaak Walton Killam Memorial Scholarships: Shortly before her death, Mrs. Dorothy J. Killam set aside a substantial portion of her estate for the purpose of founding the Izaak Walton Killam Fund for Advanced Studies at Dalhousie University.

Her purpose in so doing was not only to establish a perpetual memorial in his native province to her late husband, Izaak Walton Killam, industrialist and financier, but also "to help in the building of Canada's future by encouraging advanced study." It was her hope that she might thereby in some measure "develop and expand the work of Canadian Universities, and promote sympathetic understanding between Canadians and the people of other countries." It is in accordance with Mrs. Killam's wishes that Dalhousie University offers the Izaak Walton Killam Memorial Scholarships.

Killam scholars are selected on the basis of nominations made by departments. It is expected that nominees will also have applied for funding from relevant national or international agencies. Canadian students are eligible for nomination for the Killam Scholarships only if they have applied for the relevant national scholarship (NSERC, SSHRC, MRC, etc.).

Only those students registered in a programme with a thesis requirement are eligible to hold the Izaak Walton Killam Memorial Scholarship.

Scholarships may be renewed annually upon evidence of satisfactory completion of work leading toward the Master's or Doctoral degree, subject to the following maxima; Masters students may hold a Killam Scholarship for 12 months and PhD students for up to 36 months. The scholarships are valued at \$14,700 (1993-94) for a Master's programme and \$17,400 (1993-94) for a Doctoral programme. No remission of fees accompanies the scholarships, but additional funds to assist with transportation to Halifax will be supplied. Killam scholars may perform instructing or demonstrating duties, but, if they do, will be given additional remuneration for these services.

Killam scholarships are open to both Canadians and non-Canadians. *Please note* that candidates do not apply for these Scholarships. On the basis of the information

in a completed application for admission the graduate department concerned may nominate the student to the selection committee.

The Isaac Walton Killam Postdoctoral Fellowships: Killam funds also provide for postdoctoral fellowships in most fields of study. The annual stipend is \$30,000 (1992-93) plus travel grants. There are no restrictions regarding nationality of applicants, but non-Canadian candidates must meet all Canadian Immigration requirements. Qualifying applicants should have recently completed a PhD degree at a recognised university and should not hold a permanent academic position to which they will return. Since these Fellowships are intended to attract new scholars to Dalhousie, scholars already at Dalhousie are not eligible to apply, including Dalhousie PhDs, Dalhousie or King's employees, and researchers using Dalhousie or King's facilities. These awards may be taken up between July 1st 1994 and January 15th 1995 but preferably in September or October 1994. Fellows may engage in limited teaching duties in the University. A graduate seeking a Killam Memorial Postdoctoral Fellowship must contact the appropriate Dalhousie department and indicate the scholar or researcher with whom she/he wishes to work or be associated by October 15, 1993, enclosing a c.v. and a brief description of the proposed research. Prospective applicants with suitable research proposals will be invited to apply on forms mailed to them, which should be returned, with supporting documents, no later than December 15, 1993 to the Dean of Graduate Studies, Dalhousie. The results of the competition are usually announced in mid-February, and all applicants are notified of the results.

(b) Specific Disciplines

Business Administration

Goldberg-Schulich Award for Entrepreneurship: The Nevada Capital Corporation in 1984 donated the sum of \$29,000 to establish an award in memory of Meyer Goldberg of Halifax, N.S. This award is available to a student entering the second year of Dalhousie University's MBA programme.

The Department of External Affairs Fellowships in International Business: Fellowships of \$4,000 per annum are awarded to full-time second-year students specializing in the field of International Business. Candidates must be Canadian citizens or permanent residents, and have a strong academic record. Fellowship recipients will be selected on the basis of a career interest in international business and academic performance to date. For further information contact the Centre for International Business Studies, School of Business Administration.

Economics

Professor George A.B. Kartsaklis Memorial Scholarship: Family, friends and colleagues of Professor Kartsaklis established this fund to provide financial assistance to one or more graduate students from Third World countries currently enrolled in the Department of Economics, Dalhousie University.

English

C.L. Bennet Memorial Scholarship: The Department of English has designated that one University scholarship in the amount of \$500 be awarded annually as a memorial to the late Professor of English, Dr. C.L. Bennet. This award will be made to an outstanding graduate of a Maritime or Newfoundland university (other than Dalhousie) who wishes to pursue an MA in English at Dalhousie. Eligible students should apply for graduate study in English in the usual way, by March 31st, indicating a desire to be considered for the Bennet award. Further details may be obtained from the Department of English, Dalhousie University, Halifax, NS, B3H 3J5.

The James W. Tupper Graduate Fellowship in English: This fellowship, of an annual value of approximately \$5,500 is awarded by the faculty of the Department of English to a student who proposes to do graduate work in English at a university approved by the faculty. The award need not be held at Dalhousie. Further information may be obtained from the Department of English.

Environmental Studies

The Gerald and Margaret Godsoe Scholarship: This scholarship has been established by the Godsoe family to support a highly qualified and motivated individual entering the Master of Environmental Studies (MES) program at Dalhousie. The recipient must hold an honours degree in natural or social sciences, engineering, architecture or its equivalent, and have first class standing in his/her course of study or have proof of exceptional merit. Further, the recipient must have made significant contributions through community service, leadership, and education on environmental issues. Eligibility is limited to Canadian citizens and permanent residents of Canada living in the country. The award is valued at \$10,000 per year and may be renewable. The recipient will be selected by the Admissions Committee at the School for Resource and Environmental Studies. Additional information about application procedures is available from the School for Resource and Environmental Studies.

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Library and Information Studies

H.W. Wilson Foundation Award: This award, valued at \$1250 US, is presented by the School to an outstanding incoming student, and is renewable for the second year of the programme. All incoming students are automatically considered for the scholarship, so no separate application is necessary.

Natural Sciences and Engineering Research Council of Canada Postgraduate Scholarships in Science Librarianship and Documentation: One award, valued at \$15,800, is offered by the School each year to an incoming student with a science degree. The award is renewable for the second year of the programme. Obtain application forms from the School of Library and Information studies or the Faculty of Graduate Studies, Dalhousie University, and return them to the School by March 1.

Oceanography

The Professor F. Ronald Hayes International Scholarship: This scholarship fund was established in memory of Professor F. Ronald Hayes, founder and first director of the Institute of Oceanography of Dalhousie University, and in commemoration of the Joint Oceanographic Assembly which was held at Dalhousie during August, 1982. The purpose of the scholarship is to provide financial support for a new graduate student in the first year of an MSc or a PhD programme in the Department of Oceanography. The recipient must be from a developing country, as stipulated in the terms of reference, and will be nominated through the normal screening process by the Departmental Graduate Admission Committee. For further information contact the Department of Oceanography.

Oral and Maxillofacial Surgery

John P. Loba Memorial Research Award: The income, earned from a fund established in memory of John P. Loba by family, friends, patients and colleagues, will provide for this award which may be given annually. The recipient will be the dentist accepted in the Graduate Programme in Oral and Maxillofacial Surgery and will be given exclusively for the presentation, dissemination and/or publication of research related to Oral and Maxillofacial Surgery. For further information please contact the Department of Oral and Maxillofacial Surgery.

Pharmacy

The Parke, Davis Pharmacy Research Fellowship: Parke, Davis Canada Inc. annually sponsors a fellowship of \$2,000 to a graduate student in the College of Pharmacy. For further information contact the College of Pharmacy.

The Novopharm Pharmacy Research Fellowship: Novopharm Limited sponsors an annual fellowship of \$500 to a graduate student in the College of Pharmacy who demonstrates superior research achievements in biopharmaceutics or drug metabolism. For further information contact the College of Pharmacy.

Physics

The William Lelper Memorial Scholarship: An endowment has been established to provide an annual scholarship to a deserving graduate student in physics. Awarded at the discretion of the Physics Department, the scholarship is normally granted to a student already engaged in graduate study at Dalhousie.

The James Gordon MacGregor Memorial Teaching Fellowship in Physics: One fellowship of the value of \$2,500 is offered. To be eligible, the candidate must have the necessary qualifications for admission to the Master's programme in Physics. The holder of this fellowship is expected to give instruction in the laboratory during the academic session. Nominees will be selected by the Department from those students being considered for a Dalhousie Graduate Fellowship; no application is necessary.

The Dr. A. Stanley MacKenzie Teaching Fellowship in Physics: One fellowship of the value of \$600 is offered. To be eligible, the candidate must have the necessary qualifications for admission to the Master's programme in Physics. The holder of this fellowship is expected to give instruction in the laboratory during the academic session. Nominees will be selected by the Department from students being considered for Dalhousie Graduate Fellowships; no application is necessary.

Psychology

The Dr. Mabel E. Goudge Scholarship in Psychology: In her Will, the late Dr. Mabel Goudge bequeathed a sum of money with which to endow scholarships to qualifying graduate psychology students at Dalhousie. The scholarship in graduate studies is restricted to experimental or clinical psychology. For further information contact the Department of Psychology.

The D.O. Hebb Post-Graduate Prize: To honour the memory of Donald Olding Hebb (BA 1925), Professor Emeritus (1977-1985), valued at \$1,000, the Psychology Department established the D.O. Hebb Post-Graduate Prize, which is awarded by the Graduate Program Committee, to an entering Masters or PhD student who has demonstrated the best potential to make a significant scientific contribution to the field of psychology.

Social Work

The Kavanaugh Scholarship: The Kavanaugh Scholarship was established by the Social Action Commission of the United Baptist Convention of the Atlantic Provinces to provide financial assistance in an annual amount of \$500.00 to a Master of Social Work student. Terms of reference and application forms are available to registered MSW students in early fall from the main office of the School.

(c) Of Interest to Women

Eliza Ritchie Doctoral Scholarship for Women:

The Eliza Ritchie Doctoral Scholarship was established to commemorate Women's Centennial Year (1985) and to recognize the contribution to Dalhousie of one of its most important nineteenth-century graduates. After completing her undergraduate studies at Dalhousie in 1887, Eliza Ritchie (1858-1933) became one of the first Canadian women to receive a PhD degree (Cornell University, 1889). She cut short her professional career at Wellesley College to return to Halifax in 1899, where she devoted her energies to feminist and cultural causes, and to Dalhousie, for the rest of her life. She was the first warden of a Dalhousie women's residence (Forrest Hall, 1912-13), the first woman to serve as a member of the Dalhousie Board of Governors (1919-25), a founding member of the editorial board of the *Dalhousie Review*, and the first woman to receive an honorary degree from Dalhousie (LLD, 1927). Scholarships will be awarded to Canadians and permanent residents only and preference will be given to candidates from the Atlantic Provinces. Among such applicants preference will be given to those in disciplines in which women are underrepresented. The award will have a value of \$17,000 (1992-93) for a 12-month academic period at Dalhousie. One scholarship may be awarded each year. The deadline for receipt of the prescribed applications is 1st March. Additional information and application forms are available from the Faculty of Graduate Studies, Dalhousie University.

Bursaries

Dalhousie Bursaries

Students may apply to the Graduate Studies office for University Bursaries made available through the Student Assistance Plan.

The John and Lina Graham Commonwealth Bursary: The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. The net annual income may be used to assist one or more graduate students who find themselves in need of financial aid while in Nova Scotia. Recipients will be residents of

Commonwealth countries, other than Canada, who in the opinion of the selecting body demonstrate need.

Teaching Assistantships

Most departments offer Teaching Assistantships. The number, amounts and conditions vary. Please enquire of your department or school.

The President's Graduate Teaching Assistant Awards: Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, both in the classrooms or laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction.

Nominations are accepted at the Office of Instructional Development and Technology. The winners are chosen in May of each year, and the presentation of awards is made by the President during the Fall Convocation in October.

Research and Travel Grants

All thesis students are eligible to apply for one travel grant per programme for presenting a conference paper. In addition, small research grants are available to students in the humanities and social sciences.

The Faculty accepts no financial responsibility for travel expenses incurred when classes are taken at other universities for credit toward Dalhousie degrees.

9. Convocation

9.1 Conferring of Degrees

Successful candidates for degrees are ordinarily required to appear at Convocation in the proper academic costume to have the degree conferred upon them. By special permission of the Senate, degrees may be conferred *in absentia*. Any graduating student who is unable to appear at the convocation is expected to notify the Registrar in writing prior to May 4, or October 11 for Fall convocation, giving the address to which the diploma is to be mailed.

9.2 Academic Costume

Graduates of the University are entitled to wear gowns and hoods of black stuff. The distinctive part of the costume is the lining of the hood, which for the various degrees is as follows:

MA: Crimson silk

MAT: Crimson silk/white border

MBA: Turquoise silk
MDE: Medium blue/scarlet border
MEd: Royal Blue silk
MES: Brown silk
MHSA: Sky blue silk/white border
LLM: Purple silk
MLIS: Mid-forest Green silk
MMM: Navy silk/seagreen border
MN: Apricot silk
MPA: Sky Blue silk
MSc: Scarlet silk
MSW: Citron silk

PhD: Entitled to wear a gown of black stuff faced with yellow silk. The hood is of black corded silk with a lining of yellow silk and of the Cambridge design. The birretum is the doctor's bonnet of black velvet with yellow cord.

JSD: Entitled to wear a gown of black stuff faced with olympic blue silk bordered with yellow silk. The hood is of black corded silk with a lining of olympic blue silk bordered with yellow silk and of the Cambridge design. The birretum is the doctor's bonnet of black velvet with yellow and blue cord.

10. Appeals

Faculty regulations are subject to the normal appeals procedures which begin with the Department, School or College, then, if necessary, the Dean. If still unresolved, the student may appeal to the Academic Appeals Committee of the Faculty of Graduate Studies.

Interdisciplinary and Joint Programmes

Interdisciplinary PhD

Location: Faculty of Graduate Studies,
Rm. 314, Arts &
Administration Building,
Halifax, Nova Scotia, Canada
B3H 4H6

Telephone: (902) 494-2485
Fax: (902) 494-8797

Admissions Committee

J. Fingard Dean
R. Apostle (Sociology and Social Anthropology)
W. Sutherland (Math, Stats, & Computing
Science)

Occasionally a student may wish to engage in a programme of doctoral studies whose requirements are shared by two or more departments within the University. As significant advances in scholarly knowledge frequently occur at interdisciplinary boundaries, the University offers students the opportunity to undertake an interdisciplinary PhD programme. Students considering such a programme must pay particular attention to the following aspects of interdisciplinary doctoral study:

- a) The responsibility largely lies with the student to 'organize' a unique programme of studies with appropriate faculty members and the Dean of Graduate Studies.
- b) The student must hold a first-class Honours undergraduate degree and a Master's degree, or acceptable equivalents, and therefore must have attained an academic level higher than that normally required for entry into a Dalhousie PhD programme.
- c) The broader demands of interdisciplinary scholarship dictate that a student can expect typically, to take a year longer to complete an interdisciplinary programme than is normal for a programme in a single discipline. The same residency requirements apply to the Interdisciplinary PhD as all other PhD programmes.
- d) The student should plan such studies in the context of an overall career goal to ensure that, as far as possible, the programme will constitute a proper qualification for desired employment upon graduation.

Anyone wishing to pursue the programme should plan it within the framework of the following requirements:

- (1) The student should develop a tentative programme of proposed study, reviewing its various features and ramifications, and making sure that it (a) clearly focuses on career goals, (b) is truly interdisciplinary, and (c) cannot be completed within the framework of an extant programme.
- (2) The student should discuss the proposed programme with faculty members in participating departments and identify the chair of the committee and the potential supervisor.
- (3) The student should discuss the proposed programme with a faculty member in a participating department obtaining that person's agreement to act as the supervisor or as one of the thesis committee members.
- (4) A formal application should then be initiated for entry into the programme. Details of the procedure (including an application form) for pursuing an interdisciplinary PhD programme are available from the Office of the Dean of Graduate Studies. If the application is approved, a supervisory committee will be established by the Dean.
- (5) The committee will be responsible for supervising the student's overall programme of study, including the setting and scheduling of comprehensive examinations, the development of a thesis proposal, the research, and the thesis-writing and defence.

Neuroscience

Contact: Dr. K. Semba, Department of Anatomy and Neurobiology or Graduate Coordinator of Individual departments.

Telephone: (902) 494-2008

Fax: (902) 494-1212

or Graduate Coordinator of Individual departments.

The University offers a graduate programme leading to the Master of Science and/or Doctor of Philosophy degree. This interdisciplinary programme is coordinated with the departments of Anatomy and Neurobiology, Biochemistry, Pharmacology, Physiology and Biophysics, and Psychology with the degree being awarded in Anatomy/Neuroscience, Biochemistry/Neuroscience, etc. Approximately forty faculty members in these five departments are involved in Neuroscience research and can serve as supervisors in this programme. The student must be accepted by both the Departmental Graduate Programme Committee and by the Neuroscience Programme Committee.

The programme is designed to give the student a broad knowledge of the field of Neuroscience in addition to specialized training in one field of research. Normally, the student must take at least two half classes in neuroscience outside the department in which they are registered, which would replace some of the departmental course requirements. The student's Supervisory Committee will be selected by the Departmental Graduate Programme Committee and the Neuroscience Programme Committee; the Supervisory Committee is primarily responsible for designing and approving the programme that will best meet the student's needs.

Admission Requirements

In order to be admitted into the Neuroscience programme, a student must have a 4-year honours bachelor's degree with an average of B+ or better. Students with a BSc degree wishing to do a PhD should be registered initially in the MSc programme, but may be considered for transfer into the PhD programme after successful completion of the MSc class requirements. Students with strong undergraduate training in Neuroscience may apply to have some of the course requirements waived.

Classes Offered

ANAT 5100.03B Neuroanatomy

ANAT 5070.03B Chemical Neuroanatomy

BIOC 5301.03B Biochemical Communication

NESC 6000.03R Selected Topics in Neuroscience

PHAC 5405.03B Advanced Pharmacology

PHAC 5600 series Neuropharmacology

PHYL 5494.03B Synaptic Transmitters

PHYL 5511.03B Neurophysiology

PHYL 5520.03A Cellular Biophysics and Physiology

PHYL 5521.03B Cell and Molecular Physiology

PSY 6270.03A or B Comparative Neurobiology

PSY 6370.03A or B Neuroscience Laboratory

**LLB/MBA, LLB/MHSA, LLB/MLIS,
LLB/MPA**

All of the above are four-year programmes leading to the combined degree.

Normally students will register in the Faculty of Graduate Studies in the first-year of the programme and the Faculty of Law/LLB in the subsequent three years.

Students must apply to both the Law School and the appropriate graduate department individually, satisfying the entrance requirements for both programmes.

For further information see entry for appropriate department in this calendar.

MD/PhD

The combined programme is offered to students as a means of expanding career opportunities and to contribute to the training of a new generation of scientifically trained clinical research workers.

The programme will be offered in the following Faculty of Graduate Studies departments: Anatomy and Neurobiology, Biochemistry, Microbiology and Immunology, Pharmacology and Physiology/Biophysics. See individual departmental listings for more information.

Students must apply to both programmes in the same year (satisfying the entrance requirements in both Faculties). The student will register for the first two years of the combined programme full-time MD and part-time PhD (paying fees for the MD programme only). During this time the student is expected to develop a PhD thesis proposal and initiate research. The following two years (if accepted with a Master's degree), 3 years (if accepted without a Master's degree) the student will be granted a leave of absence from Medicine and register full-time PhD paying full graduate studies fees, devoting all of his/her time to the PhD programme. During the time the student is registered full-time graduate studies it is expected that the thesis research will be completed and the thesis written and defended.

In the following years until completion of the MD, the student will register full-time MD and, if necessary, part-time PhD (paying only MD fees). In some instances it might be possible to combine the latter stages of the PhD (thesis writing and defence) with the final years of the MD. Should the student complete the MD requirements before completing the PhD he/she must register with the Faculty of Graduate Studies paying an appropriate fee.

It is anticipated that this concurrent programme could result in a significant saving of time for any students contemplating both degrees.

Departmental Listings

The following entries are designed to provide general information about particular graduate programmes. Although general Faculty of Graduate Studies requirements apply to all graduate programmes, the methods of fulfilling these requirements vary considerably among Departments. Detailed, up-to-date information is located in departmental publications.

Each Departmental entry includes the following information:

1. A list of faculty members engaged in the teaching of graduate classes and/or the direction of graduate research. Faculty members whose major appointments are in other Departments are so indicated. In addition, the names of other researchers in the Department and honorary appointees may be listed.
2. A description of facilities available may be included. Some general regulations may be described.
3. A list of admission requirements in addition to those of the Faculty of Graduate Studies. In some cases the minimum requirements outlined in Section 2 are not sufficient for entry into a particular programme. Other particular requirements may be listed.
4. A description of degree programme requirements includes:
 - (a) Minimum time required to complete the programme
 - (b) Coursework required
 - (c) Other academic requirements
 - (d) Thesis requirement
 - (e) Other requirements
5. A representative list of class offerings. Not all of the classes will necessarily be offered in a given year. In all cases where a letter appears after a class number in this calendar it should be understood as follows:
 - "A" after the class number denotes a single-term class offered in the fall term only
 - "B" after the class number denotes a single-term class offered in the winter term only
 - "A or B" denotes a single-term class which students may take in either fall or winter term
 - "R" denotes a class lasting both fall and winter terms.
6. An extensive list of areas of specialization.

Agriculture

Location: Nova Scotia Agricultural College, Truro, N.S. B2N 5E3
Telephone: (902) 893-6360
Fax: (902) 897-9399

Professors

D.M. Anderson, BSA, MSc (Man), PhD (Sask)
 C.D. Caldwell, BSc (Mt.A), MSc (Dal), PhD (East Anglia)
 A.B. Gray, BSc (Bishops), MSc, PhD (McG)
 J.P. LeBlanc, BSc (Quebec), BA (Mont), PhD (McG)
 H.Y. Ju, BSc (Seoul), MSc, PhD (McG)
 J. Nowak, MSc, PhD, PhD Hab (Olsztyn)
 P.R. Warman, BSc (Rutgers), MSc, PhD (Guelph)

Associate Professors

S. Asiedu, BSc, MSc, PhD (McG)
 A.H. Fredeen, BSA (Sask), MSc (Guelph), PhD (Davis)
 T. Tennessen, BSc, MSc, PhD (Alta)

Assistant Professor

R.C. Martin, BA, MSc (Carleton), PhD (McG)

The above NSAC faculty hold adjunct appointments at Dalhousie

Honorary Adjunct Professors

Y.A. Papadopoulos, BSc, MSc, PhD (Guelph), Ag. Canada
 S.P. Lall, MSc, PhD (Guelph), Fisheries and Ocean

Honorary Research Associates

R.K. Prange, MSc (UBC), PhD (Guelph), Ag. Canada

The above hold adjunct appointments at NSAC

Admission

The Nova Scotia Agricultural College has facilities for advanced study and research leading to an MSc in Agriculture.

The Master of Science degree is granted by Dalhousie University in association with the Nova Scotia Agricultural College.

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. All inquiries for admission should be addressed to: The Graduate Office, Nova Scotia Agricultural College, P.O. Box 550, Truro, Nova Scotia B2N 5E3

MSc Degree Programme

Formally approved in the Spring of 1993, the Master of Science in Agriculture represents a unique co-operation between Dalhousie University and the Nova Scotia Agricultural College.

The Master of Science degree is granted by Dalhousie University in association with the Nova Scotia Agricultural College, the only educational institution in the Atlantic Region with the faculty and facilities capable of providing such a programme of study.

Graduate students attend classes at the Nova Scotia Agricultural College and, on occasion, supplement their programme with courses at Dalhousie University. Students may choose to concentrate their studies in any of the following areas:

- Agribiology:** Waste Management, Environmental Microbiology, Ecology, Pest Management, Sexual Reproduction of Angiosperms
- Soil Science:** Soil Chemistry, Nutrient Management, Soil Physics, Geology, Soil Fertility
- Animal Science:** Nutrition, Animal Behaviour, Genetics and Breeding, Animal Product Technology, Physiology, Animal Management
- Plant Science:** Crop Physiology, Crop Breeding, Plant Biotechnology, Crop Management

The MSc in Agriculture programme is research centred. All students must complete a research thesis embodying original contribution in the thesis field of study. The thesis is defended at an oral examination.

Required classes include AGRI 5700.03R Communication Skills for Scientists and AGRI 5705.03R Graduate Module Class, the content of which is influenced by specific student needs.

In addition, each student demonstrates in the laboratory of at least one undergraduate course in order to gain knowledge and experience in classroom instruction.

Classes Offered

Unless otherwise noted those classes designated A, B, and C are half-credit; all others are full-credit classes.

Classes marked with an asterisk (*) are offered in alternate years. Please check the current timetable to see whether a particular class is being offered.

*AGRI 5620.03A Ruminant Digestive Physiology & Metabolism: lectures 3 hours, labs 4 hours, A.H. Fredeen, A. Lrette

AGRI 5700.03R Communication Skills for Scientists: lecture 2 hours, L.E. Haley

AGRI 5720.03B Applied Statistics & Experimental Design for Agriculture: lecture 3 hours, D. Montgomery

AGRI 5710.03R Graduate Module Class: lecture 2 hours, Staff

***AGRI 5590.03B Plant Biotechnology:** lecture 3 hours, labs 4 hours, J. Nowak

Anatomy and Neurobiology

Location: Sir Charles Tupper Medical Building, 13th floor, Halifax, N.S. B3H 4H7
Telephone: (902) 494-2052
Fax: (902) 494-1212

Head of Department

D.A. Hopkins

Professors

D.H. Dickson, BA, MSc, PhD (Western)

D.A. Hopkins, BSc (Alta), MA, PhD (McM)

J.G. Rutherford, BA (Cornell), MS (Syracuse), PhD (SUNY), Associate Dean, Faculty of Graduate Studies

J.M. Walker, BPT, MSc (Man), PhD (McM), major appointment in Physiotherapy

R.J. Wassersug, BSc (Tufts), PhD (Chicago)

Associate Professors

R.E. Clattenburg, BSc, MSc (Acadia), PhD (Western)

R.W. Currie, BSA, MSc, PhD (Man), Graduate Studies Co-ordinator

M.M. Hansell, BSc (Tor), PhD (Calif)

I.G. Mobbs, BSc (Aberdeen), MSc (McMaster), PhD (Western)

K. Semba, B.Ed, MA (Tokyo), PhD (Rutgers)

Assistant Professors

G.V. Allen, BSc, PhD (Dal)

H.H. Ellenberger, BA, MSc, PhD (Miami)

W.B. Mathieson, MSc (Carleton), PhD (Ottawa)

F.M. Smith, BSc, PhD (UBC)

The Department of Anatomy and Neurobiology provides facilities for advanced study and research in Neuroscience, Histology, Embryology, Cell Biology, Neuroendocrinology and Evolutionary Biology.

Admission Requirements

All general requirements for admission to the Faculty of Graduate Studies must be fulfilled. In addition, applicants are expected to have received a sound training in biology and chemistry.

Honours degree holders in Biology: Apply for MSc programme, with option to transfer to PhD programme after one year, contingent upon the recommendation of student's advisory committee.

Four year BSc holders: Apply for two year MSc programme.

Three year BSc holders: Must complete qualifying year before applying for admission to graduate programme.

Master's degree holders in a biological science: May apply for direct admission to PhD programme.

Medical graduates: Individuals showing an aptitude for research may apply for admission to either the MSc or PhD programme.

Applicants holding a 3-year BSc degree will be required to complete a qualifying year before being admitted into a graduate programme. The content of this year of study will be recommended by the Department of Anatomy and Neurobiology Graduate Studies Committee.

MSc Degree Programme

The minimum residency requirements for the MSc degree are as indicated in Section 4. of the Faculty of Graduate Studies Calendar.

A minimum of five graduate-level credits is required. A written thesis reporting original research must be submitted and defended orally. The MSc thesis (Anatomy 9000.00) may count for up to three of the five graduate level credits required for the degree. All MSc candidates must participate in the departmental seminar programme during each year of training. Classes are determined by consultation between the student, research supervisor and the Department of Anatomy and Neurobiology Graduate Studies Committee. For each candidate, classes will be selected from those listed below or, where appropriate, from those offered by other Departments. Consent of the instructor is required for admission into each class. Normally, 24 months (2 years) are necessary to complete all requirements for the MSc degree.

All MSc candidates must assist in laboratory teaching or an equivalent (approximately 40-50 hours) during each year of residency.

Financial assistance is available for qualified students for no more than two full years.

PhD Degree Programme

Residency requirements for the PhD degree are summarized in Section 4. of this calendar.

The course requirements for each PhD candidate are determined by consultation between the student, the research supervisor and the Department of Anatomy and Neurobiology Graduate Studies Committee. All PhD candidates must participate in the departmental seminar programme during each

full year of training. The student is also required to assist in laboratory teaching (approximately 40-50 hours per year for at least two years) and to deliver 4-6 hours of lectures during the course of his/her training.

A written thesis (Anatomy 9530.00) based on original research of a high calibre must be submitted and defended orally.

Financial assistance is available for qualified candidates for no more than four years.

Preliminary Examination: All PhD candidates must pass a preliminary examination no later than 1 full year prior to the submission of a thesis (see Section 6). The examination will include material related to the general and specific areas of research. The examining committee will be selected by the Department of Anatomy and Neurobiology Graduate Studies Committee after consultation with the candidate's research supervisor and will conduct the examination in accordance with the regulations established by the Department of Anatomy and Neurobiology.

Theses Examination: MSc and PhD theses will be defended in accordance with the regulations of the Faculty of Graduate Studies (see Sections 7.2, 7.3 and 7.4).

PhD Programme in Anatomy/Neuroscience

Anatomy and Neurobiology also offers a PhD in Anatomy/Neuroscience through the interdisciplinary Neuroscience programme.

Combined MD/PhD Programme

For information on the combined MD/PhD programme see "Interdisciplinary and Joint Programmes" (page 48).

Classes Offered

ANAT 5030.06R Human Histology: one credit, co-ordinator M.M. Hansell

ANAT 5041.03A Light Microscope Techniques: half credit, co-ordinator W.B. Mathieson

ANAT 5042.03B Electron Microscope Techniques: half credit, co-ordinator W.B. Mathieson

ANAT 5050.03R Anatomy Research Seminar: half credit, co-ordinator Staff

ANAT 5070.03B Chemical Neuroanatomy: half credit, co-ordinator K. Semba

ANAT 5090.03B Cellular Development in the Nervous system: half credit, co-ordinator TBA

ANAT 5100.06R Human Neuroanatomy: one credit, co-ordinator K. Seimba

ANAT 5120.06R Human Embryology: one credit, Prerequisite: Anatomy 5150.03R and 5160.09R, an equivalent or the consent of the instructor. Co-ordinators: D.M. Chapman, M.M. Hansell

ANAT 5160.09R Human Gross Anatomy: one and one-half credits, co-ordinator R.E. Clattenburg

ANAT 5170.03R Special Topics: half credit, co-ordinator arranged according to research topic

ANAT 9000.00 MSc Thesis

ANAT 9530.00 PhD Thesis

Atmospheric Science

Location: Departments of Physics and Oceanography

Professors

P. Chylek, Diploma (Physics) (Charles, Prague), PhD (Calif)

Assistant Professors

W. Hyde, BSc (Tor), MSc (Waterloo), PhD (Tor)
I. Folkins, BSc (Dal), MSc, PhD (Tor)

Adjunct Professors

G. Leains, BSc, PhD (Tor)
K. Higuohi, BSc (Carleton), MSc, PhD (Tor)
G. Isaacs, PhD (McGill)
M. King, PhD (Az)

Postdoctoral Fellow

G. Videen, BSc, MSc, PhD (Az)

Graduate Degrees

Graduate degrees in Atmospheric Science may be taken through either the Physics or the Oceanography departments.

MSc Degree Programme

Minimum course requirements are a total of five half-credit classes at the 5000 level, including three of 5520.03A, 5411.03A, 5500.03A, and 5530.03B. Classes may be taken through Physics or Oceanography.

Research and Thesis are required.

PhD Degree Programme

Prospective graduate students should refer to the class requirements for the Departments of Physics or Oceanography. Of the classes required in the chosen department, at least two must be advanced graduate classes in Atmospheric Science. If the student has not taken the required 5000-level classes they must be taken at this point.

If the student is registered in Oceanography, he or she must write and defend a proposal for thesis research; if in Physics, a preliminary oral examination must be taken in the first year.

All candidates must prepare, research and orally defend a thesis.

Biochemistry

Location: Sir Charles Tupper Medical Building, 9th Floor, Halifax, NS, B3H 4H7
Telephone: (902) 494-2480
Fax: (902) 494-1355

Head of Department

W. Carl Brackenridge, PhD, Carnegie and Rockefeller Professor

Professors

A.H. Bleir, MSc (UBC), PhD (California)
 W.C. Brackenridge, BSc (Queen's) MSc, PhD (Toronto)
 P.J. Dolphin, BSc, PhD, DSc (Southampton)
 W.F. Doolittle, AB (Harvard), PhD (Stanford)
 M.W. Gray, BSc, PhD (Alberta)
 C.W. Helleiner, BA, PhD (Toronto)
 C.B. Lazier, BA (Toronto), MSc (UBC), PhD (Dalhousie)
 F.B. Palmer, BSc, PhD (Western)
 R.A. Singer, AB (Princeton), PhD (Harvard), Graduate Coordinator (Tel: 494-2306)
 M.H. Ten, BSc, MD (Dalhousie), FRCP(C), FACP, major appointment in Medicine
 J.A. Verpoorte, Drs (Utrecht), DSc (Pretoria)
 C.J.A. Wallace, MA, DPhil (Oxon)

Associate Professors

H.W. Cook, BSc, MSc (McGill), PhD (Dalhousie), major appointment in Pediatrics
 F.I. Maclean, MA (Toronto), DPhil (Oxon)

Assistant Professors

D.M. Byers, BSc, MSc (Dalhousie), PhD (Alberta), major appointment in Pediatrics
 M.J. Dobson, BSc (Dalhousie), D.Phil (Oxon)
 P.X-Q. Liu, BSc (Wuhan), PhD (Cornell)
 N.D. Ridgway, BSc, MSc (Dalhousie), PhD (U.B.C.), joint appointment in Pediatrics
 H.-S. Ro, BSc, PhD (McGill)

Lecturers

S.S. Reddy, BS, MD (Memorial) FRCP (C), major appointment in Medicine
 D.C. Riddell, BSc, PhD (Queen's), major appointment in Pathology.

Admission Requirements

General requirements for admission to the Faculty of Graduate Studies are given in section 2 of "Faculty Regulations". In addition, foreign applicants must submit the results of the Graduate Record Examination. A TOEFL score of at least 600 is required of applicants whose native language is not English (section 2).

General Regulations

The Department accepts applicants with degrees in Biochemistry and also those with training in related fields such as biology, chemistry and medicine. Our programme is designed to ensure that all graduate students acquire a general background in biochemistry that will provide a solid foundation for career development. In addition, each student specializes in one of the following areas: molecular biology; lipids, lipoproteins and membranes; protein biochemistry. Advanced knowledge within a specialty is developed by formal classes and/or guided study arranged for each student through consultation with a supervisory committee. Students also participate in the Biochemistry seminar series (BIOC 5910.06R-5913.06R) and in teaching/laboratory demonstrating.

Entering graduate students are assessed with regard to their general background in biochemistry, using an open-book written test, to ensure that they have a grasp of the important principles in solving biochemical problems and have the background necessary for advanced classes. A preliminary examination on the subject area of the thesis occurs at the end of the first year of study. Application may be made at that time for transfer from an MSc to a PhD programme. Scholarship support is available, and students are eligible for the Patrick Prize, awarded by the Department to recognize excellence in graduate research. Additional information can be obtained by contacting the Department for a copy of our booklet, Research and Graduate Study in Biochemistry.

MSc Programme

A thesis describing original research done by the candidate is prepared and defended orally. A Thesis Supervisory Committee consisting of the research director and two others is appointed to assist the candidate.

The minimum residence requirements for the two MSc programmes (see section 2.2) are 1 and 2 years, respectively. Experience has shown that most candidates require an additional 6-12 months to complete the thesis.

PhD Programme

The preparation and oral defence of a thesis describing an extensive original investigation carried out by the candidate is the major requirement. A Thesis Supervisory Committee consisting of the research director and three others is appointed to oversee the research. The minimum residence requirements of the PhD are 2 years from the

MSc and 3 years from the BSc (see section 2.3). Most students require an additional 1-2 years to complete the thesis.

PhD Programme in Biochemistry/Neuroscience

Biochemistry also offers a PhD in Biochemistry through the interdisciplinary Neuroscience programme.

Combined MD/PhD Programme

For information on the combined MD/PhD programme see "Interdisciplinary and Joint Programmes" (page 48).

Areas of Specialization

Gene Expression and Cell Regulation

M.J. Dobson - Chromosome Structure and Function: yeast plasmid segregation, organization of human telomeric DNA, yeast artificial chromosome vectors, protein-DNA interactions.

C.B. Lazier - Estrogen Action: receptors and gene expression, mechanism of action of nonsteroidal antiestrogens.

S.K. Reddy - Heat Shock Proteins: relevance to growth factors, immunology and diabetes mellitus.

D.C. Riddell - Human Molecular Genetics: tumor suppressor genes.

H.-S. Ro - Molecular Control of Gene Expression: adipocyte differentiation, obesity (cardiovascular diseases and diabetes), and cellular transformation (cancer).

R.A. Singer - Cell Growth Control: regulation of the eukaryotic (yeast) cell cycle and cell proliferation (with G.C. Johnston/Microbiology).

Lipids, Lipoproteins and Membranes

W.C. Breckenridge - Lipoproteins and Atherosclerosis: structure and function of lipids and apolipoproteins in lipoprotein metabolism.

D.M. Byers - Membrane Proteins and Lipids: protein kinase C and neural cell signaling; enzymology and regulation of cholesterol and fatty acid metabolism.

H.W. Cook - Fatty Acid and Complex Lipid Metabolism: regulation by protein phosphorylation; plasmalogens and peroxisomal disorders.

P.J. Dolphin - Lipoprotein Metabolism: molecular enzymology of lipolytic enzymes; genetic defects in man and animal models; reverse cholesterol transport.

F.B.St.C. Palmer - Functions of Membrane Phospholipids: receptor-linked transmembrane signalling.

N.D. Ridgway - Sphingomyelin and Cholesterol Metabolism: coordinate regulation.

M.H. Tan - Nutritional Factors and the Mechanism of Hypolipidemic Agents in Atherosclerosis: Insulin action in skeletal muscle.

Metabolism

F.I. Maclean - Mathematical Models of Metabolic Response.

Molecular Evolution

W.F. Doolittle - Genome Evolution: genomics, molecular phylogeny, archaeobacterial genetics.

M.W. Gray - Organization and Evolution of Mitochondrial and Ribosomal DNA: plants and protists; transcription, RNA processing and RNA editing; phylogenetic trees.

P. X.-Q. Liu - Genome Evolution and Gene Regulation of Chloroplasts: evolution of operons; organelle-nucleus interactions.

Proteins

A.H. Blair - Enzymes: kinetics and mechanism.

C.J.A. Wallace - Protein Engineering: chemical and genetic remodelling of cytochrome *c* for studies of mitochondrial electron transport.

Classes Offered

Classes marked (*) are not offered every year; consult current timetable for changes.

BIOC 5000.06R Special Topics in Biochemistry: students interested in topics not covered in formal classes may ask the department for special classes to meet their needs. The fields in which the department can offer instruction may be judged from the list of research topics.

BIOC 5300.03B Biochemical Communication: Membranes and Cell Signalling: lecture 3 hours, D.M. Byers, H.W. Cook, C.B. Lazier, N.D. Ridgway, F.B. St. C. Palmer.

BIOC 5301.03A Biochemistry of Lipids: lecture 3 hours, H.W. Cook and N.D. Ridgway.

***BIOC 5302.03B Structure, Biosynthesis and Metabolism of Lipoproteins:** lecture 2 hours, P.J. Dolphin, W.C. Breckenridge (will be offered '94-'95).

BIOC 5304.03B Integration and Control of Metabolism: lecture 3 hours, P.J. Dolphin and W.C. Breckenridge.

***BIOC 5401.03B The World of RNA:** lecture/seminar and guided reading 2 hours, M.W. Gray (not offered in '94-'95).

***BIOC 5402.03B Biochemical Evolution:** weekly discussions / seminars and guided reading 2 hours, W.F. Doolittle and C. J. A. Wallace (will be offered in '94-'95).

BIOC 5403.03B Genes and Genomes: lecture 3 hours, P. Liu and W.F. Doolittle.

BIOC 5404.03A Gene Expression: lecture 3 hours, R.A. Singer.

BIOC 5601.03R and 5602.03R Selected Topics in Advanced Biochemistry: guided reading and tutorial, Biochemistry faculty members.

BIOC 5803.03A Advanced Laboratory in Biochemical Techniques: laboratory approximately 72 hours total. Biochemistry, Biology and Microbiology faculty members; Coordinator: C.J.A. Wallace. The class is a series of laboratory modules (each of 4 weeks' duration, 6 hours per week) organized collaboratively by the departments of Biochemistry, Biology, and Microbiology. A choice of modules is offered in 3 sections covering techniques used in the study of molecular biology, protein structure-function, and specific metabolic processes. Graduate students select three modules from any section or sections, subject to availability of space. Consult the coordinator regarding prerequisites and module selections.

BIOC 5700.03A Proteins: lecture 3 hours, J.A. Verpoorte.

BIOC 5701.03B Enzymes: lecture 2 hours, tutorial 1 hour, A.H. Blair.

***BIOC 5800.06R Clinical Medical Biochemistry:** lecture 2 hours, problem session 1 hour, laboratory by arrangement. B. Naasar (will be offered in '94-'95).

***BIOC 5802.06R Principles of Instrumentation:** lecture 3 hours, laboratory by assignment. Coordinator: S. Boss (not offered in '94-'95).

BIOC 5910.06R-5913.06R Biochemistry Seminar: tutorial 1 hour. Coordinator: P.J. Dolphin. Attendance at the weekly Departmental seminar, and discussion with seminar speaker; the presentation of two (MSc) and four (PhD) seminars, in "Journal Club" format, covering recent research papers; participation in the Departmental Symposium on a student-selected topic.

BIOC 9000.00R MSc Thesis

BIOC 9530.00R PhD Thesis

Biology

Location: Life Sciences Centre, 1355 Oxford Street, Halifax, N.S. B3H 4J1

Telephone: (902) 494-3515

Fax: (902) 494-3738

Chair

J.H.M. Willison

Professors Emeritus

K.E. von Maltzhan, MS, PhD (Yale)

L.C. Vining, MSc (Auck), PhD (Cantab), FRSC

Professors

R.G. Brown, MSc (McG), PhD (Rutgers)

A.R.O. Chapman, PhD (LIV)

R.W. Doyle, MSc (Dal), PhD (Yale) Director, Gene Probe Laboratory

J. Farley, MSc (Western), PhD (Man)

J.C. Fontana, PhD (Cantab), major

appointment in Psychology

B. Freedman, MSc, PhD (Tor)

B.K. Hall, PhD, DSc (UNE), FRSC, Killam Research Professor

O.P. Kamra, MS (N Car State), PhD (Wash State)

W.C. Kimmins, PhD (Lond), Dean of Science

P.A. Lane, MSc (SUNY Binghamton), PhD (SUNY Albany)

R.W. Lee, MA (Mass), PhD (SUNY Stony Brook)

T.H. MacRae, MSc, PhD (Windsor)

I.A. McLaren, MSc (McG), PhD (Yale), George S. Campbell Professor

I.A. Meinertzhagen, PhD (St. Andrews), major

appointment in Psychology

E.L. Mills, MS, PhD (Yale), major appointment in Oceanography

R.K. O'Dor, PhD (UBC)

D.G. Patriquin, MSc, PhD (McG)

R.E. Schelbling, BSc, PhD (McG)

D.B. Stoitz, PhD (McM), major appointment in Microbiology

R.J. Wassersug, PhD (Chic), major

appointment in Anatomy and Neurobiology

J.H.M. Willison, PhD (Nottingham)

E. Zouros, MSc, PhD (Agr Col Athens), PhD (Chic)

Associate Professors

E.W. Angelopoulos, MS, PhD (Minn)

R. Croil, PhD (McG), major appointment in Physiology/Biophysics

G.S. Hicks, MSc (Carleton), PhD (Sask)

B. Pohajdak, MSc, PhD (Man)

S.R. Shaw, BSc (London), PhD (St. Andrews), major appointment in Psychology

H. Whitehead, MA, PhD (Cambridge)

J.M. Wright, PhD (Memorial)

Associate Professor (Research)

G.F. Newkirk, PhD (Duke)

Assistant Professors

M. Leonard, MSc (Guelph), PhD (Ottawa), WFA

M. Johnston, PhD (Chic)

A. Pinder, PhD (Mass), NSERC Research Fellow

S. Waide, PhD (Calgary), NSERC Research Fellow

Honorary Adjunct Professors

D. Aiken, MSc (New Hamp), PhD (Alta), Fisheries and Oceans

D. Anderson, PhD (Sask), MSc, BSA (Man), HRA

S. Asiedu, BSc, MSc, PhD, (McG), HRA

W.D. Bowen, PhD (UBC), BIO

C.D. Caldwell, PhD (East Anglia), NS Agric Col

S.E. Campans, PhD (UBC), BIO

D.K. Cone, MSc (Guelph), PhD (UNB), St. Mary's University

R.J. Conover, PhD (Yale), BIO

J.S. Craigle, MSc, PhD (Queens), Inst. Marine Bioscience, NRC

J. Doull, Mount Saint Vincent

S.R.V. Durvasula, MSc, PhD (Andhra), BIO

L. Eaton, NSRC

R.W. Eimer, Environment Canada

A.H. Fredeen, PhD (McG), NS Agric Col

L. Fritz, PhD, BS (SUNY Stony Brook), MS, PhD (Rutgers), NRC

A.B. Gray, MSc, PhD (McG), NS Agric Col

B.T. Hargrave, MSc (Dal), PhD (UBC), Fisheries and Environment

F. Harrington, Mount St. Vincent

W.G. Harrison, PhD (North Carolina, Raleigh), BIO

H.Y. Ju, PhD (McG), NS Agric Col

E. Kenchington, MSc (Dal), PhD (Tas), Fisheries and Oceans

S.R. Kerr, MSc (Queen's), PhD (Cal), BIO

S.P. Lall, MSc, PhD (Guelph), Fisheries and Oceans

K.H. Mann, PhD (Reading), DSc (Lond), FRSC, BIO

R.C. Martin, MSc (Carleton), PhD (McG), NS Agric Col

J.L. McLachlan, MA, PhD (Oregon State College), Acadia

J. Nowak, PhD (Olzstyn), PhD (Dal), NS Agric Col

T.C. Platt, MA (Tor), PhD (Dal), BIO

J.D. Pringle, MSc (Victoria), PhD (Dal), Fisheries and Oceans

M. Silver, PhD (Syracuse)

M. Sinclair, MSc, (Southampton), PhD

(Scripps Inst) Fisheries and Oceans, appointment through Oceanography

T. Tennesen, PhD (Alta), NS Agric Col

J.P. van der Meer, PhD (Cornell), Inst. Marine Bioscience, NRC

J. van der Meulen, MSc (Alta), PhD (U of Calif, LA), BIO

J.L.C. Wright, PhD (Glasgow), Inst. Marine Bioscience, NRC

Research Associates

D. Cook, MSc (Michigan)

C.M. Herblinger, MSc (DEA Paris), PhD (Dal),

Gene Probe Laboratory

G. Pogsan, PhD (UBC)

E. Retallack, MSc (Dal), PhD (Manchester)

Y. Tang, MSc, PhD (Dal)

D. Webber, MSc (Dal)

Honorary Research Associate

P.R. Waman, BSc (Rutgers), MSc PhD (Guelph), NS Agric Col

Postdoctoral Fellows

M. Ball, PhD (U of Georgia)

A. Graveson, BSc (Bishop's), PhD (Ottawa)

S. McConnell

T. Miyake, MS (Mich), PhD (Texas A&M)

S. Smith, MSc, PhD (Ottawa)

C. Staicer, MSc (NAU), PhD (Mass)

D. Stewart, BSc (Acadia), PhD (Toronto)

K. Yang

M. Zhang, MSc, PhD (Dal)

The Department encourages applications from prospective postdoctoral fellows. Financial support is available on a competitive basis from a variety of sources (e.g. individual professors, Killam, NSERC). Inquiries should be made before November and can be addressed to the Chair of Biology.

Admission

The Biology Department has facilities for advanced study and research leading to the MSc and PhD degrees.

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies and normally a student will not be permitted to earn all three degrees (BSc, MSc, and PhD) at Dalhousie. All inquiries for admission to the graduate programme should be addressed to Dr. Finn Sander, Biology Department.

MSc Degree Programme

For minimum times required to complete this programme, see section 4.

Students are required to obtain five full credits at the graduate level; of these at least two must be graduate classes and include Biology 5700.03R and Biology 5705.03R; they may include graduate classes from other departments, and in the case of students supervised at Nova Scotia Agricultural College, may include classes given at the College (see Stream E, below). The thesis may count as 1, 2, or 3 credits. Additional classes may be specified by supervisory committees.

Students are required to demonstrate in an undergraduate biology class for at least one year and must be admitted to candidacy before they are permitted to submit and defend a thesis.

A thesis reporting original research must be submitted and defended orally.

Students are expected to participate in weekly departmental seminars.

PhD Degree Programme

For minimum times required to complete this programme, see section 4.

Biology 5700.03R (or 5701.03R) and Biology 5705.03R (or 5706.03R/5707.03R) are required classes and additional classes may be specified by supervisory committees.

A preliminary examination on subjects in the general area of the thesis research is required for all PhD students. Students must pass the preliminary examination at least one year before submitting a PhD thesis.

Students are required to demonstrate in an undergraduate biology class for one year, and must be admitted to candidacy before submitting a thesis.

A thesis reporting original research must be defended orally. Students are expected to participate in weekly departmental seminars.

Streams

Incoming students are assigned to one of five streams: however, they may take classes outside their stream areas. Consult department for details. The streams are:

A: Ecology/Evolution/Marine Biology/Aquaculture

B: Plant-Terrestrial Biology/Plant Physiology

C: Cell/Molecular/Genetics/Microbiology

D: Development/Animal Physiology

E: Agricultural Biology

Classes Offered

Classes marked with an asterisk (*) are offered in alternate years. Please check the current timetable to see whether a particular class is being offered.

BIOL 5012.03A or B Advanced Laboratory in Biochemical Techniques: Lab. 72 hours total approx. C.J.A. Wallace, J.M. Wright, B. Pohajdak

BIOL 5020.03A Advanced Cell Biology: lecture 3 hours, T.H. MacRae

BIOL 5024.03A Microscopy: lecture 2 hours, lab 3 hours, G. Faulkner, D.B. Stoltz, K.B. Easterbrook, J.H.M. Willison

BIOL 5030.03A Topics in Genetics: seminar 2 hours, R.W. Lee

BIOL 5060.03B Environmental Ecology: lecture 3 hours, B. Freedman

***BIOL 5081.03A Experimental Design and Data Analysis in Biology:** lecture, 3 hours, R. Schelbling, H. Whitehead

***BIOL 5070.03R Advanced Topics in Animal Physiology:** lecture 2 hours, open lab 3 hours, R.K.O'Dor, A. Pinder

***BIOL 5072.06R Animal Nutrition:** lecture, seminar 2 hours, J. Castell

BIOL 5101.03B Industrial Microbiology and Biochemistry: lecture, seminar 2 hours, M. Silver

***BIOL 5214.03B Physiology and Biochemistry of Marine Algae:** lecture 2 hours, J.S. Craigie

***BIOL 5439.03B Topics in Human and Medical Genetics:** lecture, seminar 2 hours, O.P. Kamra (Coordinator), E. Zouros

***BIOL 5600.03B Invertebrate Fisheries and Aquaculture:** lecture, seminars, 3 hours, J. Grant, R. Mohn, G.F. Newkirk

***BIOL 5616.03B Ecosystem Analysis:** lecture/discussion 3 hours, P. Lane

***BIOL 5651.03A Marine Mammalogy:** lecture/projects, etc 3 hours, I. McLaren, H. Whitehead

BIOL 5654.03A Plant Ecology: lecture 2 hours, lab 3 hours, 1 or 2 field trips on weekends, B. Freedman

BIOL 5700.03R Communications Skills for Scientists: 2 hour, P. Harding, and others

BIOL 5701.03R Communication Assignment: 1 hour, staff

BIOL 5705.03R Graduate Module Class I: Taken by MSc students only (graded) 2 hours, staff

BIOL 5706.03R Graduate Module Class II: Taken by PhD students (or for MSc students who wish to take additional modules) (graded) 2 hours, staff

BIOL 5707.03R Graduate Module Class III: Taken by PhD students only (pass/fail) 2 hours, staff

BIOL 5800.03-5899.03 Special Topics in Biology: The format of Special Topics classes will depend upon individual student needs. The availability of these classes is dependent upon demand. The names of the professors associated with the following classes are not exclusionary and are provided as a guide only. Students are advised to discuss Special Topics classes with their supervisor.

BIOL 5801.03 A or B or R/5901.06R Special Topic in Agricultural Biology

BIOL 5802.03 A or B or R/5902.06R Special Topic in Animal Behaviour, H. Whitehead

BIOL 5803.03 A or B or R/5903.06R Special Topic in Animal Physiology, R.K. O'Dor

BIOL 5804.03 A or B or R/5904.06R Special Topic in Animal Science

BIOL 5805.03 A or B or R/5905.06R Special Topic in Aquaculture, G. Newkirk

BIOL 5806.03 A or B or R/5906.06R Special Topic in Biochemistry, B. Pohajdak

BIOL 5807.03 A or B or R/5907.06R Special Topic in Biological Education

BIOL 5808.03 A or B or R/5908.06R Special Topic in Biomathematics

BIOL 5809.03 A or B or R/5909.06R Special Topic in Biostatistics

BIOL 5810.03 A or B or R/5910.06R Special Topic in Cell Biology, T. MacRae

BIOL 5811.03 A or B or R/5911.06R Special Topic in Developmental Biology, B.K. Hall

BIOL 5812.03 A or B or R/5912.06R Special Topic in Ecology, I. McLaren

BIOL 5813.03 A or B or R/5913.06R Special Topic in Environmental Biology, J.H.M. Willison

BIOL 5814.03 A or B or R/5914.06R Special Topic in Evolutionary Biology, E. Zouros

BIOL 5815.03 A or B or R/5915.06R Special Topic in Fish Biology, S.R. Kerr

BIOL 5816.03 A or B or R/5916.06R Special Topic in Functional Morphology, A. Pinder

BIOL 5817.03 A or B or R/5917.06R Special Topic in Genetics, O.P. Kamra

BIOL 5818.03 A or B or R/5918.06R Special Topic in History of Biology, J. Farley

BIOL 5819.03 A or B or R/5919.06R Special Topic in Industrial Microbiology, R.G. Brown

BIOL 5820.03 A or B or R/5920.06R Special Topic in Limnology, P. Lane

BIOL 5821.03 A or B or R/5921.06R Special Topic in Marine Biology, R. Doyle

BIOL 5822.03 A or B or R/5922.06R Special Topic in Marine Ecology, R. Schelbling

BIOL 5823.03 A or B or R/5923.06R Special Topic in Marine Microbiology

BIOL 5824.03 A or B or R/5924.06R Special Topic in Microbiology, L.C. Vining

BIOL 5825.03 A or B or R/5925.06R Special Topic in Molecular Biology, J. Wright

BIOL 5826.03 A or B or R/5926.06R Special Topic in Philosophy of Biology, K. von Moltzhan

BIOL 5827.03 A or B or R/5927.06R Special Topic in Phycology, A.R.O. Chapman

BIOL 5828.03 A or B or R/5928.06R Special Topic in Plant Biology, G. Hicks

BIOL 5829.03 A or B or R/5929.06R Special Topic in Plant Ecology, B. Freedman

BIOL 5830.03 A or B or R/5930.06R Special Topic in Plant Physiology, D.G. Patriquin

BIOL 5831.03 A or B or R/5931.06R Special Topic in Plant Science

BIOL 5832.03 A or B or R/5932.06R Special Topic in Population Biology, S. Waide

BIOL 5833.03 A or B or R/5933.06R Special Topic in Zoology, E. Angelopoulos

BIOL 9000.00 MSc Thesis

BIOL 9530.00 PhD Thesis

Areas of Specialization

Stream A - Ecology/Evolution/Marine Biology/Aquaculture

Biology and culture of lobster and scallops (D.E. Aiken)

Population dynamics and management of seals (W.D. Bowen)

Incremental growth of fish otoliths (S.E. Campana)

Population and community ecology of seaweeds (A.R.O. Chapman)

Ecology; Zooplankton physiology and population studies (R.J. Conover)

Ecological genetics of aquatic organisms; aquaculture genetics (R.W. Doyle)

Phytoplankton ecology and primary production (S.R.V. Durvasula)

Parasitology; history of biology (J. Farley)

Ethology; development and adaptation in behaviour (J.C. Fentress)

Marine benthic ecology (B.T. Hargrave)

Marine phytoplankton (W.G. Harrison)

Marine population studies; ecology (S.R. Kerr)

Seal biology (W.C. Kimmins)

Community ecology, structure and stability of plankton communities, competition-predation phenomena, eutrophication (P.A. Lane)

Analysis of ecosystems. Comparison of system function in coastal inlets and in lakes. Ecological energetics. (K.H. Mann)

Avian behavioural ecology (M.L. Leonard)

Marine botany (J.L. McLachlan)

Population, production, and evolutionary ecology of zooplankton, (I.A. McLaren)

Biological oceanography, benthic invertebrates (E.L. Mills)

Aquaculture genetics and bivalve culture (G.F. Newkirk)

Dynamics and spatial properties of phytoplankton. (T.C. Platt)
 Ecology of crustacea and marine plants. (J.D. Pringle)
 Population and community ecology of marine benthos (R.E. Schelbling)
 Fisheries biology (M. Sinclair)
 Genetics of marine algae (J.P. van de Meer)
 Predator-prey relationships in terrestrial arthropods (S. Waide)
 Evolutionary biology; anatomical adaptation (R.J. Wassersug)
 Social organization and population biology of whales (H. Whitshead)
 Population and ecological genetics; the genetic basis of adaptation and evolution (E. Zouros)

Stream B - Plant - Terrestrial Biology/Plant Physiology

Physiology and biochemistry of marine algae (J.S. Craigie)
 Forest ecology, pollution and resource management, ecology (B. Freedman)
 Experimental analysis of development of seed plants and ferns (G.S. Hicke)
 Regeneration and reproduction in lower plants. (K.E. von Maltzahn)
 Plant stress physiology; environmental policy (J.H.M. Willison)

Stream C - Cell/ Molecular/ Genetics/ Microbiology

Birth control for seals (R.G. Brown)
 Radiation genetics and chemical mutagenesis; cytogenetic effects of food additives and insecticides (O.P. Kamra)
 Genetics, characterization and regulation of chloroplast DNA in *Chlamydomonas* (R.W. Lee)
 Synthesis and assembly of tubulin; microtubule organization; metals in marine environments (T.H. MacRae)
 Isolating, cloning and identifying genes expressed in killer cells (B. Pohajdak)
 Molecular biology of marine plants (M. Ragan)
 Bacterial leaching and environmental microbiology (M. Silver)
 Viruses and parasitism in insects (D.B. Stoltz)
 Chemistry of marine natural products (J.L.C. Wright)
 Molecular genetics of fishes (J.M. Wright)

Stream D - Development/Animal Physiology

Nutrient requirements of aquatic species (J. Castell)
 Fish parasites and diseases (D.K. Cone)
 Parasitology; history of biology (J. Farley)
 Fish nutritional research (S.P. Lall)
 Invertebrate nervous systems: Their structural organization and development (I.A. Malnertzhagen)
 Exercise physiology and bioenergetics of marine invertebrates, especially cephalopods; The life cycles of squid (R.K. O'Dor)
 Development, nutrition, pathology of marine invertebrates (R. Scheibling)

Optics of arthropod compound eyes (S.R. Shaw)
 Functional morphology of amphibian larvae (R. Wassersug)
 Ultrastructure of trypanosomes and *Trichomonas* (E. Angelopoulos)
 Developmental biology, cell differentiation, development and evolution (B.K. Hall)
 Comparative animal physiology (A. Pinder)

Stream E - Agricultural Biology

Investigation of tacer movement in plant translocation systems (C.D. Caldwell)
 Effects of physiological parameters and hormone levels on egg production and fertility in the domestic fowl (D.C. Crober)
 Relationship of feeding and management to milk yield (A.H. Fredeen)
 Plant pathology in Nova Scotia (A.B. Gray)
 Effect of boron nutrition on glucosinolate content in crucifers (H.-Y. Ju)
 Field crop management and multiple cropping systems (R.C. Martin)
 Plant tissue culture (J. Nowak)
 Plant anatomy, taxonomy (A.R. Olson)
 Biological Agriculture (D.G. Patriquin)
 Ethology in Canadian Animal Science and its applications to research on cattle (T. Tennessen)

Business Administration

Location: 6152 Coburg Road, Halifax,
N.S. B3H 1Z5
Telephone: (902) 494-7080

The School of Business Administration offers a curriculum of undergraduate and graduate studies designed to equip students to serve the community in business, government, and the professions.

Graduates in good standing in any discipline can apply to enter the graduate programme leading to the degree of Master of Business Administration. Details of the undergraduate programme leading to the Bachelor of Commerce degree may be found in the calendar for the Faculty of Management.

Director of the School

Leonard C. MacLean

Director, International Business Centre

Phillip J. Rossen

Professors Emeritus

C.R. Brookbank, BA, MA, PhD (Tor)
R.E. George, BSc (London), MSc (Bristol), PhD (London)

Professors

M.R. Brooks, BOT (McG.), MBA (Dal), PhD (Wales)
F.G. Crane, BA (Acadia), DPA, MPA (Dal), P.Admin (ICSAC), PhD (Bradford)
C.R. Dipchand, BComm (Queen's), MBA (Sask), PhD (Western), on leave 1992/93
I. Fooladi, BSc (Iran), MA (Tehran), MS, PhD (Oregon)
L.C. MacLean, BA, Bed (St.FX), MA, PhD (Dal)
M.J.C. Martin, BSc (Nottingham), PhD (Sheffield)
J.D. McNiven, BA, MA, PhD (Mich)
J.R.E. Parker, B Comm (Dal), MBA (Wash), CPhil (Mich), FCA
G.S. Roberts, AB (Oberlin), MA, PhD (Boston Col)
P.J. Rossen, Dip. MS (Salford), MA (Lancaster), PhD (Bath)
Y. Sankar, BA(McG), MA (Tor), PhD (Johns Hopkins)
D.A. Schellinck, BSc, MBA (Dal), PhD (Illinois)

Associate Professors

B.C. Archibald, BA (Queen's), MSc (Stanford), PhD (Wat)
R.G. Blunden, BComm (Dal), MM (Northwestern), PhD (Western)
R. Carroll, BBA, BEd (StFX), MBA (Dal), CGA
D.C. Cherry, B Comm (Dal), MBA (McM), CMA
J.E.D. Conrod, BComm (Dal), MBA (Tor), CA

C.J. Dirksen, BS (Santa Clara), MBA, PhD (Oregon)
J.F. Duffy, BS, MS, PhD (Iowa)
R.A. Ellison, BSc (UNB), MBA (McM), PhD (Tenn)
H.I. Gaemann, Vordiplom (Stuttgart), MS (Oregon), PhD (UBC)
R.E. Klapstein, BSc (Calg), BA (Alta), MBA, LLB (Dal), LLM (Osgoode), CMA
S.O. Larson, BSc (SGW), MSc (Alta), PhD (UBC)
R.N. Maddox, BA, MBA, PhD (Ohio)
L.W. Meelies, AB, MBA (Rutgers), PhD (Mass)
A. Opping, BSc (Ghana), MBA (Chic), PhD (Iowa), CGA
D.J. Patton, BA (UNB), MA (Tor), DBA (Indiana)
A.C. Peacock, BA, MA, PhD (Western), on leave 1994/95
R.S. Sandhu, BSc, BCL, LLM (Delhi), LLM (Yale), MBA (Dal)
E.W. Scott, BComm (Dal), MBA (Col), CA, CMA
Y. Shafiq, BSc, MPA (Tehran), MBA, PhD (Mich)
D.P.J. Sheridan, CD, BA, BEd, MEd(Admin) (Sask), PhD (Alta)
F.S. Skinner, BComm (MUN), MBA, PhD (Tor)
R.A. Street, BComm, LLB, LLM (Dal), MBA (Western)

Assistant Professors

R.G. Baitazar, BSc (Ateneo de Manila), MIM, AGSIM
J.K. Grude, BA (Alta), MSc, PhD (London)
B.W. MacLean, BComm, MBA (Dal), CA

MBA Programme

NOTE: In September of 1992 the core curriculum was altered from the previous structure. Students admitted to the MBA programme before this date should consult the calendar of the year admitted.

Additional information on the MBA programmes, including course descriptions, is found in a brochure published by the School of Business, and available from Graduate Admissions or the School. Students seeking further information should contact:

Co-ordinator, MBA Programme
School of Business Administration
6152 Coburg Road
Halifax, N.S. B3H 1Z5
Telephone: (902) 494-7080

The aim of the MBA programme is to prepare students to become effective managers in small or large organizations. The programme concentrates on developing the ability to make sound decisions and judgements, and trains students in the analysis and evaluation of data for decision

making. These skills have wide application in business, government and other organizations. Core courses develop basic skills, while elective subjects strengthen functional skills and deepen understanding of the complex and changing environment facing modern organizations. Required modules in communication develop skills through application. Integration of current computer technology into the curriculum ensures that the learning environment closely approximates that in which graduates will be working. While students may choose to concentrate elective studies in one or two areas, there is no requirement that a major be formally declared.

Admission Requirements

Regulations of the Faculty of Graduate Studies govern admissions. Admission is approved by the Dean of the Faculty of Graduate Studies, on the recommendation of the School of Business Administration. Applicants must hold a degree recognized by Dalhousie University as the equivalent of a Bachelor's Degree in one of its own faculties. Applicants are welcomed from those who have concentrated in the humanities, the social sciences, the physical sciences and engineering.

The School of Business actively seeks applicants also having relevant full-time work experience, but some candidates will be admitted directly from undergraduate studies. A résumé should accompany every application.

All applicants are required to submit results of a Graduate Management Admission Test (GMAT). Information on test dates, locations and registration can be obtained from the Dalhousie Registrar, or by writing directly to GMAT, Educational Testing Service, Box 986, Princeton, NJ, U.S.A. 08541.

Candidates whose native language is not English are required to submit results of the Test of English as a Foreign Language (TOEFL). Information on test dates, locations and registration can be obtained by writing to TOEFL, Educational Testing Service, P.O. Box 899, Princeton, NJ, U.S.A. 08540.

Admission criteria and procedures are identical for the part-time and full-time programmes.

Admissions are made on a rolling basis, commencing in February for the following September. Admission is made only for the academic year beginning in September. Interim (official) transcripts will be considered for candidates currently attending university, if all other documentation is complete. Since space in the programme is limited, it is strongly recommended that all documents be submitted before May 31. (March 31 for

foreign students). Applications received after these dates will be considered on a space available basis.

Applications received after June 1 will be considered only in exceptional circumstances, and as space is available. A complete application includes:

- Faculty of Graduate Studies application form
- 2 reference letters; (academic)
- GMAT results
- TOEFL results, where applicable
- 2 transcripts from each institution attended
- 2 copies of a brief statement explaining how you expect the Dalhousie MBA to benefit you, and what you will contribute to the programme.
- 2 copies of your résumé

The application form and all documentation should be sent to the Office of the Registrar together with the application fee. Reference letters must be originals, sent directly by the referees. Only official transcripts received directly from the issuing institution will be accepted. GMAT and TOEFL score reports must be forwarded by the Educational Testing Service.

All admitted applicants must confirm in writing their acceptance of the offer of a place, and provide a non-refundable deposit of \$200. This fee will be applied toward tuition but will be forfeited if the student does not register in the academic year for which he or she was admitted. Please note that this deposit is separate from any application or pre-registration fees, and is the means by which candidates to whom orientation materials are to be sent are identified.

Tuition deposits are normally due:

- by April 30 for offers made before April 1
- within 30 days for offers made between April 1 and June 15
- within 10-15 days for offers made after June 15

The Faculty of Law may require a deposit in addition to that required by the School of Business.

Grading System and Good Standing

Under the regulations of the Faculty of Graduate Studies and the requirements of the School of Business, MBA students are required to achieve a grade of B- or better in all classes taken. Full-time students are permitted to continue in the programme with one FM grade if an overall B average is maintained for the year. This special exception is available only to full-time students. No credit towards a degree is granted for any class in which a grade of less than B- is obtained.

Students who do not meet these requirements may not continue in the programme unless readmission is recommended by the School and approved by the Faculty of Graduate Studies.

Failed Core classes must be repeated and passed at the earliest opportunity; failed elective classes may be repeated and passed or replaced. A second failure in the same course, regardless of when such failure occurs, will normally result in immediate dismissal from the MBA programme. In order to graduate, students must achieve an overall B average for the programme.

Within two weeks of the first meeting of a class, each instructor shall make available a written description of the method of evaluation to be used in this class. In any courses for which 25 percent or more of the evaluation is based on group work, there must be an exam(s), which must be passed on average.

Special examinations may be granted to students only in the case of illness supported by a medical certificate, or in other exceptional circumstances. Medical certificates must be submitted at the time of the illness and will not normally be accepted after a lapse of one week from the date of the examination.

Part-time MBA Programme

The MBA degree may be earned through part-time study. A student must complete the requirements for the MBA degree within six years of initial enrolment in the programme. Extensions may be granted in special cases upon petition to the Faculty of Graduate Studies.

Several core classes and a selection of electives are offered at night each year on a rotating basis, and any summer classes offered are scheduled at night.

There is no prescribed order of completion of courses in the part-time programme, except as dictated by course prerequisites. However, MBA 6004.03A (Strategy Formulation) and 6005.03B (Strategy Implementation) are among the last classes taken, since they provide an integration of the whole programme and require a major field project.

No more than five (5) half-credit classes may be taken in each twelve month year, including summer sessions. Only Graduate level classes approved for Summer Session offering will be eligible for credit.

Part-time MBA students will be enrolled in classes together with full-time MBA students.

Advanced Standing

Students with relevant academic background may receive some advanced standing for core classes in the MBA programme. For further information, contact the MBA coordinator. Full-time students will not normally be permitted to carry less than a full work load in the first year of the programme, regardless of the number of waivers granted. Students requiring more than thirteen half courses for the degree will be registered in a two year programme and must pay two years' tuition (or equivalent in part-time fees).

International Business

There are no formal concentration requirements in the MBA programme but students hoping to be considered for International Business Fellowships are expected to complete: 6801.03 The Firm in the International Environment, 6802.03 Strategic Management of International Operations, and at least two of the other International Business courses offered by the School. These include:

6803.03 International Transportation

6804.03 Ocean Shipping Seminar

6805.03 Seminar on Marine Resources and Ocean Industry

6806.03 International Marketing

6807.03 International Financial Management

6808.03 International Banking

6809.03 International Trade in Services

6812.03 Foreign Study Mission

6813.03 Management and the Natural Environment

6315.03 Intercultural and Comparative Management

In addition, MBA 6553.03 Managing Technological Innovation is designed with significant international content.

Combined LLB and MBA Programme

This is a four-year programme which enables students to select classes leading to the degrees of Bachelor of Laws and Master of Business Administration. The usual order of the programme is:

Year 1: First-year classes of MBA programme except MBA 6801.03, with a minimum of eleven half-credit classes.

See "Programme Structure" for details.

Year 2: First-year classes of the LLB programme

Year 3: Three half-credit classes from the MBA programme plus 25 hours of classes from the LLB programme, including 7/9 hours from the Business Law area

Year 4: Three half-credit classes, including MBA 6004.03A and 6005.03B from the MBA programme, and between 23 and 25 hours of classes in law.

Years 1 and 2 may be reversed, but students wishing to do so should advise both Schools and the Faculty of Graduate Studies as early as possible.

Candidates for the LLB/MBA programme must also satisfy the entrance requirements of the Faculty of Law (see calendar of that Faculty) and may obtain further information about the combined programme by writing either to the Faculty of Law or to the Co-ordinator of the MBA programme. For admission, students must apply to both the Law School and the Business School.

Programme Structure

All MBA classes are half-credit classes. The MBA programme includes fourteen required core classes (thirteen for LLB/MBA), one required non-credit class (except LLB/MBA), and eight free electives, (four for LLB/MBA).

Full-time students are normally required to carry a full course load in the first year, consisting of eleven half-credit classes and one non-credit class.

First Term

MBA 5101.03A: Financial Accounting

MBA 5703.04A: Business Economics

MBA 5601.03A: Political and Legal Environment

MBA 5503.03A: Quantitative Decision Making

MBA 5801.03A: International Business (formerly 6801.03A)

MBA 5003.00A: Communications (non-credit)

Second Term

MBA 5102.03B: Managerial Accounting (Prerequisite: MBA 5101.03, or permission of the instructor)

MBA 5201.03B: Financial Management (Prerequisite: MBA 1501.03, 5703.04, or permission of the instructor)

MBA 5401.03B: Marketing Management

MBA 5551.03B: Production Management

MBA 5315.03B: Managing People (formerly 5311.03B)

MBA 5511.03B: Management Information Systems (formerly 6903.03B)

Combined LLB/MBA students take five half-credit courses in the first term of the first year and six half-credit classes in the second term, and are not required to take MBA 5003.00A. MBA 5601.03A will be replaced with an MBA elective class.

The second year normally consists of three required core classes and eight electives, to total eleven classes.

Third Term

MBA 6004.03A: Business Policy I: Strategy Formulation. Prerequisite: All first year required classes, or permission of the instructor.

MBA 6328.03A: Management Skill Development. Prerequisite: MBA 5315.03, or permission of the instructor.
4 electives

Fourth Term

MBA 6006.03B: Business Policy II: Strategy Implementation. Prerequisite: MBA 6004.03
4 electives

The variety of electives allows a student to develop a programme in keeping with his/her career plan. Not all classes will necessarily be offered every year. In addition, new classes may be added from time to time. Therefore, students should check with the School for up-to-date information.

Students may also elect to take, with the approval of the School, a limited number of graduate classes in other faculties and departments, such as Mathematics, Statistics and Computing Science, Resource and Environmental Studies, Economics, Public Administration, Law, etc. A concentration in Environmental Studies became available to MBA students in 1992/93. Throughout the programme, candidates will be expected to attend lectures given by visiting professors and business executives and to take part in projects involving the analysis of the problems of local business firms.

Elective Classes

Note: It may not be possible to offer every elective class each year. Please consult the university timetable for a list of current offerings.

Accounting

MBA 6101.03A or B Public Auditing: seminar, Prerequisite: MBA 6103.03

MBA 6102.03A or B Taxation: seminar, Prerequisite: MBA 5101.03, MBA 5703.04

MBA 6103.03A or B Advanced Taxation: seminar, Prerequisite: 6102.03 (not offered every year)

MBA 6106.03A Advanced Managerial Accounting 1: Cost Accounting: lecture, Prerequisite: MBA 5102.03 or permission of the instructor

MBA 6107.03B Advanced Managerial Accounting 2: Organizational Control: lecture, Prerequisite: MBA 6106.03 or permission of the instructor

MBA 6108.03A or B Advanced Financial Accounting 1: lecture, Prerequisite: MBA 5101.03 or permission of the instructor

MBA 6109.03A or B Advanced Financial Accounting 2: lecture, Prerequisite: MBA 6108.03 or permission of the instructor

MBA 6112.03A or B Financial Statement Analysis: lecture, Prerequisites: MBA 5101.03, MBA 5201.03, and MBA 5503.03 (not offered every year)

Finance

MBA 6201.03A or B Investments: lecture, Prerequisite: MBA 5201.03.03. Recommended: MBA 5102.03

MBA 6202.03A or B Investments II: lecture, Prerequisite: MBA 5201.03. MBA 6201.03 or MBA 6205.03 recommended

MBA 6203.03A or B Canadian Capital Markets: lecture, Prerequisite: MBA 5201.03. Recommended: MBA 5102.03

MBA 6204.03A or B Short-Term Financial Management: lecture, Prerequisites: MBA 5201.03, Recommended: MBA 5102.03

MBA 6205.03A or B Capital Budgeting: lecture, Prerequisite: MBA 5101.03 and MBA 5201.03

MBA 6206.03A or B Portfolio Theory: lecture, Prerequisite: MBA 5101.03 and MBA 5201.03

MBA 6807.03A or B: (see International Business)

Management

MBA 5312.03A or B Organizational Design: lecture, Prerequisite: MBA 5315.03 or instructor's consent

MBA 5331.03A or B Introduction to Labour Management Relations: seminar

MBA 6313.03A or B Organizational Change: seminar & lecture, Prerequisite: MBA 5315.03 & MBA 5312.03 or permission of the instructor

MBA 6315.03A or B Intercultural and Comparative Management: lecture, Prerequisite: MBA 6801.03

MBA 6322.03A or B Selection: Testing & Interviewing: seminar/lecture, Prerequisite: MBA 5315.03 or permission of the instructor

MBA 6323.03A or B Training & Development: seminar, Prerequisite: MBA 5315.03 or permission of the instructor

MBA 6324.03A or B Performance Appraisal & Compensation: seminar/lecture, Prerequisite: MBA 5315.03 or permission of the instructor

MBA 6332.03A or B Collective Bargaining: seminar

MBA 6333.03A or B Comparative Labour Relations: seminar, Prerequisite: MBA 5331.03 or permission of the instructor

Marketing and Transportation

MBA 5402.03A or B Buyer Behaviour: lecture

MBA 6401.03A or B Marketing Research and Information Systems: seminar, Prerequisite: MBA 5402.03, MBA 5401.03; strongly recommended MBA 6504.03

MBA 6402.03A or B Marketing Channels: lecture, Prerequisite: MBA 5401.03; recommended MBA 5402.03

MBA 6403.03A or B Advertising Management: lecture & seminars, Prerequisite: MBA 5401.03; recommended MBA 5402.03

MBA 6404.03A or B Consumer Behaviour: seminar, Prerequisite: MBA 5401.03 and MBA 5402.03

MBA 6405.03A or B Sales Management: lecture & case studies, Prerequisite: MBA 5401.03

MBA 6406.03A or B Domestic Transportation: lecture & seminar

MBA 6407.03A or B Physical Distribution Management: lecture & seminar, Prerequisite: MBA 5551.03 or permission of the instructor

MBA 6408.03A or B Transportation Management: lecture, Prerequisite: MBA 5201.03 and MBA 5315.03

MBA 6450.03B Marketing Strategy Seminar: seminar, Prerequisite: MBA 5401.03, and at least two 8000-level marketing classes, (which may be taken concurrently) or instructor's consent

MBA 6803.03A or B: (see International Business)

MBA 6804.03A or B: (see International Business)

MBA 6806.03A or B: (see International Business)

Management and Information Science

MBA 6501.03A or B Operations Research: lecture, Prerequisite: MBA 5503.03

MBA 6502.03A or B Forecasting Models: seminar, Prerequisite: MBA 5503.03 or equivalent

MBA 6503.03A or B Simulation Models: lecture & seminar, Prerequisite: MBA 5501.03 and 5502.03

MBA 6504.03A Applied Statistics: seminar, Prerequisite: MBA 5501.03

MBA 6505.03A or B Managerial Decision Making: lecture & seminar

MBA 6507.03R Advanced Operations Research Project: tutorial, Choice of instructor, See the M. & I.S. area co-ordinator for requirements

MBA 6553.03A or B Managing Technological Innovation: seminar

MBA 6512.03A or B Telecommunication and Business Strategy: seminar, Prerequisite: MBA 5511.03; Exclusion: MBA 6905.03 in 1992/93 and 1993/94

MBA 6514.03A or B Systems Analysis and Design: seminar, Prerequisite: MBA 5511.03; Exclusion: MBA 6904.03 (former number)

MBA 6515.03A or B Special Topics in Management Information Systems: seminar, Prerequisite: MBA 5511.03; Exclusion: MBA 6905.03 (former number)

MBA 6516.03A or B Database Management Systems: lecture/seminar, Prerequisite: MBA 5511.03; Exclusion: MBA 6906.03 (former number)

MBA 6517.03A or B Management of the Information Resource: seminar, Prerequisite: MBA 5511.03; Exclusion: MBA 6907.03 (former number)

MBA 6518.03A or B Expert Systems: lecture/seminar; prerequisite: MBA 5511.03; Exclusion: MBA 6908.03 (former number)

International Business

MBA 6802.03B Strategic Management of International Operations: seminar, Prerequisite: MBA 5801.03

MBA 6803.03A or B International Transportation: seminar, MBA 5801.03 (recommended)

MBA 6804.03A or B Ocean Shipping Seminar: seminar, Prerequisite: MBA 6803.03, (not offered every year)

MBA 6805.03A or B Seminar on Marine Resources and Ocean Industry: seminar, (not offered every year)

MBA 6806.03A or B International Marketing: seminar, Prerequisite: MBA 5401.03, MBA 5801.03 is strongly recommended

MBA 6807.03A or B International Financial Management: seminar, Prerequisite: MBA 5703.04, 5201.03 and 5101.03, MBA 5801.03 is strongly recommended

MBA 6808.03A or B International Banking: seminar, Prerequisite: MBA 5703.04, MBA 5801.03 is strongly recommended

MBA 6809.03A or B International Trade in Services: Lecture/Seminar (not offered every year)

MBA 6812.03 Foreign Study Mission: Prerequisite: MBA 5801.03

MBA 6813.03 Management and the Natural Environment - An International Perspective

General

MBA 6002.03A or B New Venture Creation: Prerequisite: MBA 5101.03, 5102.03, 5201.03, 5401.03

MBA 6003.03A or B Management of Diversification: Prerequisites: MBA 5101.03, 5102.03, 5201.03, 5315.03, 5401.03, 5503.03, 5551.03, or permission of the instructor

MBA 6006.03 Managing the Family Enterprise: Prerequisites: MBA 5101.03, 5102.03, 5201.03, 5315.03, 5401.03, 5503.03, 5551.03, or permission of the instructor

MBA 6901.03A or B Business Law: seminar

MBA 6902.03A or B Business and Government: lecture

MBA 6951.03A/6952.03B Research Reading and Conference: choice of instructor

Chemistry

Location: Chemistry Building, Dalhousie University, Halifax, N.S. B3H 4J3

Telephone: (902) 494-3305

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Chairperson of Department

R.J. Boyd

Graduate Coordinator

M.A. White

Professors Emeritus

O. Knop, DSc (Laval), Harry Shirreff Professor of Chemical Research

D.E. Ryan, BSc (UNB), MA (Tor), PhD, DSc (Lond), DIC

Professors

D.R. Arnold, BS (Bethany College), PhD (Roch), Alexander McLeod Professor of Chemistry

W.A. Aue, PhD (Vienna)

R.J. Boyd, BSc (UBC), PhD (McG)

T.S. Cameron, BA, MA, DPhil (Oxon)

A. Chatt, BSc (Calcutta), MSc (Roorkee), MSc (Wat), PhD (Tor)

H.C. Clark, BSc, MSc, PhD (Auckland), PhD, ScD (Cambridge), President, Dalhousie University

J.A. Coxon, MA (Cantab.), MSc, PhD (East Anglia)

T.P. Forrest, BSc (MtA), MSc (Dal), PhD (UNB)

J.S. Grossert, BSc, MSc, PhD (Natal)

J.C.T. Kwak, BSc, MSc, PhD (Amsterdam)

K.T. Leffek, BSc, PhD (Lond)

P.D. Pacey, BSc (McG), PhD (Toronto)

J.A. Pincock, BSc, MSc (Man), PhD (Tor)

L. Ramaley, BA (Columbia), MA, PhD (Princeton)

R. Stephens, MA (Cantab.), MSc (Bristol), PhD (London), DIC

R.E. Wasylshen, BSc (Wat), MSc, PhD (Man)

M.A. White, BSc (Western), PhD (McM),

Graduate Studies Co-ordinator

Associate Professors

N. Burford, BSc (Wales, Cardiff), PhD (Calgary)

T.B. Grindley, BSc, MSc, PhD (Queen's)

K.R. Grundy, BSc, MSc, PhD (Auckland)

R.D. Guy, BSc (SFU), PhD (Carleton)

D.L. Hooper, BSc, MSc, PhD (UNB)

C.H. Warren, BSc (Western), PhD (McM)

Assistant Professors

P.G. Kusalk, BSc (Lethbridge), MSc, PhD (UBC), NSERC University Research Fellow

P.D. Wentzell, BSc (Dal), PhD (Mich State)

R.L. White, BSc (Dal), PhD (McM)

Honorary Adjunct Professors

R.K. Boyd, National Research Council, Institute For Marine Biosciences

J.M. Curtis, National Research Council, Institute for Marine Biosciences

A.J. Thakkar, University of New Brunswick

K. Vaughan, Saint Mary's University

M.J. Zaworotko, Saint Mary's University

Visiting Scientists (1993)

J. Kankare, University of Turku, Finland

A. Laaksonen, University of Stockholm, Sweden

G. Motedayan-Aval, National Teachers University, Iran

Postdoctoral Fellows (1993)

G. Bednierz, MSc (Lódz), PhD (Dal)

X. Du, PhD (Dal)

J.J. Effing, PhD (University of Mainz, Germany)

K. Eichele, PhD (University of Tübingen, Germany)

L.A. Eriksson, PhD (Uppsala, Sweden), Killam Postdoctoral Fellow

W. Kwiatkowski, PhD (Tech. Univ of Lódz, Poland)

C.B. Lucasius, PhD (University of Nijmegen, The Netherlands)

S. Mason, PhD (Leicester)

I. McLennan, PhD (Guelph)

S.V. Sarada, BSc (Kiev State Univ), PhD (A.N. Nesmeyanov Inst., Moscow)

Z. Shi, BSc (Shangdong), PhD (Dal)

I. Svlshchav, PhD (Moscow)

R. Thangerasa, PhD (Dal)

Research Assistants/Associates

R. Cordes, BSc (Dal), MSc (UBC)

H. Furus, PhD (Queen's)

K.C. Manthorne, BSc (Dal), BScEng (TUNS)

X. Sun, BSc, MSc (Shandong Teacher's Univ.), PhD (Dal)

Programmes leading to MSc and to PhD degrees are offered. Research for these degrees can be undertaken in analytical, inorganic, organic, physical/theoretical chemistry or combinations thereof.

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. In some cases an MSc Degree may be required as a prerequisite for entry into a PhD programme. It is recommended that all students from outside Canada submit the results of the advanced Graduate Record Examination in Chemistry. In some cases this will be made a precondition to consideration of the student's application for admission. For those whose first language is not English a minimum TOEFL score is required (see section 2.4).

General Regulations

All graduate students are required, as part of their training, to instruct in the undergraduate laboratories and to attend departmental seminars which are given by invited speakers. The Department will hold an annual meeting at which time it will review the work of all graduate students. Permission to continue will be contingent upon a satisfactory decision by the Department.

All graduate students must be in the Department and available for teaching assistant duties by September 1st of each year.

Further details of degree regulations are presented in a Handbook for Graduate Students in Chemistry, which may be obtained from the Departmental Office.

MSc Degree

Full-time Programme

Two full credit classes, or the equivalent, together with the presentation and oral defence of a thesis based on original research are required. Faculty regulations permit a 1-year MSc candidate to graduate after 12 months of resident study. Experience has shown that most MSc candidates in the Department require at least 18 months to complete their work. Financial support is not available for more than two years.

Part-time Programme

The full-time MSc class requirements and thesis regulation apply. The thesis must be supervised by a member of the Department. No stipends are available from the Faculty of Graduate Studies.

PhD Degree Programme

Three full-credit classes, or the equivalent, are required. A preliminary oral examination must be completed successfully. Original research, together with preparation and oral defence of a thesis, is required.

For the minimum time required to complete the programme, see Section 4. Financial support is not available for more than four years.

Classes Offered

Two types of graduate classes are offered by the Department - core classes and specialized classes. The core classes constitute the main framework of a student's formal course work, and are designed to be broad-based but at an advanced level. They are intended to help the student gain a wide understanding in several major branches of chemistry and thus students are required to

take such classes outside their area of specialization. The following half-credit core classes are offered at least every other year. Please consult the Department to ascertain which classes are being given.

Core Classes:

Analytical

CHEM 5201.03 Advanced Topics in Separations

CHEM 5202.03 Topics in Advanced Analytical Spectroscopy

CHEM 5204.03 Chromatography

Inorganic and Structural

CHEM 5101.03 Topics in Advanced Main Group Chemistry

CHEM 5102.03 Topics in Advanced Transition Metal Chemistry

CHEM 5103.03 Topics in Solid State Chemistry

CHEM 5104.03 General Advanced Inorganic Chemistry

Organic

CHEM 5401.03 Synthesis in Organic Chemistry

CHEM 5402.03 Organic Structure Determination

CHEM 5403.03 Organic Reaction Mechanisms

Physical and Theoretical

CHEM 5301.03 Theory of Chemical Bonding

CHEM 5304.03 Kinetics and Catalysis

CHEM 5305.03 Introductory Statistical Thermodynamics

CHEM 5308.03 Magnetic Resonance

CHEM 5308.03 Molecular Spectroscopy

Interdisciplinary

CHEM 5503.03 Symmetry and Group Theory

CHEM 5504.03 Diffraction Techniques in Solid State Chemistry

Additional specialized classes at the 6000 level provide the opportunity for in-depth study of selected topics which are more closely related to the student's research area. These classes vary from year to year depending on students' needs and interests.

Specialized Classes:**Inorganic**

CHEM 6105.03 - Inorganic and Organometallic Reaction Mechanisms in Synthesis

CHEM 6106.03 - Advanced X-Ray Crystallography and Group Theory

CHEM 6107.03 - Inorganic Crystallography and Application of Group Theory

CHEM 6108.03 - Structure and Bonding in Non-Metal Chemistry

CHEM 6189.03 - Special Topics in Inorganic Chemistry

Analytical

CHEM 6203.03 - Environmental Chemistry

CHEM 6204.03 - Analytical Radiochemistry

CHEM 6205.03 - Chemometrics

CHEM 6299.03 - Special Topics in Analytical Chemistry

Physical/Theoretical

CHEM 6301.03 - Advanced Electronic Structure Theory

CHEM 6311.03 - Theories of Chemical Kinetics

CHEM 6312.03 - Colloid and Surface Science

CHEM 6313.03 - Special Topics in Solid State Chemistry

CHEM 6314.03 - Advanced Magnetic Resonance

CHEM 6315.03 - Topics in Statistical Mechanics

CHEM 6316.03 - Theory of Modern NMR Experiments

CHEM 6317.03 - Special Topics in Diatomic Molecular Spectroscopy

CHEM 6399.03 - Special Topics in Physical Theoretical Chemistry

Organic

CHEM 6404.03 - Organic Photochemistry

CHEM 6405.03 - Stereochemistry

CHEM 6406.03 - Natural Products

CHEM 6407.03 - Organic Electrochemistry

CHEM 6408.03 - Free Radical Chemistry

CHEM 6409.03 - Synthetic Carbohydrate Chemistry

CHEM 6498.03 - Special Topics in Organic Chemistry

Interdisciplinary

CHEM 6501.03 - Electronic Instrumentation for Scientists

Modular

CHEM 6600.03 - Modular Class

Approved classes from departments other than Chemistry may be taken for credit.

Chemistry Research Interests**Analytical Chemistry**

W.A. Aus: Basic and applied chromatography

R.K. Boyd: Separations science; mass spectroscopy

A. Chatt: Nuclear and bioanalytical methods for trace elements and studies on radioactive waste management

R.D. Guy: Method development for the speciation of toxic metals and organic chemicals

L. Ramaley: Electroanalytical chemistry, mass spectrometry and chemical instrumentation

R. Stephens: Analytical atomic spectroscopy

P.D. Wentzell: Computers in analytical chemistry; flow injection analysis; chemical sensors

Inorganic and Structural Chemistry

N. Burford: Synthesis, structure and bonding of compounds of the main group elements

T.S. Cameron: X-ray structural studies on inorganic, organic and organometallic compounds; hydrogen bonding; molecular modelling and charge densities

J.M. Curtis: Electrospray mass spectrometry for main group systems

K.R. Grundy: Synthesis and reactivity of low-valent organometallic complexes and their utilization in organic synthesis

O. Knop: Structural and solid-state inorganic chemistry

M.J. Zaworotko: Supra molecular chemistry; non-covalent bonding; design, synthesis and characterization of new materials

Organic Chemistry

D.R. Arnold: Photochemistry, especially the development of synthetically useful methods; reactions of radical ions

T.P. Forrest: Expert systems and neural networks for spectroscopic interpretation

T.B. Grindlay: The chemistry of carbohydrates; group 14 organometallic chemistry; modeling; NMR spectroscopy; conformational analysis; molecular mechanics

J.S. Grossert: Mass spectrometry; organosulphur chemistry; effects of pressure on reactions in solution

D.L. Hooper: Spectroscopic methods, especially high field multinuclear nmr, applied to chemical problems

K.T. Leffek: Physical organic chemistry

J.A. Pincock: Studies on reaction mechanisms involving both ground and excited states

K. Vaughan: Triazene chemistry

R.L. White: Biosynthesis of natural products, especially amino acids and antibiotics, and enzymes of secondary metabolism

Physical and Theoretical Chemistry

R.J. Boyd: Electron correlation and electron density distributions; reaction mechanisms and molecular interactions; density functional theory; surface chemistry; reaction dynamics

J.A. Coxon: Electronic spectra of small molecules; laser spectroscopy; weak

chemiluminescence; potential energy curves

P.G. Kusalk: Computer simulations of polar

liquids and solutions; liquid state theory

J.C.T. Kwak: Colloid and polymer chemistry

P.D. Pacey: Temperature dependence of reaction rates; properties of transition species, tunnelling and internal rotations

C.H. Warren: Molecular graphics and computer-aided instruction

R.E. Wasylshen: Applications of multinuclear NMR, including relaxation techniques, magic angle sample spinning, single crystal NMR and modern 2-D solid state NMR techniques to study: molecular motions in liquids, inclusion

compounds and disordered solids, the measurement of dipolar, shielding, and

quadrupolar tensors; the conformation and structure of molecules in condensed phases

M.A. White: Material science; thermal properties of solids, especially heat capacity and thermal conductivity; phase transitions; disordered systems; supramolecular species

Classics

Location: 1244 LeMarchant Street,
Halifax, N.S. B3H 3P7

Telephones: (902) 494-3488

Chairperson of Department

J.P. Atherton

Professors Emeritus

J.A. Doull, BA (Dal), MA (Tor)

A.H. Armstrong, MA (Cantab), FBA

Adjunct Professor

E. Segelberg, DTh, FK (Uppsala)

Professors

J.P. Atherton, MA (Oxon), PhD (Liverpool)

R.D. Crouse, BA (Vind), STB (Harvard), MTh

(Trinity), PhD (Harvard)

R. Friedrich, DrPhil (Gott), Graduate Studies
Coordinator

C.J. Starnes, BA (Bishop's), STB (Harvard),
MA (McG), PhD (Dal)

Associate Professors

W.J. Hankey, BA (Vind), MA (Tor), PhD (Oxon)

D.K. House, MA (Dal), PhD (Liverpool)

P.F. Kusmaul, PhD (Basle), PhD habil
(Heidelberg)

Assistant Professor

P. Calkin, BA (UBC), MA, PhD (Dal)

The Department invites applications especially from students of wide humanistic interests who wish to study contemporary culture through its ancient origins.

The graduate teaching and research of the Department is chiefly in the following areas:

- (a) Greek and Latin Poetry
- (b) Hellenistic and early Christian history
- (c) Greek Philosophy; Aristotle and the history of Aristotelian philosophy (from the Greek commentators to Hegel)

MA students may concentrate their work in any of these areas. PhD candidates must work in the area of Hellenic and Hellenistic Studies.

Admission Requirements

Candidates must satisfy the admission requirements of the Faculty of Graduate Studies. The requirement of both Classical languages at Honours level may sometimes be relaxed, e.g., where a student has taken a Combined Honours course involving only one Classical language. In such cases at least two classes in the second language will be taken in

addition to the MA course proper. In certain programmes, a knowledge of other ancient languages may be required.

MA Degree Programme

It will rarely be possible for candidates to complete their classes and thesis in less than a calendar year.

Three graduate seminars, two in the general area of interest and a reading and research class related to the thesis subject are required. Candidates are expected to attend graduate seminars related to their theses throughout their period of full-time study. A thesis is required.

MA students should obtain a copy of the Departmental regulations for the degree.

PhD Degree Programme

The normal admission requirement is the Dalhousie MA in Classics, or equivalent preparation. The minimum residence requirement for such candidates is two years, during which time they must satisfy the general requirements of the Faculty, and, in addition, must demonstrate competence in the languages (ancient and modern) necessary for research in their particular fields of study.

All candidates are expected to have a broad understanding of all aspects of Classical culture, and within the general area of Hellenic-Hellenistic Studies, each candidate is expected to concentrate, with the guidance of a Supervising Committee, in one of three fields: History, Literature and Philosophy. Before submitting a thesis, the candidate must pass a comprehensive examination (written and oral) in his/her special field: this will normally be taken towards the end of the second or beginning of the third year of study.

Classes Offered

Greek and Latin Literature

CLAS 5010.06 Seminar on Greek Literature (1): R. Friedrich

CLAS 5020.06 Seminar on Greek Literature (2): R. Friedrich

CLAS 5030.06 Seminar on Latin Literature (1): R. Friedrich/J.P. Atherton

CLAS 5040.06 Seminar on Latin Literature (2): R. Friedrich/J.P. Atherton

Ancient History

CLAS 5530.06 Reading and research in Ancient History (1): P.F. Kusmaul

CLAS 5531 Reading and research in Ancient History (2): P.F. Kusmaul

CLAS 5550.06 Reading and research in Ancient History (2): P.F. Kusmaul

CLAS 5551.03A Reading and research in Ancient History: P.F. Kusmaul

CLAS 5552.03B Reading and research in Ancient History: P.F. Kusmaul

Classical Philosophy

CLAS 5600.06 Seminar on the Philosophy of Aristotle: J.P. Atherton

CLAS 5601.06 Seminar on Plato and Neoplatonism: J.P. Atherton

CLAS 5602.06 Seminar on Hellenistic Philosophy: D.K. House

CLAS 5603.06 Seminar on the Philosophy of Plato: D.K. House

Patristics

CLAS 5700.06 Seminar on the Philosophy of the Church Fathers: R.D. Crouse

CLAS 5701.06 Seminar on the Medieval Interpreters of Aristotle: R.D. Crouse

CLAS 5705.06 Seminar on St. Augustine (1): C.J. Stames

CLAS 5706.06 Seminar on St. Augustine (2): C.J. Stames

CLAS 5800.06 Seminar on Christian Beginnings: W.J. Hankey

CLAS 5801.06 Seminar on Christianity and Neoplatonism: W.J. Hankey

Classes Occasionally Offered

Greek and Latin Literature

CLAS 5011.06 Seminar on Greek Tragedy: R. Friedrich

CLAS 5012.06 Seminar on Greek Comedy: R. Friedrich

CLAS 5013.06 Seminar on Greek Lyric: R. Friedrich

CLAS 5031.06 Seminar on Roman Satire: Staff

CLAS 5032.06 Seminar on Roman Historians: Staff

CLAS 5033.06 Advanced Seminar on Latin Literature: Staff

CLAS 5034.06 Seminar on Greek Literature

Ancient History

CLAS 5531 Seminar on the Roman Empire and the Rise of Christianity: P.F. Kusmaul

CLAS 5551.03 Ancient Law and Jurisprudence: P.F. Kusmaul

Classical Philosophy

CLAS 5604.06 History of the Interpretation of Aristotle: Staff

CLAS 5605.06 Advanced Seminar on Neoplatonism: Staff

CLAS 5606.06 Greek Philosophical Texts: Staff

CLAS 5607.06 Latin Philosophical Texts: Staff

CLAS 5608.06 Reading and Research: Staff

CLAS 5609.03B Greek Philosophical Texts: J.P. Atherton

Patriotics

CLAS 5707.06 Readings in Patriotic Texts: Staff

CLAS 5708.03 Reading and Research: Staff

CLAS 5900.06 Departmental Seminar: Staff

CLAS 5901.06 Reading and Research: Staff

CLAS 9000.00 Thesis (MA)

CLAS 9530.00 Thesis (PhD)

Community Health and Epidemiology

Location: Clinical Research Centre, 5849 University Avenue, Halifax, N.S. B3H 4H7
Telephones: (902) 494-3860
Fax: (902) 494-1597

Head of Department

David R. MacLean

Graduate Coordinator

Murray G. Brown

Professors Emeritus

Chester B. Stewart, OC, BSc (Med), MD, CM (Dal), MPH, Dr. P.H. (Johns Hopkins), FAPHA, FRCPC, MCFP, LLD. (UPEI & Mt.A.), DSc (St. F.X.), LLD (Dal).

Aden C. Irwin, BA (Sask), MD, DPH (Tor), DSM (Edin), FRSH.

Professors

Alexander H. Leighton, MD (Johns Hopkins), MA (Cantab), MA (Hon. Harvard), DS (Hon. Acadia), FRC Psych. (Hon.), DS (Hon. Laval), jointly appointed in Psychiatry
Fay Cohen, AB (Harvard-Radcliffe), MEd (Harvard), PhD (Minnesota), major appointment in Resource and Environmental Studies

T.J. Murray, MD, FRCP(c), FACP, major appointment in Neurology

Alex Richman, MD (Manitoba), Dip. Psych. (McGill), MPH (Johns Hopkins), FRCPC, jointly appointed in Psychiatry

Miriam J. Stewart, BScN (McMaster), Ph.D. (Dal), major appointment in Nursing

Associate Professors

Murray G. Brown, BA(hons) (U.W.O.), MA (Queen's), AM, PhD (Chicago)

Michael Cohen, BA (Michigan), DMD (Tufts), MSD, PhD (Minnesota), major appointment in Oral Biology, Dentistry

Amid Ismail, BDS (Baghdad), MPH (Michigan), DrPH (Michigan), major appointment in Paediatrics and Community Dentistry

David R. MacLean, MD (Dal), MHSc (Tor), CCFP

Leonard C. MacLean, BA BEd (St FX), M.A. Ph.D. (Dal), major appointment in Business Administration

Kenneth E. Scott, BSc, MD, CM (McGill), MSc (Lond), FRCPC, FSS

Assistant Professors

Linda Dodds, PhD (Tor), major appointment in Obstetrics and Gynaecology

Kevin Gordon, MD (Queens), MSc (Michigan), major appointment in Paediatrics
Brian Eastwood, B.Math (Waterloo), M.Stat., PhD (North Carolina State)
Michael Grois, MSc (McMaster), MB, BS (Newcastle-upon-Tyne), FRCS (Eng), FRCPS, major appointment in Surgery
Judith Read Guernsey, BSc(Hons) (Carleton), MSc, PhD (Iowa)
George Kephart, BS(Hons) (California), MS, PhD (Wisconsin)
Grace M. Johnston, BSc (Hon) (McGill), MHSA (Alberta), PhD (UWO), major appointment in Health Services Administration
Donald Langille, BSc (Acadia), MD (Dal), MHS (UBC)
Joanne M. Langley, MD (Dal), major appointment in Paediatrics
Lynn McIntyre, MD (Tor), MHS (Tor), FRCPC, major appointments in Health Services Administration and Recreation, Physical and Health Education
Christiane Poulin, BSc (Dal), MD (Laval), MSC (McGill), FRCPC
Peter Roy, BSc (Dal), MD (Dal), MSc (McMaster), major appointment in Surgery
Walter Schleich III, MD (Cornell), FACP, major appointment in Medicine

Lecturers

Susan Kirkland; BSc, MSc (Waterloo)
John LaBlanc, MD, MSc (McMaster), major appointment in Paediatrics

Honorary Adjunct Appointments

B. Christofer M. Bairam, BA, BSc, MSc Med, PhD (Memorial), M.A.C.E., Provincial Epidemiologist, Department of Health and Community Services, New Brunswick
Janet Braunstein, BSc (Cornell), MPH (Minnesota), Division of Public Health Services, Department of Health, Nova Scotia
Vern A. Hicks, BA(hons), MA (Dal), Health Economics Consultant
Kathleen MacPherson, BSc, MD (Dal), MPH (Mich), Geriatric Program Development and Research, Camp Hill Medical Centre
Jane Murphy, PhD (Cornell), Department of Psychiatry, Harvard Medical School; Chief of Psychiatric Epidemiology, Massachusetts General Hospital; Lecturer, Department of Epidemiology, Harvard School of Public Health
T. Larry Myette, BSc, MD (UBC), MPH (Univ. Health Sciences, Bethesda), Command Surgeon, Maritime Command Headquarters, FMO Halifax
John Prentice, MD (Dal), MPH (Johns Hopkins), DOHS (McMaster), CCBOM, General Manager, Human Resources, Maritime Telephone and Telegraph Limited
Jeffrey Scott, MBChB (Univ. Edinburgh), MHSC (UBC), FRCPC
Franklin M.M. White, MD, CM, (McGill), MSc (Lond), FRCPC (Hon), Director, CAREC, Trinidad

Howard Wightman, MD

MSc Degree Programme

The MSc Community Health and Epidemiology (CH&E) programme focuses on knowledge, analytical skills and formal evaluative methods used in assessing community health service needs and in designing, implementing and evaluating disease prevention and health promotion programmes. The programme includes one year of course work plus thesis. Institutional Environment

The Department of Community Health and Epidemiology is part of Dalhousie University's Faculty of Medicine which serves Canada's Maritime Provinces. CH&E full-time and part-time faculty have backgrounds in a number of disciplines including community medicine, epidemiology, biostatistics, economics, occupational and environmental health, psychiatry, demography, sociology and anthropology. CH&E faculty have provided leadership in areas of population health research, prevention, health promotion, assessment of community health service needs, health manpower planning, health services utilization research and in various types of evaluative studies, including international health projects.

Admission Requirements

The typical MSc CH&E student has had undergraduate training in a health profession or related discipline and has worked in the health sector. Admission standards are those of Dalhousie University's Faculty of Graduate Studies. An honours baccalaureate degree or an M.D. degree from a recognized university is ordinarily required. Enrolment is limited. Some part-time students are accepted. Applicants must meet English Language Competency and Quantitative Skills requirements. Applicants will be interviewed as part of the selection process.

Curriculum

The programme requires a minimum of five Core Classes, three Elective Classes and a Thesis. All course work may be completed in one academic year. The five required classes are: Community Health Principles; Epidemiology Principles; Research Methods for Community Health; Biostatistics II; and Community Health Services Systems.

The Master's Thesis is a major part of the MSc CH&E programme. A thesis may include the design and execution of an applied research project in the field of community

health and epidemiology. Full-time students will ordinarily complete their theses during their second year in the MSc programme.

Classes Offered

CH&E Core Classes

CH&E 5000.03A Community Health Principles: C. Poulin

CH&E 5010.03A Epidemiology Principles: S. Kirkland

CH&E 5020.03B Biostatistics II: B. Eastwood

CH&E 5030.03A Research Methods for Community Health: G. Kephart

CH&E 5040.03B Community Health Services Systems: M. Brown

CH&E Elective Classes

CH&E 5019.03A Biostatistics I: B. Eastwood

CH&E 6000.03B Community Health Programmes for Communicable and Non-communicable Diseases: C. Poulin

CH&E 6001.03A Environmental and Occupational Health: J. Guernsey

CH&E 6010.03B Community Health Practicum: C. Poulin

CH&E 6020.03A Advanced Epidemiology: S. Kirkland and L. Dodds

CH&E 6022.03A Evaluation of Health Services and Programmes: M. Brown

CH&E 6040.03B Health, Economics and Development: M. Brown

CH&E 6042.03B Demography, Sociology and Population Health: G. Kephart

CH&E 6043.03B Principles of International Health: L. McIntyre and M. Cohen

CH&E 6060.03 Directed Readings/Studies

CH&E 9000.00 Thesis Research

Earth Sciences

Location: Life Sciences Centre, 1355 Oxford Street, Halifax, N.S. B3H 4J1

Telephone: (902) 494-2358

Fax: (902) 494-6889

Chairperson of Department

Patrick J.C. Ryall

Graduate Co-ordinator

P.H. Reynolds

Professor Emeritus

H.B.S. Cooke, MSc, DSc (Witwatersrand)

G.C. Milligan, MSc (Dal), PhD (Harv)

Professors

D.B. Clark, BSc, MA (Tor), PhD (Edin)

J.M. Hall, BSc (Wales), PhD, DIC (Lond)

R.A. Jamieson, BSc (Dal), PhD (MUN)

F. Mediol, PhD (Parma)

P.H. Reynolds, BSc (Tor), PhD (UBC) (Jointly with Physics)

P.T. Robinson, BSc (Mich), PhD (Callf)

P.E. Schenk, BSc (Western), MSc, PhD (Wisc)

M. Zentilli, BSc (Chile), PhD (Queen's)

Associate Professors

N. Culshaw, BA (Keele), PhD (Ottawa)

M.R. Gibling, BA (Oxon), PhD (Ottawa)

G.K. Muecke, BSc, MSc (Alta), DPhil (Oxon)

P.J.C. Ryall, BSc (Dal), MSc (Alta), PhD (Dal)

D.B. Scott, BSc (Wash), MSc (Wash State), PhD (Dal)

Assistant Professors

D. Godfrey-Smith, BA (Calgary), PhD (SFU)

Senior Instructor

P. Wallace, BSc, MSc (McM)

Research Associate

C. Beaumont, major appointment in Oceanography Department

Honorary Research Associates

H. Dick, BA (Pennsylvania), PhD (Yale), Woods Hole

M. Graves, BSc (Idaho), MSc (Dal), Cuesta Research, Ltd.

P.R. Hill, BA (Oxon.), PhD (Dal), Univ du Québec à Rimouski

A.J. Hurford, BSc (Kingston Polytechnic), PhD (London), University College of London

L.F. Jansa, BSc, MSc (Masaryk), PhD (Charles), Atlantic Geoscience Centre, BIO

C.E. Keen, BSc, MSc (Dal), PhD (Cantab.), Atlantic Geoscience Centre, BIO

J. Maipas, BA, MA (Oxon), MSc, PhD (MUN), Memorial University of Newfoundland

P.K. Mukhopadhyay, PhD (Jadaupur), Global Geoenery Research
J.B. Murphy, BSc (Dublin), MSc (Acadia), PhD (McG), St. Francis Xavier University
R. Parrish, BS (Middlebury), MSc, PhD (UBC), Geological Survey of Canada
G. Pe-Piper, BSc (Athens), PhD (Cambridge), St. Mary's University
R. Raeside, BSc (Aberdeen), MSc (Queen's), PhD (Calgary), Acadia University
C.T. Schafer, BSc, MS, PhD (NY), Atlantic Geoscience Centre, BIO
N. van Wagoner, BA, BSc (Cal State), PhD (Dal), Acadia University
J. Verhoef, PhD (Utrecht), Atlantic Geoscience Centre, BIO
G. Vilks, BSc (McMaster), MSc, PhD (Dal)
J. Waldron, BA (Cambridge), PhD (Edinburgh), St. Mary's University
G. Williams, BSc (London), PhD (Sheffield), Atlantic Geoscience Centre, BIO
M. Williamson, BSc, MSc (Wales), PhD (Dal), Atlantic Geoscience Centre, BIO

Honorary Adjunct Professors

S. Barr, BSc (UNB), PhD (UBC), Acadia University
R. Boyd, BSc, PhD (Sydney), University of Newcastle
J. Dostal, BSc (Charles), PhD (McM), St. Mary's University
F.M. Gradstein, BA, MSc, PhD (Utrecht), Atlantic Geoscience Centre, BIO
P.A. Hacquebard, BSc, MSc (Liden), PhD (Groningen), LLD (Dal)
W. Kalkreuth, Dip (Berlin), Institute of Sedimentary and Petroleum Geology
M. Melchin, MSc (Waterloo), PhD (Western), St. Francis Xavier University
P.J. Mudie, BSc (Cape Town), BSc (Leicester), PhD (Dal), Atlantic Geoscience Centre
D.J.W. Piper, BA(Hons) (St Catharine's Col, Cantab), MA (Cantab), PhD (Darwin Col, Cantab), Atlantic Geoscience Centre, BIO
M.H. Sallebury, BSc (MIT), MSc, PhD (Wash)
J.P.M. Syvitski, BSc (Lakehead), PhD (UBC), Bedford Institute of Oceanography
H. Williams, PhD (Exeter), Ontario Geological Survey

Postdoctoral Fellows

D. Arne, BSc (Regina), MSc (Lakehead), PhD (Melbourne), Killam Fellow

Students with good degrees in any of the sciences or mathematics who wish to study some aspect of the earth are welcome. Graduate work leading to the degrees of MSc and PhD is possible in a number of different fields. These include for example: marine geology and geophysics, Appalachian geology, isotope geology, economic geology, petrology, geochemistry and mineralogy, geophysics,

sedimentology, micropaleontology and coastal sedimentation, structural geology, metamorphism, and tectonics.

Interdisciplinary studies are encouraged, and there is active cooperation among the science departments (including Oceanography) at Dalhousie University. Students are urged to take full advantage of the opportunities this affords. Research, on scientific problems of mutual interest to Dalhousie and government laboratories such as the Nova Scotia Department of Mines and Energy, Nova Scotia Research Foundation and the Atlantic Geosciences Centre at the Bedford Institute of Oceanography, is often done. Members of these laboratories frequently serve on supervisory committees.

The complex of departments and laboratories in Halifax and Dartmouth concerned with various aspects of the earth make graduate study in earth sciences very attractive.

Admission Requirements

Candidates must satisfy general requirements for admission to the Faculty of Graduate Studies. Candidates seeking financial support should ensure that their applications are complete by February 15.

MSc Degree Programme

The minimum time for completion of the MSc degree is 12 months of full-time study (see Faculty Regulation 4). Experience has shown that most students take more than 24 months to complete their work. Financial support is available for no more than 24 months.

Part-time study is also possible. Students must complete course requirements within 4 years, and all degree requirements within 6 years of registration for the first time. Conditions for admission to this programme are the same as those for full-time students. Financial support is not normally available for part-time study.

The equivalent of five graduate classes is required, of which the thesis normally counts as three.

Graduate students are required to participate in the presentation of papers in the Earth Sciences seminar. ESCI 6200.06R must be taken.

Research leading to the preparation and oral defence of a thesis is required.

PhD Degree Programme

The minimum time required to complete this programme is two years from an MSc; normally three years are required (see Section 4).

The preliminary examination (see Section 6) is an integral part of the compulsory class, ESCI 6200.06R.

Students must demonstrate ability in one language other than English. Participation in the Earth Sciences seminar is required.

Research leading to the preparation and oral defence of a thesis is required.

Classes Offered*

The following classes are designed primarily for undergraduates in their final year; they may be taken by graduate students for general interest, because the material is needed to help in their research, or because the student's background may be inadequate.

ESCI 5151.03A or B Mineral Deposits: M. Zentill

ESCI 5152.03A or B Fossil Fuels: M. Gibling

ESCI 5270A Applied Geophysics: P.J.C. Ryall

ESCI 5280.03B Marine Geophysics: K. Loudon (Ocean.)

ESCI 5290.03B Geodynamics: C. Beaumont (Ocean.)

ESCI 5350.03A Tectonics: J.M. Hall

ESCI 5351.03B Canadian Regional Tectonics: N. Culshaw, M. Gibling, R. Jamieson

ESCI 5380.03A Advanced Geochemistry: G.K. Muecke

ESCI 5390.03B Advanced Igneous Petrology: D.B. Clarke

ESCI 5400.03B Advanced Metamorphic Petrology: R.A. Jamieson

The following classes are designed specifically for graduate students.

ESCI 6100.03R Seminar in Sedimentology and Stratigraphy

ESCI 6110.03R Research Topics in Micropaleontology

ESCI 6120.03A/6220.03B Seminar in Mineralogy, Petrology and Geochemistry

ESCI 6130.03R Seminar in Geophysics

ESCI 6150.06R Metallogeny in Mineral Exploration

ESCI 6160.06R Research Topics in Sedimentary Geology I

ESCI 6170.06R Research Topics in Sedimentary Geology II

ESCI 6200.06R Research Skills in Earth Sciences

ESCI 6250.03R Directed Studies

*Some classes not offered every year.

All graduate students must be registered in one of:

ESCI 9000.00 MSc Thesis

ESCI 9530.00 PhD Thesis

Economics

Location: 6214 University Avenue,
Halifax, N.S. B3H 3J6
Telephone: (902) 494-2026
Fax: (902) 494-8917

Chairperson of Department

E. Klein

Faculty Advisors

S. Dasgupta, Graduate Coordinator (494-8888)
B. Lesser, MDE Coordinator (494-1682)

Professor Emeritus

Z.A. Konczacki, BSc (Lond), BEcon(Hons)
(Natal), PhD (Lond)

Professors

F.M. Bradfield, BComm (McM), PhD (Brown)
S. DasGupta, BA (Calcutta), MA (Delhi), PhD
(Rochester)
E. Klein, LL.M. (Buenos Aires), MSc (Dal), Dr
Rer Pol (Hamburg)
B. Lesser, BComm (Dal), MA, PhD (Cornell)
C. Marfels, Dr Rer Pol (Berlin)
R.J. McAllister, MA (Oxon), MA (Cantab)
L. Osberg, BA(Hons) (Queen's), MPhil, PhD
(Yale)
U.L.G. Rao, MA, MSc (Andhra), PhD (Western)
A.M. Sinclair, BA (Dal), MA, BPhil (Oxon), PhD
(Harvard)

Associate Professors

M.L. Cross, AA (Dawson College), BA (Hons)
(Montana), MA (SFU), PhD (Texas A&M)
Graduate Co-ordinator
B. Huber, BA, MA, PhD (Yale)
L. Mazany, BSFS (Georgetown), PhD (UBC)
S. Phipps, BA(Hon) (Victoria), MA, PhD (UBC)

Assistant Professors

P. Burton, BSc (Sask), MA, PhD (UBC)

Honorary Adjunct Professors

S. Amirkhalkhal, BAHons (Shiraz), MA, PhD
(Dal), Saint Mary's University
R.L. Comeau, BA, MA (St.F.X.), PhD (Brown)
J. Badawi, BComm (Ain Shams, Cairo), MBA,
PhD (Indiana), Saint Mary's University
P. Bowles, BSc (Southampton), MA (Sussex),
PhD (London), UBC
J.L. Cornwall, BA (Iowa), MSc (Lond), PhD
(Harvard), FRSC, McCulloch Professor of
Economics
W. Cornwall, BA (MSVU), PhD (Dal), Mount
St. Vincent University
R. George, BSc (London), MSc (Bristol), PhD
(London)
A. Mansoorian, BSc (LSE), MA (McM), PhD
(Queen's), York University

T. Ogwang, BStat (Makerere), MA (Leeds),
PhD (Dal), Saint Mary's University
T. Pinfold, BA, MA (Western), PhD (Minn)

MA Degree Programme

Admission Requirements

MA programmes in Economics may be of one or two years duration. Entrance to a two-year MA programme requires a pass or General BA degree with a major in Economics and an average of at least 75% (B+) at Dalhousie standards in the classes of Economics and related fields. A minimum of four classes in Economics beyond the introductory level, with content and level of work satisfactory to the Department, is required. These prerequisite classes should include one full class in intermediate theory (equivalent to Dalhousie Economics 2220.03/2221.03) and a basic class in Statistics (equivalent to Dalhousie Mathematics 2080.03 and 2080.03). A first-level Mathematics class (equivalent to Dalhousie Mathematics 1000.03A or to both 1110.03B and 1120.03A) is also required.

Promising students who do not meet the entrance requirements for the two-year programme may be admitted to a Qualifying Year to permit them to bring their work up to full admissions standards.

Entrance to a one-year MA Programme requires an Honours BA in Economics (or equivalent) with an average of at least 75% (B+) at Dalhousie standards in classes in Economics and related fields. Normally this means completion of at least eight classes in Economics beyond the introductory level including classes in Economic Theory and Statistics, and classes which are substantially equivalent to those classes recommended in the field preparation year for the programme chosen below. Mathematics classes which are equivalent to Dalhousie Mathematics 1000.03A or B and 2030.03A are also required.

Applicants should also consult regulations 2., "Admissions Requirements," which includes regulation 2.4, "English Language Proficiency".

Programme Choices

The department offers the MA in the following areas of specialization:

- Economic Theory
- Econometrics
- Labour Economics
- Public Finance
- Resource Economics
- Monetary Theory
- Industrial Organization
- Regional and Development Economics

Department approval is required for the programme of each student.

Interdisciplinary Programmes

The Department of Economics participates with other Departments and Institutions in several such programmes. These include:

- African Studies
- Environmental Studies
- Health Evaluation Studies
- Urban, Rural, and Regional Studies

Graduate students wishing to orient their studies in the direction of these interdisciplinary fields take some classes in the relevant area from offerings outside the Department and do their graduate thesis on related topics. The Department's approval of such a programme is required. Other special interdisciplinary programmes may be devised, with the Department's consent, to meet particular interests.

Completion of MA Programme

Students must successfully complete the required and optional classes of their programme. Normally a course of study worth at least five (5) credits is required, including a thesis which must be submitted and approved by the Department.

MDE Degree Programme (Master of Development Economics)

Admission Requirements

The normal duration of the programme is two years; applicants with the equivalent of some graduate level training or a professional degree (such as MPA, MBA, LLB or MES) may be eligible for a one-year programme.

Entrance to the two-year programme normally requires a Pass or General BA, BSc or BComm degree, with a minimum of two classes in economics beyond the introductory level, including one full class in intermediate theory and a basic class in statistics. A first-level Mathematics class (equivalent to Dalhousie Mathematics 1000.03A or to 1110.03B plus 1120.03A) is required. An academic average of at least 75% (B+) at Dalhousie standards is also required for admission to either a one-year or two-year programme.

Promising students who do not meet these requirements might be admitted to a qualifying year or permitted to take missing classes within the time frame of the two-year programme. Students who excel in the qualifying year may be admitted to a one-year programme.

Programme Choices

The MDE Programme permits students to follow one of two paths:

The Canadian Studies Programme concentrates on Canadian economic development, with comparative insights from other industrialized countries. Primary emphasis in the programme is placed on exploring problems of development in Canada's less developed regions, with special attention to the Atlantic Provinces. Regional development policy initiatives and strategies are stressed.

The International Development Studies Programme concentrates both on sectoral themes and on geographic regions. These include rural development, manpower planning, the role of state corporations, international trade and payments, import substitution policies, international and bilateral aid, health and environmental issues, and the problem of helping those in greatest need in Third World countries. Specific country experiences will be extensively drawn upon through links the University faculty has with West Africa, East Africa, Indonesia, Latin America, the Caribbean, China, and India.

For both programme options, students should select classes to achieve a blend of economics and one or more of the disciplines of business/public administration, education, environmental studies, history, political science, and sociology and social anthropology. Class selection should also reflect skill development in: the ability to think numerically, to interpret data, and to apply economic logic to real issues; computer literacy; and a sensitivity to human behaviour and different cultures.

For students taking the Canadian studies programme option, electives in economics and related disciplines should reflect the regional development focus of this option and/or provide exposure to areas needed in the student's proposed thesis work. For the International Development Studies programme option, elective courses should reflect the international development focus of the programme and/or areas relevant to proposed thesis work.

Completion of MDE Programme

Students in a full two-year programme normally must successfully complete seven full-credit classes plus thesis. In some cases, this number of classes may be reduced on the basis of advanced standing granted for previous work.

PhD Degree Programme

Admission Requirements

Applicants for admission to the PhD programme must have academic qualifications superior to those required for entrance into the MA programme. The minimum required for entry is an Honours Degree in Economics with an average of at least 80% (A-) by Dalhousie standards in the classes in economics and related fields. Students entering after completing the required course work for an MA degree in Economics would normally prepare for their PhD Comprehensive Exams in two years; those with only an Honours BA would normally require three years. Other specific requirements for entry depend upon the PhD programme chosen and are listed below.

Applicants may be required to submit the results of the Graduate Record Examination in Economics with their application. They should also consult regulation 2., "Admissions Requirements," which includes regulation 2.4, "English Language Proficiency."

Programme Choices

The department offers the PhD in the following areas of specialization:

- Economic Theory
 - (Microeconomics)
 - (Macroeconomics)
- Mathematical Economics
- Econometrics
- Industrial Organization
- Labour Economics
- Resource Economics

The specialization can be undertaken in one of two basic programmes: the General Programme or the Mathematical Economics Programme. Students admitted to a two year PhD programme may follow either programme whereas students admitted to a three year PhD programme may follow either programme after having satisfactorily completed a prescribed course of study during their first year. Departmental approval is required for the programme of each student.

The structures of the General and the Mathematical Economics programmes are described below.

General Programme

The General Programme is designed to provide students with a strong foundation in economic theory and quantitative methods and intensive work in two applied fields of economics. In addition to the entrance requirements above, students are expected to have completed classes, at a satisfactory level, in Intermediate Calculus, Matrix Algebra,

Linear Algebra and Statistics (equivalent to Dalhousie Mathematics 2000.06, 2030.03 and 2040.03 and Economics 2228.06).

At the completion of their class work, candidates for the PhD in the General Programme will be examined in:

1. Macroeconomic and Microeconomic theory (at the level of Dalhousie Economics classes 5500.03A, 5509.03B, 6600.03B and 6609.03A, including applications of the economic theory described)
2. Two fields of specialization
3. History of Economic Thought

They are also required to show proficiency in Quantitative Analysis and Economic History in the course of their work. A course of study recommended for the two-year General Programme would include:

Year 1:

1. Economics 5500.03A (Macroeconomic theory)
2. Economics 5509.03B (Microeconomic theory)
3. Economics 5506.06 (Economic History as available)
4. Two elective classes

Year 2:

1. Economics 6600.03B (Macroeconomic theory)
2. Economics 6609.03A (Microeconomic theory)
3. Economics 5533.06 (Econometrics)
4. Two elective classes

The Mathematical Economics Programme

The Mathematical Economics Programme provides students with the option of pursuing work leading to specialization in Mathematical Economics. In addition to the entrance requirements listed above for the general programme, applicants for the two-year programme should have classes in Advanced Calculus.

Students with combined Honours in Mathematics and Economics, or Honours in Mathematics and who have done appropriate undergraduate work in Economics may be accepted into the same course of study and be permitted to make up deficiencies in their undergraduate work during the first year of study.

At the completion of their class work students in the Mathematical Programme will be examined in General Economic Theory (including History of Thought); Mathematical Economics and one applied field.

A course of study recommended for the two-year programme would include:

Year 1:

1. Mathematics 3040.03 (half class); Metric Spaces and Elementary Topology, and Mathematics 4140.03 (half class); Introduction to Functional Analysis

OR

1. Mathematics 3300.03 (half class); Linear Integer Programming, and Mathematics 3310.03 (half class); Discrete and Dynamic Programming
2. Economics 6600.03B (half class); Economic Theory
3. Economics 6610; Mathematical Economics
4. One class in an applied field
5. One other class

Year 2:

1. Mathematics 4010.03; Measure and Integration Theory, Mathematics 3120.03 (half class); Differential Equations, or Mathematics 4300.03 (half class); Control Theory
2. Economics 6619.03 (half class) and Economics 6620.03 (half class); Seminars in Mathematical Economics and Economic Theory
3. Economics 5533.06; Econometrics
4. One class in the applied field selected in the first year

Examination and Thesis

Comprehensive examinations consisting of written papers in economic theory and two fields, and oral examinations in the same three subjects, are required at the end of the required period of course work.

A suitable thesis must be submitted and defended. Students are required to make a public presentation of a thesis proposal no later than six months after completion of the comprehensives and preferably at some point prior to the comprehensives.

Classes Offered

Classes other than those listed may be offered. Not all classes listed are necessarily offered in any given year.

ECO 5000.03A or B Economic Theory for MDE Microeconomics

ECO 5001.03A or B Economic Theory for MDE Macroeconomics

ECO 5231.03B Health, Economics and Development: M. Brown

ECO 5238.03A The Industrial Revolution in Europe: P.B. Huber

ECO 5239.03B The European Economy in Historical Perspective: After the Industrial Revolution: P.B. Huber

ECO 5250.06 Applied Development Economics

ECO 5251.03R Seminar in Development Studies

ECO 5252.03A or B From Disaster Relief to Development: I. McAllister

ECO 5333.03A Theories of Economic Development: B. Lesser

ECO 5334.03B Economic Development: Recent Debates, Controversies and Conflicts

ECO 5338.03B Regional Development: Post-1945 Canadian and Industrial Countries' Economic Policy Experiences: R.I. McAllister

ECO 5350.03B Social Cost-Benefit Analysis: T. Pinfold

ECO 5431.03B International Payments: L. Mazany

ECO 5500.03A Macroeconomics: J.L. Cornwall

ECO 5502.03A Monetary Theory: Microeconomic Aspects

ECO 5503.03A or B Public Finance I: S. Phipps

ECO 5504.03A or B Public Finance II: S. Phipps

ECO 5508.06 North American Economic History: B. Lesser

ECO 5509.03B Microeconomics: S. DasGupta

ECO 5511.03A Regions' Economics: Theories: F.M. Bradfield

ECO 5512.03B Regions' Economics: Empirical Studies and Policies: F.M. Bradfield

ECO 5514.03B Monetary Theory - Macroeconomic Aspects:

ECO 5516.03A Natural Resource Economics I: M.L. Cross

ECO 5517.03B Natural Resource Economics II: P. Burton

ECO 5518.03A or B Antitrust Economics: C. Marfels

ECO 5521.03A Mathematics for Economists: S. DasGupta

ECO 5522.03A or B Labour I: L. Osberg

ECO 5523.03A or B Labour II: L. Osberg

ECO 5533.06 Econometrics: U.L.G. Rao

ECO 5551.03A Special Topics in Monetary Policy

ECO 5552.03B Special Topics in Monetary Theory

ECO 5557.03R Selected Topics: Industrial Organization and Antitrust Economics: C. Marfels

ECO 5558.06 Special Topics in Industrial Organization: C. Marfels

ECO 5559.06 Special Topics in Labour Economics: L. Osberg

ECO 5563 Special Topics in Regional Economics: F.M. Bradfield

ECO 5570 Special Topics in Econometrics: U.L.G. Rao

ECO 5572 Special Topics in International Trade: P.B. Huber

ECO 5575.03A Applied Statistics and Econometrics I: L. Mazany

ECO 5576.03A Applied Statistics and Econometrics II: L. Mazany

ECO 5600.06R Special Topics in Macroeconomics:

ECO 5601.03A or B Special Topics in Macroeconomics:

ECO 5620.03A Special Topics in Resource Economics: M. Cross or P. Burton

ECO 5621.03B Special Topics in Resource Economics: M. Cross or P. Burton

ECO 5659.03A or B Special Topics in Labour Economics: L. Osberg

ECO 5670.03B Special Topics in Econometrics: G. Rao

ECO 6600.03B Economic Theory:

ECO 6609.03A Economic Theory: E. Klein

ECO 6610 Mathematical Economics: S. DasGupta and E. Klein

ECO 6619A Seminar in Mathematical Economics and Advanced Economic Theory I

ECO 6620.03B Seminar in Mathematical Economics and Advanced Economic Theory II

ECO 6690.06 Directed Reading

ECO 9000.00 MA Thesis

ECO 9530.00 PhD Thesis

Special Topics classes, not separately listed, will be arranged to provide for advanced work in the areas of specialization chosen by PhD students. MA students with the appropriate backgrounds will also be admissible to such classes. Other classes than those listed may also be offered and certain of the classes listed are not necessarily offered on an annual basis.

Education

Location: Education Building, Old Arts Annex, Dalhousie University, Halifax, N.S. B3H 3J5

Telephone: (902) 494-3724 - General Enquiries

Fax: (902) 494-2847

Director, School of Education
K.C. Sullivan

Professor Emeritus
E.Z. Friedenberg, BA (Centenary), MA (Stanford), PhD (Chicago)

Professors
W.F. Hare, BA (London), MA (Leica), PhD (Tor)
T. Laidlaw, BA, MEd (Calgary), PhD (Alta)
J.D. Myers, BA, MA (Tor), PhD (Edinburgh),
Dean, Henson College
J.B. Roald, BEd (UBC), MA (Wash), EdD (UBC)

Associate Professors
A. Barton, BA, MA (Trinity)
R.N. Bérard, BA (Antioch), MA (McM), BEd (Dal), PhD (McM)
R. Gamberg, BA (Brandeis), MA (Illinois)
D.A. Manicom, BEd (McG), MEd (AIE), PhD (Tor)
J. Manos, BA, BEd (StFX), MEd (Calgary), PhD (Alberta)
H.J. Murphy, BSc (St. Dunstan's), BEd (PEI), MEd, EdD (Virginia), Co-ordinator BEd Programme
E. Ricker, BA, MEd (UBC), PhD (Tor)
S.W. Semple, BA, DipEd (Syd), MEd, EdD (Tor) Coordinator, MA/PhD Programmes
S.S. Sodhi, BA, BT, MA (Punjab), DipGuld (Delhi), BEd, PhD (Alta), Coordinator MEd Programme
K.C. Sullivan, BSc, BEd (Dal), MEd, PhD (Alta)
M. Walton, BA, MA, PhD (UBC)
B.A. Wood, BA (Tor), MEd (Ottawa), PhD (Ottawa)
W.A. Wright, BA (MtA), MA (McGill), PhD (Montreal)

Assistant Professors
M. Crowley, BA (Miami), MAT (Johns Hopkins), PhD (Maryland)
D. Plumb, BA (Alta), MCEd

Honorary Research Associates
J. Eaton, BSc (Acadia), PhD (Dal)
N. Vogan, BA (MtA), MMus, PhD (Rochester);
Mount Allison University

Honorary Adjunct Professor
F.J. Dockrill, BA, BEd, MA (SMU), PhD (Dal);
St. Mary's University

F. French, BA, MEd (Memorial), PhD (Alberta); Mount St. Vincent University
 K. Kienapple, BA (Waterloo), MSc, PhD (Purdue); Mount St. Vincent University
 A. MacLeave, BSc (Acadia), MA (MSVU), PhD (Penn State); Mount St. Vincent University
 A. Manning, BA, MS (Ed) (Niagara), PhD (Ottawa); Mount St. Vincent University
 H. McGee, BA, MA (Florida State), PhD (Southern Illinois); St. Mary's University
 F. Miner, BA, MBA (Utah), PhD (Minnesota); St. Mary's University
 J. Portelli, BA (Malta), MA, PhD (McGill); Mount St. Vincent University
 M. Schoenberger, BA (St. Catherine), MA (Minnesota), PhD (Alberta); Mount St. Vincent University

admitted with a Bachelor's degree in Education or an honours degree in a cognate field.

Degree requirements include a two- or three-year residency (students entering with an acceptable Master's degree will be required to complete a two-year residency; those with an honours degree or equivalent will be required to complete a three-year residency); full time study; four to eight full credits or equivalent including EDUC 5800.06R; a reading knowledge of any language required for successful completion of doctoral research; Preliminary Examination, thesis, and an oral defence of thesis.

To qualify for the award of the PhD degree, the thesis must make a substantial and original contribution to educational theory, either by discovery of new information, or by the original interpretation of known information, or both.

For further information see the current edition of the Graduate Source Book (available from the School).

Admission Requirements

Students are advised to consult the Faculty Regulations. Normal admission requirements are a first degree plus the BEd or its equivalent with at least a B standing overall.

Applicants who are uncertain whether or not they possess the equivalent of the BEd should make inquiries of the School. A Faculty advisor is assigned to each student admitted to a degree programme. The advisor must approve all class selections.

Affirmative Action

The School of Education has an affirmative action policy for Indigenous Black and Micmac applicants for all of its programmes. The School will, within the regulations of the Faculty of Graduate Studies, look favourably upon the applications of indigenous Nova Scotia Blacks and Micmacs who meet its admission requirements.

PhD Degree Programme

For minimum time required to complete the programme, see Section 4.

The School offers a programme based on the study of educational theory, policies and practices. The Foundations disciplines (i.e., the educational subdisciplines of the social sciences and humanities) provide the framework for the programme. Students may elect to examine educational theories, policies and practices through one or more of these disciplines.

Students must meet normal admission requirements for the Faculty of Graduate Studies. A Master's degree in Education (with thesis) or a cognate field is normally expected. In exceptional cases a student may be

MA Degree Programme

Part-time study is permitted.

The MA degree in Education offers a programme which emphasizes research and writing, embodied in a thesis, together with a number of graduate classes. This programme would normally be followed by a student who intends to pursue studies at the PhD level, but it is open also to students seeking only a Master's degree based upon research, writing and course work.

The School offers programmes of study leading to the MA degree in the following areas: Curriculum, Continuing Education, Educational Administration, Educational Psychology, Foundations of Education.

A minimum of five university graduate credits (including a thesis equivalent to two credits) is required. Education 5800.06R (Graduate Seminar) is compulsory for all first-year MA students in Educational Foundations, and Educational Administration. Particular areas of concentration may require specific classes, and class credits beyond the minimum equivalent of five university credits. Additional credits may also be prescribed when, in the view of the School, the applicant's academic experience or proposed area of concentration warrants such.

For further information see the current edition of the Graduate Source Book (available from the School).

MEd Degree Programme

Part-time study is permitted.

The MEd is a course work degree which may include a project involving the practical application of educational ideas.

The School offers programmes leading to the MEd degree in the following areas: Curriculum, Continuing Education, Educational Administration, Educational Psychology, Foundations of Education.

A minimum of five university graduate credits is required. Particular areas of concentration may require specific classes and class credits beyond the minimum equivalent of five university credits. Additional credits may also be prescribed when, in the view of the School, the applicant's academic experience or proposed area of concentration warrants such. A project is required in some areas of concentration.

For further information see the current edition of the Graduate Source Book (available from the School).

Areas of Specialization Leading to the Master's Degree

1. Educational Foundations

A programme in the humanistic and social scientific aspects of education, with either a single-discipline or multi-disciplinary emphasis.

Some classes may be taken in other departments of the University, e.g., Sociology and Social Anthropology, History, and Philosophy.

2. Educational Psychology

A programme designed for students with a special interest in psychological issues as they pertain to education. The programme includes classes in human development, personality and learning theory. Emphasis is placed on themes such as adolescence, gender issues and special education.

3. Educational Administration

A programme of particular interest and relevance to students wishing to prepare for administrative and supervisory positions and for those interested in advanced studies in educational administration. The programme combines a solid theoretical base, a high degree of technical competence, and a critical, analytical approach.

4. Continuing Education

This programme is intended to serve the needs of participants in the broad field of adult learning, from Basic Education to Continuing Professional Education. It offers a core of compulsory classes plus a variety of elective classes encompassing career interests in such fields as teaching, counselling, administration, adult literacy and community development.

5. Curriculum

This programme is designed to accommodate different student needs and interests related to curriculum in schools and other educational institutions. A student may choose to focus upon curricular theory and practice, in which case classes should be selected from among those which deal with the philosophy and theory of curriculum, critical analysis, design, and implementation. Alternatively, a student may elect to study the pedagogy of a particular discipline or subject field, in which case the classes chosen should deal with such matters as the structure of knowledge within the particular discipline or field, research on teaching, and so forth.

Classes Offered

Students should note that within the confines of their programme of study, and with the approval of their advisor and the appropriate Coordinator, they may elect to take classes from other areas or from other departments of the university. Students should consult the School about the availability of classes in any given term. **Please Note:** Only some of the classes listed below are offered in any given year. Please check the Graduate Source book for the actual timetable for 1993/94.

EDUC 5021.03A or B The Development of a Progressive Curriculum in Canadian Public Schools, 1890-1914: A. Wood

EDUC 5022.03A or B The Development of a Progressive Curriculum in Canadian Public Schools, 1914-1940: A. Wood

EDUC 5031.03A or B Teachers, Their Organizations and Decision Making in Education: R. Béard

EDUC 5051.03A or B History of Canadian Education: E. Ricker/M. Welton

EDUC 5052.03A or B History of Canadian Education: E. Ricker/M. Welton

EDUC 5061.03A or B The History of Curricular Thinking: J.B. Roald

EDUC 5101.03A or B Advanced Studies in Philosophy of Education: W. Hare
Cross-listing: PHIL 5101.03

EDUC 5162.03A or B Open-Mindedness and Education: W. Hare

EDUC 5231.03A or B Social Issues in the Curriculum: A. Manicom

EDUC 5241.03A or B Gender Socialization: R. Gamberg

EDUC 5242.03A or B Gender Issues in Education: A. Manicom

EDUC 5251.03A or B Educational Tradition and Change in Regional Context: The Russian Realm: S. Semple

EDUC 5252.03A or B Comparative Perspectives on Issues in Education: S. Semple

EDUC 5281.06R 19th and 20th Century Critical Thinkers: Marx to Habermas: M. Welton

EDUC 5291.03A or B Multiculturalism and Education: E. Ricker

EDUC 5301.03A or B Human Learning: S. Sodhi

EDUC 5302.03A or B Cognition: S. Sodhi

EDUC 5341.03A or B Special Education Policy Decisions: S. Sodhi

EDUC 5342.03A or B Learning Disabilities: S. Sodhi

EDUC 5360.06R Theories of Personality: J. Manos

EDUC 5370.06R Human Development: T. Laidlaw/J. Manos

EDUC 5380.06R Psychology of Special Education: Resource Teachers: S. Sodhi

EDUC 5383.03A or B Theories of Career Counselling: Staff

EDUC 5384.06A or B Introduction to Counselling: T. Laidlaw

EDUC 5385.06R Counselling Women: T. Laidlaw

EDUC 5391.03A or B Introduction to Educational Assessment: J. Murphy

EDUC 5392.03A or B Psychological Testing in Education: J. Murphy

EDUC 5401.03A or B Administration of Public Education in Canada: E. Ricker

EDUC 5402.03A or B Concepts in Educational Administration: K. Sullivan

EDUC 5411.03A or B Administration of Educational Personnel: K. Sullivan

EDUC 5412.03A or B Administration of Educational Programmes: staff

EDUC 5421.03A or B Politics of Education: R. Béard

EDUC 5431.03A or B Education and Public Policy: E. Ricker

EDUC 5432.03A or B The Local Government and Administration of Education: E. Ricker

EDUC 5451.03A or B Philosophy of Educational Administration: W. Hare

EDUC 5460.03A or B Law and the Schools: staff

EDUC 5470.06R Local Government and Administration of Education: E. Ricker

EDUC 5471.03A or B Educational Finance: staff

EDUC 5481.03A or B The Use of Microcomputers in Educational Administration: K. Sullivan

EDUC 5484.03A or B Introduction to the Study of Teaching and Pedagogy: B. Roald

EDUC 5500.06R Curriculum: A. Barton

EDUC 5515.06R Foundations of Curriculum Studies: B. Roald

EDUC 5516.03A or B Curriculum Development Practicum: B. Roald

EDUC 5530.03A or B Teaching and Instructional Development in Higher Education: A. Wright

EDUC 5552.03A or B Organizing and Administering School Library Media Center Programs: staff (Consult School of Library and Information Studies.)

EDUC 5571.03B Foundations of Second-Language Teaching: P. DeMeo (Consult the French Department)

EDUC 5573.03A or B Visual Pedagogy in Second Language Teaching: J. Brown (consult French Department)

EDUC 5601.03A or B Young Adult Literature and Media Interests: (Consult School of Library and Information Studies.)

EDUC 5612.03A or B Children's Literature and Media Interests: (Consult School of Library and Information Studies.)

EDUC 5621.03A New Directions in Education: Instructional Practices: M. Crowley

EDUC 5622.03B New Directions in Mathematics Education: Programmes of Study: M. Crowley

EDUC 5637.03A/5638.03B Computers and Writing: A. Barton

EDUC 5650.06R Computer Lesson Writing: A. Barton

EDUC 5660.06R Geography in Education: S. Semple

EDUC 5670.03A or B New Dimensions for Curriculum in Geography: S. Semple

EDUC 5701.03A or B Special Topics in Education

EDUC 5702.03A or B Special Topics in Education

EDUC 5800.06R Graduate Seminar: staff

EDUC 5801.03A or B Qualitative Research Methods: A. Manicom

EDUC 5802.03A or B Advanced Seminar in Qualitative Research: A. Manicom

EDUC 5811.03A or B Quantitative Research Methods: J. Murphy

EDUC 5821.03A or B Educational Statistics: J. Murphy

EDUC 5900.06R Foundations of Continuing Education: Staff

EDUC 5921.03A Programme Design in Continuing Education: Staff

EDUC 5923.03A Community College Education: Staff

EDUC 5930.06R Continuing Professional Education: Staff

EDUC 5931.03A Critical Perspectives on Adult Learning and Teaching: M. Welton

EDUC 5932.03B Adult Education Methods: M. Welton

EDUC 5933.03A or B Social and Intellectual History of Adult Education: M. Welton

EDUC 5935.03A or B Twentieth Century Adult Education Thinkers: M. Welton

EDUC 5941.03A or B Adult Counselling: J. Manos

EDUC 5950.06R Comparative Studies in Continuing Education: S. Sample

EDUC 5961.03A or B Adult Psychology: S. Sodhi

EDUC 5962.03A or B Adult Psychopathology: S. Sodhi

EDUC 5973.03A or B Community Education and Development: M. Welton

EDUC 5975.06R Selected Policy Issues in Continuing Education: D. Myers

EDUC 5981.03A or B Issues in Adult Literacy: R. Gamberg

EDUC 5982.03A or B Adult Literacy Needs and Programmes: R. Gamberg

EDUC 5995.03R Special Topics in Adult Education: Staff

EDUC 6000-6911A or B or R Reading Classes

EDUC 7985.06R Practicum: Theory and Practice of Literacy Acquisition for Adults: R. Gamberg. Open to independent completion of study

EDUC 7980.09R Project - Educational Psychology: Consult School. Open to independent completion of study.

EDUC 7981.09R Project - Curriculum: Consult School. Open to independent completion of study. MED programme only.

EDUC 7992.03B Practicum in Continuing Education: Staff. Open to independent completion of study.

EDUC 7983.09R Project - Educational Foundations: Consult School. Open to independent completion of study. MED Programme only.

EDUC 7994.06R Practicum: Creating the Educative Workplace: M. Welton or R. Gamberg. Open to independent completion of study.

EDUC 7995.03A or B Practicum: Counselling: J. Manos

EDUC 7996.06R Practicum: Counselling: J. Manos

EDUC 7982.09R Project - Educational Administration: Consult School. Open to independent completion of study. MED Programme only.

EDUC 9000.00R MA Thesis

EDUC 9530.00R PhD Thesis

English

Location: 1434 Henry Street, Halifax,
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Chairperson of Department

R.M. Huebert

Professors Emeritus

J. Fraser, MA (Oxon), PhD (Minn), George
Munro Professor of English Language and
Literature, FRSC

J. Gray, MA (Aberd), MA (Oxon), PhD (Mont),
FRSA, FRSC, McCulloch Professor of English
M. Ross, OC, BA (UNB), MA (Tor), PhD
(Corn), DLitt (UNB), LLD (St.Thom), LLD (Dal),
LLD (Queen's), DLitt (Trent), DLitt (Edinburgh),
DLitt (Windsor), DSL (Trinity College), DLitt
(Acadia), FRSC

S.E. Sprott, MA, BD (Melbourne), PhD
(Columbia)

Professors

A. Andrews, BA, DipEd, MA (Leeds), PhD (Ill),
FRSA, major appointment in Theatre

R.M. Huebert, BA (Sask), MA, PhD (Pitt)

M.A. Klug, BA (Minn), MA (Kansas State),
PhD (Illinois)

P. Monk, BA (Reading), MA (Carleton), PhD
(Queen's)

R.J. Smith, BA (Natal), MA (Oxon), PhD

(Natal), McCulloch Professor of English

R.R. Tetreault, BA (UBC), MA, PhD (Cornell)

J.A. Wainwright, BA (Tor), MA, PhD (Dal)

Associate Professors

J. Baxter, BA, BEd, MA, PhD (Alta)

S.A. Cowan, BA (Montana), MA (Yale)

L. Diepeveen, BA (Calvin), MA, PhD (Illinois)

M.M. Furrow, BA (Dal), MA, MPhil, PhD (Yale)

B.R. Greenfield, BA (York), MA (McG), MPhil,
PhD (Columbia)

A. Higgins, BA (Connecticut), MA (McG), MA
(Mass), MA, PhD (Yale)

V.Li, BA, MA (UBC), PhD (Cantab)

D. McNeil, BA (Concordia), MA (UNB), PhD
(McM)

C.J. Myers, BA (Sask), MA, PhD (Tor)

M. Stone, BA (Guelph), MA, MPhil (Waterloo),
PhD (Tor)

Assistant Professors

C. Luckyj, BA, MA, PhD (Tor)

H.E. Morgan, BA (UBC), MA (Wash), BLitt
(Oxon), PhD (Wash)

T. Ross, BA, MA (Carleton), PhD (Tor)

J. Thompson, BA (Western), MA, PhD (Tor)

C. Wessenthal, BA, MA (Manitoba), PhD
(Alberta)

Honorary Adjunct Professors

R. Davies, PhD (Wales), Acadia

T. Hubel, PhD (Western), Saint Mary's
P. Schwenger, PhD (Yale), Mount St. Vincent

Applicants should designate the proposed
thesis area at the time of application for
admission. The Department will entertain
research proposals at the MA level in most
areas of British, Canadian, or American
literature, and at the PhD level in many of
these areas. Nonetheless, applicants for the
PhD should take care to consult the Graduate
Coordinator of the department concerning its
strength, in both resources and personnel, in
the field of study in which they propose to
specialize.

Admission Requirements

Candidates must satisfy the general
requirements for admission to the Faculty of
Graduate Studies. Candidates for the PhD
degree in English must hold an MA degree
from Dalhousie or its equivalent. Only in
exceptional circumstances will persons holding
a BA and an MA from Dalhousie be allowed to
proceed to a PhD programme without study at
another institution. It is recommended that all
foreign students submit the necessary
documents by February 15th.

MA Degree Programme

For minimum time required to complete
this programme, see Section 4.

Course work must include a graduate
seminar (half or full-year) in the thesis area; at
least one graduate seminar in a field unrelated
to the thesis; and additional seminars in
English to make up the equivalent of three
full-year classes. With the approval of the
Department, a graduate class in another
department relevant to the candidate's course
may take the place of one of the additional
seminars, and under certain conditions a
reading class may take the place of the
seminar in the thesis area.

All students are required to have studied
at least one European language other than
English and to demonstrate some proficiency
in it.

A thesis, equivalent to two classes, is
required.

Two unbound copies of the thesis are to
be submitted to the Department to meet the
deadlines listed in the Faculty of Graduate
Studies Schedule of Academic Dates.

PhD Degree Programme

For a minimum time required to complete
this programme, see Section 4.

Three graduate seminars beyond the classes for the Dalhousie MA are required. A qualifying examination with written and oral portions is required.

All graduate students in the Department are required to have studied at least one European language other than English, and to demonstrate some proficiency in it. In addition to this general requirement, each doctoral thesis area has its own specific language requirements.

Preparation and defence of a thesis are required.

Classes Offered

Graduate Seminars

Approximately ten full-year seminars or the equivalent are offered each year. Students should consult the Department about which of the following seminars will be offered in 1994-95.

ENGL 5110.06R Middle English Literature: M. Furrow, H. Morgan

ENGL 5115.06R Medieval Romance: H.E. Morgan

ENGL 5120.06R Early English Drama: A. Higgins

ENGL 5220.06R Shakespeare: J. Baxter

ENGL 5230.06R Renaissance Poetry and Rhetoric: J. Baxter

ENGL 5231.03A Spenser, Shakespeare, Donne: Eros and Chastity: J. Baxter

ENGL 5232.03B Brave New Worlds in the English Renaissance: J. Baxter

ENGL 5235.03A Milton's *Paradise Lost*: R. Huebert

ENGL 5237.06R Gender in English Renaissance Drama: C. Luckyj

ENGL 5250.06R Renaissance Dissident Writers: R. Huebert

ENGL 5255.03B The Body in Renaissance Literature and Culture: R. Huebert

ENGL 5260.03B 17th Century Life-Writing: R. Huebert

ENGL 5306.03B The Restoration Theatre: D. McNeil

ENGL 5310.06R Restoration and Augustan Satire: D. McNeil

ENGL 5315.06R The Eighteenth-Century English Novel: D. McNeil

ENGL 5316.03A The Eighteenth-Century English Novel: D. McNeil

ENGL 5340.06 Values in Literature: The Example of the Eighteenth Century: T. Ross

ENGL 5405.06R The Wordsworths and Coleridge in Conversation: J. Thompson

ENGL 5410.06R Innovation and Tradition in Romantic Poetry: R. Tetreault

ENGL 5411.03A or B Women and Men in the Romantic Era: R. Tetreault

ENGL 5412.06 Women and Men in the Romantic Era: R. Tetreault

ENGL 5415.06R Wordsworth and Coleridge: R. Tetreault

ENGL 5420.03R Keats and Shelley: R. Tetreault

ENGL 5421.03A or B Keats: R. Tetreault

ENGL 5422.03A or B Shelley: R. Tetreault

ENGL 5430.03R The Literature of Victorian Social Criticism: C.J. Myers

ENGL 5435.06R Victorian Narrative Modes: M. Stone

ENGL 5436.03A Engendering the Muse: Victorian Poetry, Literary History and Feminist Poetics: M. Stone

ENGL 5510.06R Traditionalism and Experimentation in English Poetry, 1880-1920: J. Fraser

ENGL 5515.06R Literature and Society, 1900-1920: J. Fraser

ENGL 5517.06R The Ideology of Modernism: Pound and Eliot: V. Li

ENGL 5520.06R Joyce and Yeats: M.A. Klug

ENGL 5522.03A The Modernist/Post-Modernist Novel: V. Li

ENGL 5525.06R British Literature, 1920-1945: R.J. Smith

ENGL 5526.03A British Literature, 1920-30: R.J. Smith

ENGL 5527.03B British Literature, 1930-45: R.J. Smith

ENGL 5540.06R British Fiction Since 1945: R.J. Smith

ENGL 5615.06R Modern Canadian Poetry: P. Monk

ENGL 5620.06R Modern Canadian Fiction: J.A. Wainwright

ENGL 5625.03A or B Studies in Modern Canadian Poetry: P. Monk

ENGL 5628.06R Modern Canadian Literature: Re/writing History: J.A. Wainwright

ENGL 5630.03A or B Studies in Modern Canadian Fiction: J.A. Wainwright

ENGL 5710.06R Studies in Commonwealth Fiction: R.J. Smith

ENGL 5810.06R The American Scene: Major Figures of the Nineteenth Century: B. Greenfield

ENGL 5811.03B American Lives: B. Greenfield

ENGL 5815.06R American Travel/American Literature: B. Greenfield

ENGL 5820.06R American Poetry 1910-1945: L. Diepeveen

ENGL 5825.06R A or B Recent American Fiction: M.A. Klug

ENGL 5830.03A Reading American Modernism: L. Diepeveen

ENGL 5835.03B Finding a Centre: Making Literary History in Contemporary American Poetry: L. Diepeveen

ENGL 5905.06R Problems in Literary Theory: J. Fraser

ENGL 5918.03A The Politics of Representation: V. Li

ENGL 5930.03B The New Historicism: R. Huebert

ENGL 9000.00 MA Theses

ENGL 9530.00 PhD Theses

Environmental Studies

Location: 1312 Robie Street, Halifax, N.S. B3H 3E2

Telephone: (902) 494-3632

Fax: (902) 494-3728

Resource and Environmental Studies

Director of School

R.P. Côté

Academic Programme Co-ordinator

E. Darler

International Programme Co-ordinator

R.E. Clarke, BA (Goddard), PhD (UBC)

Professors

R. Apostle, BA (SFU), MA, PhD (Calif, Berkeley), major appointment in Sociology and Social Anthropology

R. Boardman, BSc, PhD (Lond), major appointment in Political Science

F. Cohen, BA, MEd (Harvard), PhD (Minn)

R.W. Doyle, MSc (Dal), PhD (Yale), major appointment in Biology

B. Freedman, BSc, MSc, PhD (Tor), joint appointment with Biology

E. Gold, BA, LLB (Dal), PhD (Wales), major appointment in Law

P.A. Lane, MSc (SUNY Binghamton), PhD (SUNY Albany) major appointment in Biology

K.E. von Maltzahn, MS, PhD (Yale), major appointment in Biology

I. McAllister, MA (Oxon), MA (Cantab), major appointment in Economics

E.L. Mills, BSc (Carleton), MS, PhD (Yale), major appointment in Oceanography

K.W. Renton, BSc (Sir Geo. Wms.), PhD (McG), major appointment in Pharmacology

B.H. Wildemith, BSc (Guelph), LLB (Dal), LLM (Harvard), major appointment in Law

J.H.M. Willison, PhD (Nottingham), major appointment in Biology

K.S. Wood, BA, MA (Oregon), major appointment in Henson College of Public Affairs

Associate Professors

G.E.E. Beanlands, BSc, MSc (UNB), PhD (Dal)

M. Binkley, BA, MA, PhD (Tor) major appointment in Sociology and Social Anthropology

M.P. Brown, BA (Mt A), MA (Dal), PhD (Tor) major appointment in Public Administration

R.P. Côté, BSc (Loyola), MSc (Memorial)

M.L. Cross, AA (Dawson College), BA (Montana), MA (SFU), PhD (Texas A&M), major appointment in Economics

D.H. Elliott, BA (Yale), PhD (Pittsburg), major appointment in Sociology and Social Anthropology

T. Li, BA, PhD (Cantab), major appointment in Sociology and Social Anthropology

L. Mazany, BSFS (Georgetown), PhD (UBC), major appointment in Economics

R.F. McCurdy, MPH, MSc (Minn), PhD (TUNS), major appointment in Pathology

G.K. Muecke, BSc, MSc (Alta), DPhil (Oxon), major appointment in Earth Sciences

D. Petriquin, MSc, PhD (McG), major appointment in Biology

D.J. Patton, BA (UNB), MA (Tor), DBA (Indiana), major appointment in Business Administration

D. VanderZwaag, BA (Calvin), MDiv (Princeton), JD (Arkansas), LL.M (Dal), joint appointment with Law

P.G. Wells, BSc (McG), MSc (Tor), PhD (Guelph)

Assistant Professors

E. Darier, BA (Portsmouth), MA (Reading), PhD (McGill)

A. Dwire, BA, MA (Dal)

J.R. Guernsey, BSc (Carleton), MSc, PhD (Iowa), cross appointment in Community Health and Epidemiology

P. Saunders, BA, MA, LLB (Dal), major appointment in Law

Research Associates

J. Reade, BA (SMU), MLS (Dal)

Honorary Research Associates

W. Barchard, BSc, MSc (Guelph)

D.E. Buckley, BSc (Acadia), MSc (Western), PhD (Alaska), BIO

J. Campbell, BA (Dal), MA, PhD (UC Irvine)

M. Gardner, BA, MA, PhD (Dal), Gardner, Pinfold & Assoc.

G. Howell, BSc, MSc (Dal), Environment Canada

J. Leith, BPhysEd (McM), MA (Guelph)

Honorary Adjunct Professors

T. Charles, BSc (Carleton), PhD (UBC), Saint Mary's University

K. Cossey, MES (York)

G. Daborn, BA (Keele), MSc, PhD (Alberta), Acadia

J. Grant, PhD, MA (Waterloo), MA (McM), BA (Western) NASCAD

L. Kaadan, MA, PhD (Chicago)

N. Munro, BSc (UNB), MA (Carleton), Environment Canada

P.J. Ricketts, BA (Nottingham), PhD (Southampton), Saint Mary's University

D.J. Scarratt, BSc, PhD (Wales), BIO

J.H. Vandermeulen, BSc, MSc (Alta), PhD (UCLA), Department of Fisheries and Oceans

T. Vigerstad, MSc, PhD (Rhode Island), Bio-Response Systems Limited

D.H. Weller, PhD (Dal), DIC (Public Health) (London), BEng (TUNS), TUNS

International Programme Staff

S. Conover, AB (Oberlin), MSc (Yale), PhD (Dal)

J. Campbell, BA (Dal), MA, PhD (UC Irvine)

H. Johannessen, BA (SMU)

P. Lawrence, BSc (London)

J. Leith, BPhysEd (McM), MA (Guelph)

The School (formerly the Institute) offers a graduate programme leading to the Master of Environmental Studies (MES) degree.

The core faculty of the School is small. It is complemented by cross-appointed faculty whose major appointments are in other units within Dalhousie, at other universities, or in government agencies.

Classes in Environmental Studies are offered through the school. In addition, a wide selection of classes relevant to the programme are given by other units within Dalhousie, and by Saint Mary's University and the Technical University of Nova Scotia. Students take core classes from which they will acquire a broad, interdisciplinary background in environmental studies. Each student will also take classes and write a thesis in a particular field of interest. An important element in the MES programme is group research projects which give the students experience in multidisciplinary team work. There are opportunities for study and research from the points of view of policy, technique and science. More than 20 faculty members from various academic units in the university contribute in class work and as thesis supervisors.

Admission Requirements

In order to be enrolled in an MES programme students must have achieved sufficient depth of knowledge in an appropriate branch of an approved academic discipline.

The minimum entry requirement is

- (i) an Honours bachelor degree in a life science, an earth science, chemistry, physics, mathematics, economics, political science or sociology, or
- (ii) a professional degree in law, architecture, medicine or engineering, or
- (iii) equivalent academic qualification

Deadline for applications is 15 February.

Programme Duration and Minimum Requirements

(a) The two-year programme

For most students the minimum programme will occupy two years. Students are required to complete, not later than the end of their first year, three half-credit classes selected from the disciplines of life sciences, earth sciences, chemical and physical sciences, engineering (group A), and social sciences, law, architecture (group B). An approved class in statistics as related to the environment may be accepted in either group A or B.

Students whose specialization was in group A should take at least two subjects in group B, and vice versa. Each credit must be in a different discipline and must be in subjects other than the major subject of the student's first degree. In total, 11 half-credit courses and a thesis are required. During the first year of a two year programme, students will generally complete the following requirements:

1. Three half-classes specified above
2. ES 5000.06R and 5001.03B
3. An approved graduate half-class in an area designed to relate the undergraduate major to an environmental theme
4. ES 5110.03A (or appropriate alternative)
5. ES 5200.03B (or appropriate alternative)
6. A class with an international perspective

The requirements for the second year of a two-year programme are:

1. ES 5002.03A
2. An approved graduate level half-class
3. ES 9000.00 (Thesis)

Class work beyond the minimum load is generally required and is specified by the programme coordinator after discussions with the student and thesis supervisor.

(b) The one-year programme

Notes: one year is understood to mean one full academic year, not one winter session.

Only students with a well-rounded background may enter a one-year MES programme. A "well-rounded background" is defined as an acceptable professional degree, e.g. BEng or BArch, with a concentration in environmental studies. Professional experience following honours graduation may be taken into consideration when evaluating entrance requirements. The requirements for the one-year programme are:

1. ES 5000.06R and 5001.03B
2. One graduate-level class related to an environmental theme in the student's area of specialization.
3. Thesis

Classes Offered

All classes except ES5002.03A and ES9000.00 are open to students in other programmes by permission of the instructor.

ES 5000.06R Introduction to Environmental Studies: F. Cohen and staff

ES 5001.03B Environmental Assessment: G. Beanlands

ES 5002.03A Environmental Studies Joint Project: Staff

ES 5004.03B Industrial Ecology (Management of Chemicals and Waste): R. Côté

ES 5006.03A Environmental Toxicology: P. Wells, B. Freedman

ES 5020.03A Resource Systems and Economic Development: M. Gardner

ES 5030.03A Seminar on Management of Sustainable Development: B. Clarke (Cross-listed with MPA 6775.03A)

ES 5032.03B Aquatic Toxicology and Water Quality Assessment: P. Wells

ES 5033.03B Resources and Communities: An International Perspective: B. Clarke

ES 5035.03A Approaching Research in Resource and Environmental Studies: B. MacDonald

ES 5036.03B Resource and Environmental Management Tools: E. Darier

ES 5039.03B Indigenous People: F. Cohen

ES 5043.03A Environmental History and Ideas: E. Darier

ES 5045.03B Integrated Port and Harbour Management: C. Lamson, M. Brooks

ES 5046.03A Environmental Quality Reading Course: C. Lamson

ES 5110.03B Resource Economics: M. Cross (Cross-listed with Economics 5516.03B)

ES 5120.03B Environmental Ecology: B. Freedman (Cross-listed with Biology 5060.03B)

ES 5180.03A Coastal Communities: M. Binkley (Cross-listed with SOSA 3220.03A/5220.03A)

ES 5200.03A or B Environmental Law: A: P. Saunders; B: D. Vander Zwagg (Cross-listed with Law 2104.03A or B)

ES 5601.03B Management of the Marine Environment: A. Dwiré

ES 9000.00 Thesis

French

Location: 1315 LaMarchant Street,
Halifax, N.S. B3H 3J6
Telephone: (902) 494-2430

Chairperson of Department

P. DeMéo

Professors

M. Bishop, BA, BEd (Manchester), MA (Man),
PhD (Kent, Canterbury) Graduate Co-ordinator
J.W. Brown, AB (Miami), MA (Middlebury),
PhD (Penn)
P. De Méo, BA, MA, PhD (UCLA),
Co-ordinator of MAT programme
B.E. Gesner, BA, BEd, MA (Dal), Dr. de 3e
cycle (Toulouse II)
W.T. Gordon, BA, MA, PhD (Tor)
R. Kocourek, State Examination, PhD, CSc
(Charles, Prague)
H.R. Runte, MA, MPh, PhD (Kansas)
M. Sandhu, Licence ès Lettres (Montpellier),
PhD (Yale)
K. Waterson, BA (Long Island), MA (NYU),
PhD (CUNY)

Associate Professors

H.E. Bednarski, BA (Lond), MA (Dal), PhD
(Laval)
R. Bonnel, Licence (Paris), MA (Essex), Dr. de
3e cycle (Paris)
T.P. Carter, BA (Princeton), MA, PhD (Brown)
M.J. Myers, DUEL, Licence ès Lettres, MA,
Dr. de 3e cycle (Louise Pasteur, Strasbourg)
I.Z. Oore, BA (Tel-Aviv), MA (Waterloo), PhD
(Western)
N. Trèves, BSc (American U, Cairo), PhD (Rice)

MAT Degree Programme

This degree programme, jointly administered by the French Department and the School of Education is a professional degree designed for the practising teacher. It may be taken full-time or part-time.

BA in French with Honours and BEd with Dalhousie or the equivalents. Prospective students must show evidence of proficiency in spoken and written French. Students with less than the above may be provisionally accepted into the programme and required to complete such additional classes as the Department feels warranted.

MAT classes are normally offered in the late afternoon during the Fall and Winter terms. Every effort is made to offer one or two half-credit classes during the summer sessions. Coursework is evenly divided among the following four areas: French linguistics, francophone culture,

second-language acquisition and teaching, and education. An independent project, supervised by members of the French Department and the School of Education, will focus on the application of some aspect of current research in second-language learning to a specific pedagogical situation. Students primarily interested in research on second-language pedagogy should consider doing an MA in French rather than an MAT.

Please contact the MAT Coordinator for information about classes applicable to this degree programme.

Note: The School of Education offers an MEd degree in which it is possible to specialise, within the curriculum area, in Second Language Teaching. Some MAT French classes are cross-listed with Education and may be taken in an MEd programme.

MA Degree Programme

For general rules see the Faculty Regulations section 2.2 of this calendar.

1. Classes and research leading to the MA degree in French are offered in the areas of French literature, linguistics, second language studies and culture. Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies and must show evidence of proficiency in spoken and written French.
2. Students may be accepted on a full-time or a part-time basis. A full-time student must spend a minimum of one year in full-time graduate study. The time normally required to complete the full-time programme is one year for holders of a French Honours degree or equivalent, and two years for holders of a general degree.
3. In a one-year full-time programme, the equivalent of at least five university credits is required. This will consist of thesis (usually equivalent to two credits) plus three 5000-level credits. In a two-year full-time programme, students have to attain the equivalent of Honours status (see Undergraduate Calendar) and to obtain the additional five credits as required in a one-year full-time programme.
4. In addition to the five credits, all MA students are normally expected to take a half-year class in Research Methods. When appropriate, up to one additional undergraduate or graduate credit may be required in order to improve the student's proficiency in French. Part-time students carry no more than two and one-half full-credit classes during one year. A one-year full-time programme corresponds

to three years part-time. A two-year full-time programme corresponds to six years part-time.

- The thesis, written in French, is to be submitted and approved within the time limits set out in Section 5 of this calendar.

Students who wish, eventually, to go on to the PhD are advised to do the MA thesis degree.

PhD Programme

For general rules see the Faculty Regulations Section 5.3 of this calendar.

The admission requirements are as follows: an MA thesis degree in French, an excellent French oral and written proficiency, a scholarly interest in one of the areas of French Studies to which PhD thesis research is limited. These areas are: Twentieth Century Literature (includes contemporary literature, poetry, poetics, structural stylistics, and selected novelists and playwrights), Linguistics (includes lexicology and its modern history, lexical formation, semantics, text linguistics, contrastive studies, terminology), and Contemporary and Acadian Studies.

The requirements after admission are the following: two years of Dalhousie residency, four full graduate credits (from the departmental offerings in the years of residency), a second language examination (within two years after admission), preliminary and comprehensive written and oral examinations (not less than one year prior to submission of thesis), and the PhD thesis (normally written in French) and its oral defence.

Selection of Classes and Registration

It is the responsibility of students admitted to one of the graduate programmes to report to the graduate coordinator or MAT coordinator in the week preceding the beginning of classes, or earlier. The purpose is a pre-registration briefing and interview, the final selection of classes, completion of class selection forms and the drawing up of the programme of graduate studies. All graduate students should be duly registered before classes begin.

Classes Offered

What follows is a list of PhD, MA and MAT classes. Classes required in particular cases will be specified in each student's Programme of Graduate Studies. Only a limited number of classes is offered in any given year. Descriptions of the graduate classes offered in a particular year will be made available to students.

FREN 5002.03A, B, or R Méthodes de recherche/ Research Methods: H. Runte and staff

FREN 5005.03A or B Philologie française: Séminaire d'ancien français/French Philology: Old French Seminar: H. Runte

FREN 5006.03A or B Philologie française: Séminaire de l'histoire du français moderne/French Philology: Seminar on the History of Modern French: H. Runte

FREN 5016.03A or B Aspects de la traduction/Topics in the Science of Translating: W.T. Gordon

FREN 5040.06R Stylistique avancée/Advanced Stylistics: M. Sandhu

FREN 5120.06R Linguistique/Linguistics: R. Kocourek

FREN 5121.03A or B Fonctionnalisme et structuralisme en linguistique/ Functionalism and Structuralism in Linguistics: R. Kocourek

FREN 5122.03A or B Créativité Lexicale/Lexical Creativity: R. Kocourek

FREN 5123.03A or B Langue et terminologie savantes/Learned Language and Terminology: R. Kocourek

FREN 5124.03A or B Vocabulaire et Culture/Vocabulary and Culture: R. Kocourek

FREN 5125.03A or B Sémantique/Semantics: W.T. Gordon

FREN 5130.03A or B Linguistique saussurienne/Saussurean Linguistics: W.T. Gordon

FREN 5140.03A or B Dialectologie acadienne et sociolinguistique/Acadian Dialectology and Sociolinguistics: B.E. Gesner

FREN 5180.03A or B Linguistique de texte/Linguistics of Texts: R. Kocourek

FREN 5185.03A or B Les Métaphores dans les textes/Metaphors in Texts: R. Kocourek

FREN 5190.03A or B La Linguistique du français enseigné/Linguistics in Teaching French: R. Kocourek

FREN 5250.03A or B Fondements de l'enseignement des langues secondes/Foundations of Second Language Teaching: P. De Méo

FREN 5260.03A or B Approches communicatives de l'enseignement du français langue seconde/ Communicative Approaches to French Second-Language Teaching: P. De Méo

FREN 5266.03A or B Enseignement de la phonologie en français langue seconde/Teaching of Phonology in French as a Second Language: K. Waterson

FREN 5289.03A or B Enseignement de la littérature francophone/Teaching French Literature: K. Waterson

FREN 5270.03A or B Enseignement de la lecture en français langue seconde/ Teaching of Reading in French as a Second Language: P. De Méo

FREN 5275.03A or B Informatique et enseignement de la langue française/Computers in Teaching French: T.P. Carter

FREN 5280.03A or B Enseignement de la culture francophone/Teaching of Francophone Culture: staff

FREN 5281.03A or B Culture française/French Culture: J. Brown

FREN 5285.03A or B Sémiotique appliquée/Applied Semiotics: J. Brown

FREN 5290.03A or B Analyse, exploitation et développement de matériaux pédagogiques/ Analysis, Exploitation and Development of Curricular materials: P. De Méo

FREN 5295.03A/5296.03B Séminaire: Didactique des langues secondes/Seminar: Second-Language Teaching: Staff, Topic varies, Consult Department for current year's topic.

FREN 5300.03A Séminaire: Littérature médiévale/Seminar in Mediaeval French Literature: H. Runte

FREN 5301.03B Lectures: littérature médiévale/Supervised Readings in Mediaeval French Literature: H. Runte

FREN 5400.03A or B Rabelais et son temps/Rabelais and his Time: N. Trèves

FREN 5401.03A or B Montaigne et son temps/Montaigne and his Time: N. Trèves

FREN 5402.03A or B La Poésie de la Renaissance/ Renaissance Poetry: N. Trèves

FREN 5500.03A or B L'Aventure intellectuelle du Grand Siècle/The Intellectual Adventure of French Classicism: K. Waterson

FREN 5600.03A or B Le roman épistolaire du 18^e siècle/18th Century Epistolary Novel: R. Bonnel

FREN 5610.03A or B Ethique et esthétique de la nature dans l'art et la littérature du 18^e siècle/Ethics and Aesthetics of Nature in 18th Century Art and Literature: R. Bonnel

FREN 5700.03A or B La Révolution romantique/The Romantic Revolution: M. Sandhu

FREN 5701.03A or B Le Roman du dix-neuvième siècle/ Nineteenth-Century Novel: M. Sandhu

FREN 5705.03A or B Le Poème en prose au 19^e siècle/ The Prose Poem in the 19th Century: J. Brown

FREN 5706.03A or B Impressionnisme et symbolisme/ Impressionism and Symbolism: M. Bishop

FREN 5801.03A or B Anti-romans du vingtième siècle/ Anti-Novels of the 20th Century: D. Lawrence

FREN 5802.03A or B La Poésie moderne de Char à Bonnefoy/Modern Poetry from Char to Bonnefoy: M. Bishop

FREN 5803.03A or B La Littérature Contemporaine I/ Contemporary Literature I: M. Bishop

FREN 5804.03A or B Art et Littérature/Art and Literature: M. Bishop

FREN 5805.03A or B La Stylistique structurale/Structural Stylistics: J. Brown

FREN 5806.03A or B Poétique et théorie de la littérature/ Poetics and Theory of Literature: J. Brown

FREN 5807.03A or B Culture contemporaine/ Contemporary Culture: M. Bishop

FREN 5808.03A or B La Littérature Contemporaine II/ Contemporary Literature II: M. Bishop

FREN 5876.03A or B Aspects de la littérature du Canada français/Studies in French Canadian Literature: B. Bednarski

FREN 5877.03A or B Analyse de textes littéraires québécois/ Analysis of Quebec Literary Texts: I. Oore

FREN 5910.03A or B Lecture de textes acadiens contemporains/Supervised Readings in Acadian Literature since 1988: H. Runte

FREN 5920.03A or B Femmes écrivains et images de femmes dans la littérature française à travers les siècles/French Women Writers and Images of Women through the Centuries: N. Trèves

FREN 5990.06R Projet Indépendant/ Independent Project (MAT): Subject to independent completion of study.

FREN 5998.03A/5999.03B Recherches indépendantes/ Independent Research: Subject to approval by graduate coordinator and department chairperson.

FREN 9000.00 MA Thèse/Thesis

FREN 9530.00 PhD Thèse/Thesis

German

Location: 1355 LaMarchant Street,
Halifax, N.S. B3H 3J5
Telephone: (902) 494-2161/2162

Chairperson of Department

H.-G. Schwarz

Professors

F.W. Gaede, PhD (Freib.) McCulloch
Professor, Graduate Co-ordinator
H.-G. Schwarz, MA (Munich), PhD (McG)

Associate Professor

D.H. Steffen, PhD (Gott)

Assistant Professors

J.V. Curran, MA, MA (Dal), PhD
(Newcastle-upon-Tyne)
E. Spence, MA, PhD (UBC)

Honourary Adjunct Professor

P. Michelsen, PhD (Gott), Heidelberg Univ.

Graduate classes leading to the degree of MA are offered in the history of German literature and thought. Research in the Department is concerned principally with the Baroque Age, the literary and philosophical tradition of German Idealism, and the culture of the twentieth century.

Graduate students may concentrate their work in any of the periods or in any particular aspect of the history of German literature and thought.

Admission Requirements

Applicants who do not meet the standards of an Honours degree may be required to take additional classes.

MA Degree Programme

Candidates should be prepared to spend two academic years towards completion of their classes and thesis.

Candidates are expected to have a reading knowledge of a third modern or ancient language. A thesis is required.

Classes Offered

GER 5500.06R Literature and Thought from Reformation to Enlightenment

GER 5520.06R Goethe and the Enlightenment

GER 5530.06R Hegel's Aesthetics and the Ancients

GER 5540.06R Kant and the History of German Idealism

GER 5550.06R Hegel: Phenomenology of Spirit

GER 5570.06R Goethe and Romanticism

GER 5580.06R Goethe's Faust

GER 5590.06R Studies in German Idealism

GER 5800.06R Heidegger and German Idealism

GER 5810.06R Literature of the 19th Century

GER 5820.06R Modern German Literature

GER 5830.06R Aesthetic Theory

GER 5840.06R Ancient and Modern Dialectics

GER 5860.06R History and Theory of the German Novel

GER 5870.06R Hegel's Philosophy of Nature

GER 5700.03A Special Topics I

GER 5701.03B Special Topics II

GER 5800.06R Research Seminar

GER 9000.00R Thesis

Health Services Administration

Location: 1234 Seymour Street, Halifax,
N.S. B3H 3M3
Telephone: (902) 494-7097
Fax: (902) 494-6849

Director of School
Lawrence J. Nestman

Professor Emeritus
A. Peter Rudeman, BS, MA, PhD (Harvard),
MBA (Chicago)

Professors
L. Nestman, BComm (Sask), CA, MHSA (Alta)

Associate Professor
L.L. McIntyre, MD, MHSc (Toronto), FRCPC,
joint-appointment in Recreation, Physical and
Health Education

Assistant Professors
G. Johnston, BSc(Hons) (McGill), MHSA
(Alta), PhD (Western)
K. Rondeau, BSc Hons, BLT (Regina), DIA,
MA, MBA (Concordia)

Lecturers
W.D. Cochrane, BA(Hons), LLB (Dal)
A. MacIntosh, BA, LLB (Dal), MPH (Harvard)
K. MacIntyre, RN, BBA (MSVU), MHSA (Dal)
M. Maxwell, BA (Acadia), BD(Planning)
(NSCAD), MES, MHSA (Dal)
A. Maxwell, BN, MPA(HSA) (Dal)
D. McKillop, BA (York), MIR (Toronto)
D.W. Rice, BEng, MEng, PEng (TUNS)
V. Hicks, BA, MA (Dal)

Students seeking further information or help in planning courses of study in the School of Health Services Administration should address themselves to:

Graduate Co-ordinator
School of Health Services Administration
1234 Seymour Street
Halifax, N.S. B3H 3M3
(902) 494-7097

The School of Health Services Administration is accredited by the Accrediting Commission on Education for Health Administration, and is a full member of the Association of University Programmes in Health Administration.

Objectives

The School of Health Services Administration offers a Masters degree which meets the needs of those pursuing administrative careers in the Canadian Health Care Delivery System. The Programme is designed to prepare individuals for careers in Hospital Administration, Nursing Administration, Long Term Care Administration, Public and Community Health Administration and Administration in Municipal, Provincial and Federal Governments in health and health-related areas. Opportunities for individuals with an MHSA are excellent in policy, planning, evaluation, administration and research areas.

The Programme seeks to provide a conceptual background for the increasingly complex managerial tasks that need to be performed in health institutions and health related governmental departments. An effort is made to balance political, social, cultural, medical and psychological approaches to understanding the health care delivery system with those of the management sciences.

The emphasis in the programme is on an academic, multidisciplinary and professional education. It is academic in that it emphasizes knowledge of current research findings and treats the practice of health services administration as phenomena subject to social scientific analysis. It is multidisciplinary in that faculty are drawn from traditional social and administrative sciences. It is a professional programme in the sense that it will attempt to broaden the social perspectives of the student emphasizing the feature that a professional has a social responsibility to society and must have an appreciation of the ethical standards appropriate to a career in health services administration.

Application Procedure

Application forms are available from the Admissions Office of Dalhousie University. Application should be submitted as early as possible to the Registrar's Office.

The following supporting documents are to be sent directly to the School:

- transcripts of all previous work
- at least two letters of reference
- Résumé/Curriculum Vitae
- a statement of career interests and reasons for seeking admission to the School
- GMAT (see below)
- TOEFL for Foreign Students (see below)

The application (including all supporting documentation) must be received by May 1.

Candidates are required to sit for the Graduate Management Admission Test (GMAT). This requirement may not be waived without explicit permission of the Admissions Committee. GMAT results will be considered with other information submitted by applicants, in deciding on eligibility for admission.

The Test may be taken at conveniently-located centres throughout North America and in many other parts of the world. In the case of North American candidates, applications for the test are accepted by the ETS in Princeton until approximately six weeks before test dates. For candidates in other countries, closing dates are eight weeks before test dates.

School of Health Services Administration
GMAT Number is 0890.

Applicants for the test should use an order form obtainable from the Registrar's Office of the nearest University, Dalhousie University, or may write to the address below to obtain an information bulletin and registration form for the GMAT. If the order form is lost or omitted from the materials received write directly to:

Graduate Management Admission Test
Educational Testing Service
Box 966
Princeton, N.J., 08540, U.S.A.

All students are required to demonstrate at an early stage in their studies that they are proficient in writing reports and essays in English. Candidates from countries outside Canada whose mother tongue is not English will be required to take the Test of English as a Foreign Language (TOEFL) as a requirement for admission and a minimum score of 550 must be achieved. Further information may be obtained by writing:

Test of English as a Foreign Language
Box 899
Princeton, N.J., 08540, U.S.A.

CANDIDATES ARE ADVISED TO TAKE THE TEST(S) AT THE EARLIEST POSSIBLE DATE.

The deadline for applying to the School is May 1. For foreign students, it is strongly recommended that all documents (transcripts and references) be submitted prior to March 31.

Nursing Service Administration Concentration

The School of Health Services Administration, in cooperation with the School of Nursing, also offers a Nursing Service Administration Concentration in the Masters of Health Services Administration Programme. Graduates of this programme will be prepared

to function as Administrators of Nursing Services. A student admitted to the HEAS Programme must declare his/her intention to take the Nursing Administration Concentration and meet with the Associate Director/Graduate Programme in Nursing by May 1st of the first year of study. Admission to this Programme will be limited to no more than 4 students per year.

Students with an appropriate background may be admitted to a one-year programme

This two-year Masters programme requires the successful completion of 9-11 credits which must include:

Required Classes:

PUAD 5130.03A Applied Economics I
PUAD 5140.03A Quantitative Methods I
PUAD 5150.03A Financial Management & Accounting I
HEAS 5300.03A Introduction to the Canadian Health System
HEAS 5310.03B Health Institution Management
HEAS 5320.03B Epidemiology for Health Administration
HEAS 5330.03A Organizational Behaviour in Health Services
HEAS 5335.03B Information Systems in Health Administration
HEAS 5340.03B Health Care Economics
HEAS 5350.03B Health Services Accounting
HEAS 5380.03B Senior Seminar in Health Services
HEAS 5390.06R Health Services Residency
HEAS 6500.03A Intermediate Statistics for Health Services
NURS 5100.03A Research Methods I
NURS 5120.03B Research Methods II
NURS 5300.03A Theoretical Bases of Nursing I
NURS 5320.03B Theoretical Bases of Nursing II
1 credit: HEAS electives
1 credit: general graduate electives (subject to approval of a faculty advisor)

Part time Study

The Programme offered through the School is available to students on a part time basis. A part-time student may enrol in up to two and one-half credits in any one academic year. In order to ensure that graduate students benefit from a reasonable concentration of their studies, part-time studies must normally be completed within seven years.

LLB/MHSA Programme

The combined LLB/MHSA programme is a four-year programme which enables students to select classes leading to degrees of Master

of Health Services Administration and Bachelor of Laws. The suggested order of the programme is:

Year 1:

First year of MHSa programme
 Summer HEAS 6390.06R

Year 2: First year of LLB programme

Year 3: HEAS 6315.03A, HEAS 6330.03A one 1/2 credit
 HEAS elective plus 26 hours of classes from the LLB programme, including Civil Procedure, Constitutional Law, and a major research paper.

Year 4:

HEAS 6380.03B, HEAS 6360.03B or Health Law from the Law School, 1 1/2 credits
 HEAS electives and a minimum of 21 hours of classes from the LLB programme, including Professional Responsibility, and a major research paper.

Candidates for the LLB/MHSa programme must satisfy the entrance requirements of both programmes, and may obtain further information about the combined programme by contacting either the School of Health Services Administration or the Faculty of Law. For admission, students must apply to both the School of Health Services Administration and the Law School individually. Students applying for the MHSa programme may submit LSAT results in lieu of GMAT results.

General Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. Enrolment in the School is limited. In general successful applicants should have attained at least a "B+" standing in their previous university work.

Admission is based on an assessment of:

- professional experience and/or promise;
- all previous academic work;
- letters of reference;
- GMAT;
- TOEFL (when required)

Advanced Standing & Exemption

Applicants wishing to receive advanced standing should include class outlines for those classes previously taken which they consider to be equivalent to Dalhousie HEAS classes. Where it is determined at time of admission that a student has the equivalent of a required class but is not granted advanced standing, an exemption may be permitted, so that another class is substituted for the required class.

Classes Offered

The two-year programme leading to a Master of Health Services Administration degree features both an academic and results-oriented curriculum. It requires the successful completion of 9-11 credits which must include:

Required Classes

PUAD 5130.03A Applied Economics I
 PUAD 5140.03A Quantitative Methods I
 PUAD 5150.03A Financial Management & Accounting I
 HEAS 5300.03A Introduction to the Canadian Health System
 HEAS 5310.03B Health Institution Management
 HEAS 5320.03B Epidemiology for Health Administration
 HEAS 5330.03A Organizational Behaviour in Health Services
 HEAS 5335.03B Information Systems in Health Administration
 HEAS 5340.03B Health Care Economics
 HEAS 5350.03B Health Services Accounting
 HEAS 6315.03A Organization Theory and Design of Health Services
 HEAS 6330.03A Health Services Planning
 HEAS 6360.03B Senior Seminar in Health Services
 HEAS 6390.06R Health Services Residency

Six half-credit classes must be chosen from the following classes:

HEAS 5200.03B Principles of International Health
 HEAS 6000.03B Nursing Administration and Leadership
 HEAS 6310.03R Health Care Policy
 HEAS 6312.03A Management Control & Funding Systems
 HEAS 6320.03A Managed Care
 HEAS 6325.03A Long Term Care Administration
 HEAS 6340.03A Human Resources in the Health Care Setting
 HEAS 6350.03A Economic Evaluation of Health Services
 HEAS 6360.03A Health Care Law
 HEAS 6365.03B Quality Management
 HEAS 6370.03B International Comparative Health Care Systems
 HEAS 6375.03B Health Care Marketing
 HEAS 6384.03A or B or R Directed Project (full or half credit)
 HEAS 6395.03A or B or R Directed Reading (full or half credit)
 HEAS 6500.03A Intermediate Statistics for Health Services

1 full credit - graduate electives:

The remaining one-credit requirement may be made up from any of the elective classes offered by the School of Health Services

Administration or any other graduate studies programme, subject to approval of a faculty advisor.

NOTE: Not all classes are offered each year; consult the school for current year offerings.

History

Location: 1411 Seymour Street, Halifax,
N.S. B3H 3M8
Telephone: (902) 494-2011

Chair of Department

Inquire at Department

Graduate Co-ordinator

D.R. Woolf

Professors Emeritus

J.E. Flint, MA (Cantab), PhD (Lond), FR Hist
S, FRSC

P.B. Waite, MA (UBC), PhD (Tor), FRSC

Professors

M.S. Cross, BA, MA, PhD (Tor)

J.E. Crowley, AB (Princeton), MA (Mich), PhD
(Johns Hopkins)

J. Fingard, BA (Dal), MPhil, PhD (London),
FRSC, Dean of Faculty of Graduate Studies

J.L. Parpart, BA (Brown), MA, PhD (Boston)

N.G.O. Pereira, BA (Williams), MA, PhD (Calif,
Berkeley)

L.D. Stokes, BA (Tor), MA, PhD (Johns
Hopkins)

G.D. Taylor, BA, PhD (Penn), Dean of Faculty
of Arts and Social Sciences

M. Turner, BA, MA (Manchester), PhD (Lond)

Associate Professors

S.J. Brooks, BA (Dal), MA (McG), DPhil
(Oxford)

G. Hanlon, BA, MA (Tor), PhD (Bordeaux)

C.J. Neville, BA, MA (Carleton), PhD
(Aberdeen)

J.T. O'Brien Jr., BA (Wisconsin), MA, PhD
(Rochester)

D.A. Sutherland, BA (MtA), MA (Dal), PhD
(Tor)

D.R. Woolf, BA (Queen's), DPhil (Oxford), FR
Hist S

Assistant Professors

R. Blesdale, BA, MA, PhD (Western)

C. Danysk, BA (Concordia), MA, PhD (McG)

SSHRC Postdoctoral Fellow

S. Tiltonson, BSc (Waterloo), MA, PhD
(Queen's)

Honorary Research Associate

M. Conrad, BA (Acadia), MA, PhD (Tor)

Admission Requirements

Candidates for the one year MA degree must hold a BA Honours degree in history. Those with general history BA degrees or degrees in fields other than history may be placed in a two year MA programme or in a

qualifying year programme. Candidates for doctoral study must hold an MA degree in history or in a cognate field.

MA Degree Programme

Students admitted into either a qualifying year or a two year MA programme must in the first year take five upper level undergraduate history classes and secure at least a "B" grade in each class, with an overall average of "A-". Students in the one year MA programme are required to attend the Faculty/Graduate Seminar which meets weekly during the academic year.

The one-year MA and the second year of the two-year MA consist of coursework and thesis. In the fall term students take two graduate level classes, or one graduate level class and a Directed Reading field in their area of interest; the latter will be evaluated by written examination in January. In special circumstances where no suitable class is being offered, students may, on the recommendation of their principal supervisor, satisfy the coursework requirement by offering two directed reading fields.

In the spring and summer terms students are required to prepare and successfully defend a thesis not exceeding 50,000 words.

Candidates writing theses in Canadian history must demonstrate a competent reading knowledge of French; those writing theses in other fields must demonstrate an adequate reading knowledge of the language required for the successful completion of their research.

PhD Degree Programme

For minimum time required to complete the programme, see Section 4 of this calendar.

In order to be considered a candidate for the PhD degree, students must prepare three fields, at least one of which must be outside the student's primary research area, and pass written and oral examinations in all three fields. Students must demonstrate an adequate reading knowledge of the language required for the successful completion of their research. All students engaged in Canadian history research must demonstrate a reading competency in French.

A thesis is required which shall not exceed 100,000 words in length, excluding footnote references and bibliography. Doctoral theses are usually to be undertaken in the areas of Canadian, African, British, and Russian (mid-19th century to mid-20th century) History. Students wishing to do a PhD thesis in areas other than those named above may be recommended for admission provided that resources are available.

To qualify for the award of the PhD degree, the thesis must make a significant and original contribution to historical study by the discovery of new information, or by the original interpretation of known information, or both.

Fields of Study by Directed Reading (MA and PhD)

Canadian History

The following fields are offered: History of the Maritimes, with emphasis on the late 18th to mid-20th century; Western Canada; Rural History; Canadian social history, in particular such areas as poverty and philanthropy, urban and rural social disorder, immigration and ethnicity, labour history, and the rise of the city; Canadian political history, particularly the 19th and 20th centuries; Canadian-American relations, particularly since 1867.

African History

This field may be studied with special attention to precolonial history during the period of oral tradition; the colonial period since 1800, processes of decolonization in Anglophone Africa, and African social history in the 19th and 20th centuries.

British History

The following fields are offered: Aspects of British history 1250-1730; aspects of political, social, and cultural history, 1914-1979; labour history in the 20th century

Medieval History

Fields are available in English and European history during the Middle Ages.

French and Italian History

Students may take a field in French or Italian history (1550 to 1789) emphasizing the sources and methods used in social history, but must have a reading knowledge of either of those two languages.

German History

Only one field is available in German history: Germany 1870-1945. Within this, students may concentrate upon particular topics or periods especially relevant to their thesis work. A prior reading knowledge of German is required.

Russian History

Two fields are available: One in nineteenth-century Russian history and one in twentieth-century Russian and Soviet history.

United States History

Fields are offered in:
Colonial and revolutionary America, 19th century American social, labour, and ethnic history, and 20th century American political and business history.

Caribbean and Latin American History

Fields may be offered in aspects of labour (including slave labour history), the impact of imperialism in the 19th and 20th centuries, and transitions to socialism.

History of Political and Social Theory

Fields may be offered in the broad history of political and social theory (including historiography) or in more specific areas: Renaissance and Reformation Historical Thought, the Enlightenment, and Marxism (including special reference to the Third World).

Women's History

Fields are offered, both as single units and in combination, on women in developed industrial societies (North America), in developing societies (Africa), and in socialist societies (including Cuba and China).

Senior Undergraduate Classes which are Open to Graduate Students and for which Graduate Credit is Assigned

- HIST 5000.03A or B Directed Readings*
- HIST 5001.03A or B Directed Readings II*
- HIST 5002.06R Selected Readings in History*
- HIST 5090.03A Russian Society in Historical Perspective
- HIST 5116.03A or B culture, Class and Society in Twentieth-Century Britain
- HIST 5222.03A Topics in Canadian Social History, 19th and 20th Centuries
- HIST 5292.03A Wealth and Power in North America
- HIST 5368.03A or B The United States since 1929
- HIST 5380.06R Latin American History
- HIST 5461.03A or B Women and Development in Africa
- HIST 5462.03A or B Distortion or Development: African History
- HIST 5500.03A or B Topics in Modern History
- HIST 5610.03A or B Women in North America
- HIST 5612.03A or B Women in Socialist Development
- HIST 5701.03A Medieval Civilization
- HIST 5704.03A Crime and Society in Post-Conquest England
- HIST 5705.03A or B The Early Modern Mind
- HIST 5985.03A Modern Historiology

*Non-History MA or PhD students only; history students must take regular classes or one of the Directed Reading fields listed above.

Candidates for the full-time MA in History must take graduate classes in the A (fall) term. Students from other disciplines may apply for admission to such classes in either A or B term (as offered) by seeking the permission of the instructor, and obtaining the approval of their own department.

Graduate classes are offered on a rotating basis and students should check with the History Department as to its offerings in a given academic year.

Human Communication Disorders

Location: 5599 Fenwick Street, Halifax,
N.S. B3H 1R2
Telephone: (902) 494-7052
Fax: (902) 494-6151

Director of the School

W.B. Green

Professors

W.B. Green, BS, MA, PhD (Syracuse)
G.T. Mencher, BA, MA, PhD (Mich), FASHA
(Part-time)

Associate Professors

E. Yang, MD, MCD, PhD (Texas)

Assistant Professors

J. Armon, BSc, MS, PhD (Temple)
R. Calaisle, BPs, MSc, PhD (McG)
J.E. Fee, BA, MA, PhD (UBC)
J.J. Kallnowski, BS, MS, PhD (Connecticut)
E. Kay-Raining Bird, BA, PhD (Wisconsin)
Sr. D. Uryase, BA, MA, PhD (Conn)

Lecturers

M.N. Wall, MD
T. Jlang, MSc

Clinical Coordinators

C. Tompkins, MSc
L. Carey, MA

Clinical Instructors, (Employed at Nova Scotia Hearing and Speech Clinic)

Audiology

R. Dunphy
S. Fortlar
M. Gulliver
T. Jlang
S. Maxwell
C. Santill
S. Stuttard
C. Thompkins
G. Whitehead
M. Weekman

Speech-Language Pathology

S. Anthony
L. Carey
M. Casey
S.A. Delva
C. Dobblessteyn
T. Farrell-Walker
S. Fisher
A. Grantmyre

A. MacDonald
L. MacDonald
H. Maclean
J. Martin
M. Merchant
J. Schmidbauer
C. Scholten
C. Smith
J. Smith-Lamothe
S. Wozniak

Practicum Supervisors, (External)

S. Bourgeois, Janeway Child Health Centre,
St. John's, Nfld.
J. Klassen, Hearing Services, Kelowna, B.C.
A. Lafarque, Everett Chalmers Hospital,
Fredericton, N.B.
D. Ough, St. John Regional Hospital, Saint
John, N.B.
N. Walton, Pacific Hearing Clinic, Vancouver,
B.C.
R. Winkelaar, Foothills Hospital, Calgary, Alta.

Practicum Supervisors, (Employed at Nova Scotia Hearing and Speech Clinic)

Audiology

M. Williams
R. Evans
S. Johnson

Speech-Language Pathology

C. Andrew, Halifax City School Board
B. Arseneault, Nova Scotia Hearing and Speech
Clinic
K. Baird, Moncton Hospital, N.B.
N. Baasque, Chaleur Regional, N.B.
L. Beak, St. John's General Hospital, Nfld.
A. Benjamin, Nova Scotia Hearing and Speech
Clinic
M. Blunston, St. John's General Hospital, Nfld.
J. Cale, Nova Scotia Hearing and Speech Clinic
M. Carson, Department of Health and Social
Services, P.E.I.
N. Cieplinski, Halifax City School Board
L. Cobham, Saint John Regional Hospital, N.B.
C. Cole Mazerolle, Moncton Hospital, N.B.
B. Crane, School District 8, Saint John, N.B.
T. Czajka, Chedoke/McMaster Hospital,
Hamilton, Ont.
C. DeWolfe, Dr. Everett Chalmers Hospital,
Fredericton, N.B.
S. Dingee-Maloney, Chaleur Regional Hospital,
N.B.
R. Fernie, Nova Scotia Hearing and Speech
Clinic
V. Fleming, Janeway Child Health Centre, St.
John's, Nfld.
G. Foley, Miramichi Hospital, N.B.
M. Foley, R.C. School Board, St. John's, Nfld.
L. Freundehue, R.C. School Board, St.
John's, Nfld.

K. Gaffney, Chedoke/McMaster Hospital, Hamilton, Ont.
S. Greer, Dr. Everett Chalmers Hospital, Fredericton, N.B.
D. Hayden, Speech Foundation of Ontario, Toronto, Ont.
L. Ivany, GB Cross Memorial Hospital, Clarendville, Nfld.
C. Kearney, General Hospital, St. John's, Nfld.
A. Keeler, Nova Scotia Hearing and Speech Clinic
K. Kennedy, Nova Scotia Hearing and Speech Clinic
J. Kinsella, R.C. School Board, St. John's, Nfld.
L. Lamliux, Kingston Hospital, Ont.
L. Lewis, General Hospital, St. John's, Nfld.
A. MacDonald, Calgary Children's Hospital, Alta.
A. MacDonald, Saint John Regional Hospital, N.B.
J. MacDonald, Department of Health and Social Service, P.E.I.
S. MacDonald, Halifax City School Board
M. McCarthy, Central Newfoundland Regional Health Care Centre, Grand Falls, Nfld.
L. McCarvill, Department of Health and Social Service, P.E.I.
A. Mohr, Foothills Hospital, Calgary, Alta.
D. Morgan, St. John's General Hospital, Nfld.
K. Mullin, School District 8, Saint John, N.B.
C. Polley, Saint John Regional Hospital, N.B.
J. Power, R.C. School Board, St. John's, Nfld.
G. Shehata, Speech Foundation of Ontario, Toronto, Ont.
K. Smith, Halifax City School Board
G. Skinner, Kingston Hospital, Ont.
J. Stephenson, Saint John Regional Hospital, N.B.
R. Tabor, Nova Scotia Hearing and Speech Clinic
M. Tuhecherer, Wascana Rehabilitation Centre, Regina, Sask.
M. Vowles, Saint John Regional Hospital, N.B.
L. Walsh, Moncton Hospital, N.B.
J. Wells, St. John's General Hospital, Nfld.
M. Wells, Western Memorial Hospital, Cornerbrook, Nfld.
G. Yachyshen, Carleton Memorial Hospital, Woodstock, N.B.

The School of Human Communication Disorders provides a three year programme of studies and clinical experiences leading to a MSc degree in either Speech Language Pathology or Audiology. The School invites applications from students possessing a baccalaureate degree in Psychology, Educational Psychology, Linguistics, Special Education, Natural Science, Nursing, Health Sciences and other behavioural or health related disciplines. Applications must indicate the student's preference for either Audiology or Speech Language Pathology.

Admission Requirements

All applicants must possess a minimum of a baccalaureate degree from a recognized institution of higher education. This programme is designed for students with either minimal or no previous academic experience in the area of speech language pathology or audiology. Students whose undergraduate degree is in either speech language pathology or audiology may be considered for entrance into the programme at a more advanced level under exceptional circumstances only.

Preference will be shown to students whose academic background includes at least one class in each of the following five categories:

1. Research Methods, eg. Statistics, Research Design
2. Physical and Biological Sciences, eg. Anatomy, Physiology, Physiological Psychology, Human Biology, Neurophysiology, Physics, Acoustics
3. Linguistics, eg. Language Development, Phonetics, Psycholinguistics, Neurolinguistics, Sociolinguistics
4. Psychology, eg. Developmental Psychology, Abnormal Psychology, Learning Theory, Motivation
5. Perception and Psychophysics, eg. Sensation, Perception, Speech Perception, Psychoacoustics

Undergraduate grade requirements should exceed the equivalent of a "B" in the student's major and be at least the "B" level overall. Two letters of recommendation, from Professors in the student's undergraduate major, will be required as well as a statement from the applicant indicating personal reasons for pursuing graduate work in Speech-Language Pathology or Audiology.

MSc Degree Programme

This degree programme is a full time three year course with summer practicum experiences at the end of the first and second years of study. Currently the School does not offer any part time studies.

Students will be required to attain a minimum of 13 credits (10 academic, 1 final project and 2 clinical practicums) over a three year period. It should be noted that the individual special needs of students, especially with regard to practicum experiences, final project requirements, and possible inadequate baccalaureate course work, might dictate credit requirements in excess of thirteen.

Extensive supervised clinical practice is required throughout the three year programme. Much of this requirement is met by attending a practicum held during the summer months.

A final project is required of all students in order to graduate from the programme. In concert with a Faculty advisor, the student designs, executes, and reports a research project. Depending upon the nature and extent of the project, students may be required to also take additional course work. Successful completion of this requirement results in the equivalent of 1 academic credit.

Core Curriculum

While students may pursue a course of study that leads to specialization in either Speech-Language Pathology or Audiology, during the programme they will be required to take classes that contain information that is basic to both professions. These classes will be described under "core curriculum" in the class listings that follow.

Classes Offered

Core Curriculum

- HC 5020.03B Phonetics
- HC 5060.06R Practicum
- HC 5110.03A Anatomy and Physiology of the Speech Mechanism
- HC 5120.03B Hearing Measurement
- HC 5130.03A Introduction to Speech-Language Pathology
- HC 5140.03A Aural (Re)habilitation with Children
- HC 5150.03B Speech and Language Acquisition
- HC 5230.03A Human Communication Processes
- HC 5260.03B Hearing Disorders
- HC 6060.03A Topics in Clinical Procedures
- HC 6310.03A Audition I
- HC 6600.03A Seminars in Communication Disorders
- HC 6880.03B Research Design
- HC 7000.06R Research Project
- HC 7060.06R Practicum

Speech Language Pathology Curriculum (above and beyond core)

- HC 5210.03A Speech-Language Analysis
- HC 5250.03A Speech Disorders - Children
- HC 5270.03A Language Disorders - Children
- HC 6350.03B Language Disorders - Adults
- HC 6370.03B Fluency Disorders

- HC 6390.03B Voice/Resonance Disorders
- HC 6450.03B Speech Disorders - Adults
- HC 6470.03A Augmentative and Alternative Communication

Audiology Curriculum (above and beyond core)

- HC 5220.03A Diagnostic Audiology
- HC 5240.03A Aural (Re)habilitation - Adults
- HC 5280.03B Audition II
- HC 6320.03B Pediatric Audiology
- HC 6360.03B Amplification
- HC 6390.03B Electrophysiological Audiometric Measures
- HC 6420.03A Advanced Diagnostic Audiology
- HC 6440.03A Noise in Industry and the Community

Additional Classes Available

- HC 6500.03 Tutorial Readings
- HC 6700.03 Research

Interdisciplinary Studies Law

See Interdisciplinary and Joint Programme Listings (page 148).

Location: Weldon Law Building, 6061 University Avenue, Halifax, N.S. B3H 4H9
Telephone: (902) 494-3495
FAX: (902) 494-1316

Dean of Faculty

Joseph A. Ghiz, BComm, LLB (Dal), LLM (Harvard), LLD (UPEI)

Associate Dean

John A. Yogis, QC

Professors Emeritus

C. Hutchins, Q.C., BA, LLB (Dal)
R. St.J. MacDonald, Q.C., BA (StFX), LLB (Dal), LLM (London), LLM (Harvard), LLD (McG)
A.J. Meagher, Q.C., BA, LLB (Dal)
R.G. Murray, Q.C., BA, LLB (Dal), LLM (Harvard)
J. Willis, Q.C., BA (Oxon), LLD (Ottawa, Queen's, Dal, York)

Professors

V. Black, BA, MA (Carleton), LLB, (Tor), LLM (Calif, Berkeley)
B.P. Archibald, BA (King's), MA, LLB (Dal), LLM (Col), Graduate Coordinator
I.M. Christie, BA, LLB (Dal), LLB (Cantab), LLM (Yale), (Sabb.Lv.)
T.A. Cromwell, B. Mus., LLB (Queen's), BCL (Oxon)
P.E. Darby, BA (MtA), LLB (Dal)
R.G. Elgie, BA (Western), LLB (Osgoode), MD (Ottawa), FRCS(c), Director, Health Law Institute
E. Gold, BA, LLB (Dal), PhD (Wales), MCIT, FNI, MRIN, Master Mariner (FG)
P.V. Girard, BA (Brock), LLB (McG), LLM (Cal, Berkeley)
E.C. Harris, Q.C., BCom, LLB (Dal), LLM (Harvard), RIA, CA
H.A. Kaiser, BA, LLB (Dal), LLM (LSE)
H.M. Kindred, LLB (Bristol), LLM (London), LLM (Illinois)
A.W. MacKay, BA (MtA), MA (Florida), BEd (MtA), LLB (Dal)
H.L. O'Brien, Q.C., BCom, LLB (Dal), LLM (Chicago)
P. Thomas, LLB (Wales), LLM (Yale)
D. A. Thompson, BA (McG), LLB (Dal)
L.E. Trakman, BCom, LLB (Cape Town), LLM, SJD (Harvard)
C.L. Wiktor, LLM (U of Wroclaw), MS in LS (Col) Law Librarian
B.H. Wildemith, BSc (Guelph), LLB (Dal), LLM (Harvard)
G.R. Winham, BA (Bowdoin), Dip. Int'l Law (Manchester), PhD (North Carolina), major appointment in Political Science

F.L. Woodman, BA (Dal), LLB (Queen's)
 J.A. Yogie, O.C., BA (SMU), LLB, LLM (Dal),
 LLM (Mich)

Associate Professors

R.F. Davlin, LLB (Queen's, Ireland), LLM
 (Queen's, Ont)
 J.K. Bankler, BA (Tor), LLB (Osgoode)
 D.L. Pothier, BA (Dal), MA (Carlton), LLB (Dal)
 D.A. Russell, BA (St. Thomas), MA, LLB (Dal),
 LLM (Cambridge)
 D.L. VanderZwaag, BA (Calvin), MDiv
 (Princeton), JD (Arkansas), LLM (Dal)

Assistant Professors

A.E. Chircop, BA, LL.D., LLM (Malta), JSD (Dal)
 S.G. Coughlan, BA (Ottawa), MA (Tor), LLB
 (Dal), PhD (Tor)
 E.C. Gibson, BA, LLB (Sask), LLM (Tor)
 A.W. LaForest, LLB (UNB), LLM (Camb)
 A.M. Macklin, BSc (Alta), LLB (Tor), LLM (Yale)
 M.L. McConnell, BA (Victoria, B.C.), LLB (Dal),
 PhD (Sydney)
 P.M. Saunders, BA, MA, LLB (Dal)
 T. Scassa, BA (Con), BCL, LLB (McGill), LLM,
 JSD (Mich)
 M.E.E. Turpel, BA (Carlton), LLB (Osgoode),
 Dip. Int'l Law (Camb)

Part-time Faculty

W.H. Charles, O.C., BA (Sir Geo. Wma), LLB
 (Dal), LLM (Harvard), LLM (Mich)
 D. Ginn, BA (Mt.A), LLB (Queen's), LLM
 (Osgoode)
 G. C. Johnson, BCom, LLB (Dal), MBA (St.
 Mary's)
 F. Van Penick, AB (Princeton), LLB (Dal)
 W. Spicer, LLB (Dal)
 J. Swan, BA (McG), LLB (Alberta), LLM (Univ.
 of London, L.S.E.)

Master of Laws (LLM)

A graduate programme in law leading to the Master of Laws degree is offered to well-qualified candidates by the Faculty of Law of the University. The programme is primarily intended for prospective law teachers and professional specialists. The programme may consist of either a combination of course work, seminars and a thesis, or a combination of course work and seminars involving substantial written papers. In either case taken on a full-time basis over one full academic year, or on a part-time basis over two full academic years. Applicants who plan to take the degree on the basis of course work, seminars and a thesis are required to submit outlines of their proposed thesis topic at the time of the application. Thesis topics may concentrate on any area of law in which faculty supervisors and library resources will support substantial and useful work. In recent years, thesis supervision has been provided in the following fields, among others:

International law, administrative law, labour law, constitutional law, commercial law, tax law, tort law, criminal law and criminology, domestic relations law, health law, law of the sea, maritime law, and environmental law. A special interest has been developed in marine and environmental law which has been designated as a field of special emphasis in the Faculty of Law. The Sir James Dunn Law Library collection for the Marine and Environmental Law Programme is now one of the best in North America. In addition graduate work is being done under the aegis of the Health Law Institute which is a joint initiative of the Faculty of Law and the Faculty of Medicine.

Admission Requirements

Applicants for admission to the LLM programme should hold a first degree in law equivalent to the Dalhousie LLB, passed with at least a "B" average (or Upper Second Class Honours). The ability to conduct independent research and to work easily in the English language is a prerequisite for admission. Candidates from outside Canada whose native language is other than English will be required to pass the TOEFL (Test of English as a Foreign Language). See Section 2 of this calendar.

Residency Requirements

The degree may be taken on the basis of either one academic year (September 1 to August 31) of full-time residence at Dalhousie, or two academic years of part-time residence at Dalhousie, after registration for the LLM degree. (It should be noted that the two year residence requirement for part-time candidates differs from that required elsewhere in the calendar of the Faculty of Graduate Studies.)

Course Requirements

The degree may be taken on the basis of either course work, seminars and a thesis, or course work and seminars only. Applicants are required to indicate at the time of formal application on which basis they would prefer to take the degree, but the Graduate Studies Committee of the Faculty of Law, at the time an offer of a place is made, will decide on which of the two alternative bases a place is offered. The availability of places for the thesis alternative is governed by the availability of adequate faculty supervision and library resources. All class work for the degree, whichever of the two alternative bases is decided upon, must be completed at an average of not less than B, with no grade below B-

All candidates for the degree are required to take a special graduate seminar especially designed for our graduate students in law. This seminar, which is led by a senior teacher

In the Faculty of Law, is normally given in the fall term and requires from the student a comprehensive class presentation based on a substantial written paper. Some students who have not had previous exposure to Jurisprudence may be advised to take a graduate jurisprudence course.

If the degree is taken by course work, seminars and thesis, a candidate is required to (a) in addition to the graduate seminar, complete at least two additional one-term classes from the course and seminar offerings of the Faculty of Law (the choice of classes to be determined by the Law School's Graduate Studies Committee), and (b) present a well-researched substantial thesis of scholarly quality produced under the continuous supervision of a member or members of the law faculty.

Such a thesis would normally be 150-300 typescript pages in length (double-spaced). Five copies of the thesis, temporarily bound, must be submitted to the supervisor on or before the dates given in the almanac. The thesis requirements and regulations of the Faculty of Graduate Studies must be met. A thesis may be graded as either "Approved," or "Not Approved." In order to be "Approved," a thesis must normally be approved by the thesis supervisor and two co-readers.

If the degree is taken by class work and seminars without thesis, in addition to the graduate seminar, candidates are required to take at least an additional five one-term classes from the advanced class work and seminar offerings of the Law Faculty considered to be suitable as graduate classes and seminars by the Law Graduate Studies Committee. Of those five classes, at least three must be designated as "major paper courses" by the Faculty of Law, or be approved by the Graduate Studies Committee as having a substantial written component. A "major paper" or "substantial written component" would normally be independently supervised by a faculty member, and would usually consist of a well-researched work of 15,000 - 20,000 words in length, based on a seminar/class presentation.

At the discretion of the Graduate Studies Committee of the Faculty of Law, a candidate may be required to submit to an oral examination by the Committee or its nominee in the field of the thesis or that of any written paper presented by the candidate. The Graduate Studies Committee of the Faculty of Law may recommend the substitution of not more than two seminars or graduate level classes in a discipline other than law, which may be highly relevant to the candidate's thesis topic or area of specialization, provided that any such substituted course or seminar

has, in the opinion of the Committee and the Dean of Graduate Studies, equivalence to the law classes being substituted.

Before deciding on the course work and seminars, or course work, seminars and thesis option, candidates who are contemplating future doctoral studies should note that some doctoral programmes may require the completion of a Master of Laws degree which includes a thesis.

General

The Graduate Studies Committee of the Faculty of Law may at any time require any candidate for the degree to show cause, in such manner as it may determine, why such candidate should be permitted to continue his or her candidacy.

It should be noted that candidates taking the degree on a part-time basis are not eligible for graduate scholarships.

A student is required to comply with the directions of the supervisor and the decisions of the Graduate Studies Committee of the Faculty of Law, as well as the rules and regulations of the Faculty of Graduate Studies.

A full description of programmes available in the Law School which may be of relevance to graduate students can be found in the general Law School Calendar and in its course selection materials.

Combined LLB and MBA Programme

See "Business Administration" entry in this calendar.

Combined LLB and MLIS Programme

See "Library and Information Studies" entry in this calendar.

Combined LLB/MPA Programme

See "Public Administration" entry in this calendar.

Doctor in the Science of Law Degree (JSD)

An advanced graduate programme in law leading to the JSD (Juris Scientiae Doctor) degree is offered to a very limited number of highly qualified candidates by the Faculty of Law of the University. Applicants who meet the admission requirements are invited to submit a detailed outline of their proposed thesis and a detailed description of their research plans with their application forms.

Such topics will have to be limited to those areas of law for which faculty and library resources will support original and useful work. It is expected that such resources will normally be available in four subject areas:

(i) Marine Law

(ii) Environmental Law

These areas of the curriculum have been designated as a priority development by the Faculty of Law since 1974. As a result, considerable faculty expertise, library holdings, research projects and course offerings in these areas has been created. Consequently, the Faculty's Marine and Environmental Law Programme has achieved international prominence.

(iii) International Law

(iv) Comparative Law

These areas of specialization have grown with seminars in comparative criminal law and comparative marine law and policy. In addition, the Faculty also offers a course in Comparative Civil Law, and participates as the common law component of a joint summer programme in Canadian comparative law sponsored by the Federal Department of Justice.

Admission Requirements

Applicants for admission to the JSD programme must have demonstrated superior academic ability during their previous legal education. Normally it will be necessary to have (i) attained at least the equivalent of a Dalhousie A- average grade at the LLB level and (ii) completed successfully a Master's degree in law. Preference will be given to applicants with established credentials in published scholarship of a professional calibre. The ability to conduct independent research and work easily in the English language is a prerequisite for admission. Foreign candidates are required to pass the TOEFL (Test of English as a Foreign Language) to the satisfaction of the Graduate Studies Committee of the Faculty of Law prior to admission. Applicants seeking JSD funding from Dalhousie University should ensure that their completed applications are received by the University no later than January 1 of the year in which they intend to commence their studies.

Residency Requirements

Applicants must be prepared to spend at least two full academic years in continuous residence at Dalhousie after registration for the JSD programme. The Graduate Studies Committee of the Faculty of Law reserves the right in certain cases to require the completion of a second year of residency.

Course Requirements

Candidates for the JSD degree may be required by the Graduate Studies Committee of the Faculty of Law, on the recommendation of their thesis committee, to carry out advanced course work in the area of their thesis, or in a cognate area of a more general field of law, or in a discipline other than law, which is deemed to be highly relevant to their thesis topic. When undertaking such course work, JSD candidates must obtain an average standing of at least B⁺ in all classes designated as "required by the thesis committee", with no grade falling below B. A student who fails to meet these requirements is automatically dropped from the programme, but may apply for readmission immediately.

Preliminary Examination Requirements

Each candidate will also be required to pass a preliminary examination not less than 1 year before submitting the thesis. The preliminary examination may be oral, written, or both, at the discretion of the thesis committee, and will cover the subjects relevant to the general area of the candidate's research. Failure to pass this examination may result in dismissal. However, the student may be permitted to repeat the examination within the subsequent 12 (twelve) months.

Special Skill Examination Requirements

A candidate may, at the discretion of the thesis committee, be required to pass a special examination designed to demonstrate the examinee's proficiency in a foreign language, statistical method, computer analysis, or other skill deemed to be important for successful completion of the candidate's thesis in the chosen area.

Thesis Requirements

The primary requirement for the JSD degree is the completion of a substantial thesis which should not only display original scholarship of high standard, but also represent a significant and professional contribution to the literature of the chosen subject. In applying for admission, an applicant is required to satisfy the Graduate Studies Committee of the Faculty of Law that the suggested topic is suitable for development as a doctoral thesis. Normally, a JSD thesis should be between 350 and 600 typescript pages in length (double-spaced). After an applicant has been accepted, a thesis committee consisting of a supervisor and two advisors will be appointed by the Graduate Studies Committee of the Faculty of Law. All candidates are required to comply with the decisions of their thesis committees. In normal circumstances, the completed JSD thesis must be submitted to the Graduate Studies

Committee of the Faculty of Law within five years of the date of original registration in the programme. Submission of the thesis must follow the rules and regulations laid down by the Faculty of Graduate Studies.

Thesis Defence Requirements

Each JSD candidate is required to defend the completed thesis in an oral examination. This defence shall be conducted in accordance with the Faculty of Graduate Studies Regulations for Oral Examination of a Doctoral Candidate.

Teaching Activities

The Graduate Studies Committee of the Faculty of Law may give permission to a JSD candidate to engage in teaching activities during the period of residency, if such activities are deemed to fall within the field of the candidate's thesis topic. Under no circumstances shall any JSD candidate be permitted to spend more than six hours per week in teaching activities and related preparations.

Library & Information Studies

Location: Killam Library, 6225 University Avenue, Halifax, N.S. B3H 4H8
Telephone: (902) 494-3656
Fax: (902) 494-2451

Director of School
M. Dykstra

Professor Emeritus
J.R.T. Etdlinger, MA (Oxon), BLS (McG)

Professors
L.J. Amey, BSc, BEd (Acadia), MEd (UNB), MS (Columbia), PhD (Tor)
M. Dykstra, BA (Calvin), MLS (Dal), PhD (Sheffield)
E. Frick, BA (Tor), MSLS (Syracuse)

Associate Professors
R. Klapstein, BSc (Calgary), BA (Alberta), MBA, LLB (Dal), LLM (Osgoode), CGA, Major appointment in School of Business Administration
B. MacDonald, BSc (Acadia), MA, MLS, PhD (Western)

Assistant Professor
E. Toma, BA, BEd (Mem), MLS (Dal)

Associated Instructional Staff
R. MacG. Dawson, MA (Tor), BLitt (Oxon)
J. Dunn, B Math (Waterloo), MLS (Dal)

Graduate Coordinator
J. Dunn, BMath (Waterloo), MLS (Dal)

Students seeking further information or help in planning courses of study in the School of Library and Information Studies should address themselves to:

Graduate Coordinator
School of Library and Information Studies
Room 3621, Killam Library
Dalhousie University, Halifax, N.S. B3H 4H8

The goal of the School of Library and Information Studies is to provide graduate education within the Atlantic Provinces to qualified candidates which equips them for their first and subsequent positions as information professionals. This will be accomplished by exposing students to the theories, technologies and practices which comprise library and information studies. Within the programme, the local professional community is provided with opportunities to acquire new skills and career directions.

The student, therefore, is introduced to the development and significance of librarianship and related information fields, to the underlying principles of the profession, and to the techniques of information organization, analysis, retrieval, and use. Each student is challenged to explore and question through a curriculum which attempts to balance professional studies with supervised practical experience and advanced academic study or individual research.

Admission Requirements

Candidates must hold a Bachelor's Degree with at least a second class standing from a university recognized by the Senate of Dalhousie University.

All applicants are urged to submit completed documentation early in the year as this is a limited enrolment programme; many more applications are received than there are places to be allotted.

Students are admitted *only* in September. Students whose native language is English should have had the equivalent of two years of university study in a major language other than English or be prepared to demonstrate a reading knowledge of such a language before graduating from the School's programme.

Candidates whose native language is other than English must submit a TOEFL score according to the regulations set out in Section 2.4 of this calendar. The School's booklet, *Information for Prospective Students*, which describes the programme in detail, is distributed to all applicants by the Registrar's Office. Write for a copy if one is not received with the application form.

MLIS Degree Programme

The degree of Master of Library and Information Studies is awarded upon satisfactory completion of:

1. Sixteen credit half-classes
2. Two non-credit classes offered during the Fall term: LS 050.00 - Introductory Module I and LS 051.00 - Interim Module II. The first year students take Module I. Second year students do Module II. The correct grade is a P.
3. Work experience of 100 hours in a selected library or other information agency under the supervision of a qualified information professional. This experience is designed to provide the student with exposure to everyday routines and problems as well as the opportunity to test and evaluate class theory, to contribute by actual participation, and to discover and explore areas of particular interest for course specialization and future employment. Students may also elect to

meet this requirement by such employment prior to graduation. Further details are available in *Information for Prospective Students*.

In addition to the 10 required classes and 6 electives, students are required to:

1. attend the scheduled lectures series given by visiting experts in library, information and publishing fields;
2. participate in the scheduled trips to relevant institutions within or near the metropolitan area of Halifax/Dartmouth.

Term Timetables

Certain classes are scheduled in the evening to enable working information professionals to attend.

The School operates on a 4-term system, which may be varied as follows:

Two-Year Programme

Full-time attendance during the Fall and Winter terms of two years.

Part-Time Programme

The degree is to be completed within six years; full-time attendance during two 14 week terms is required by the School during this period, accounting for a minimum of 8 half-classes for credit. One of the two required terms of full-time residence must be the first term of entry into the School.

Combined LLB/MLIS Programme

This is a four-year programme leading to the degrees of Bachelor of Laws and Master of Library and Information Studies. The usual order of the programme is:

- Year 1 first year classes of the MLIS programme (7 required, 1 elective)
- Year 2 First year classes of the LLB programme
- Year 3 2 of 3 remaining required MLIS classes; 25 hours of LLB classes
- Year 4 1 MLIS class each term (1 required, 1 elective); 23 hours of LLB classes

Candidates for the combined MLIS/LLB programme must also satisfy the entrance requirements of the Faculty of Law. For further information, contact the Director, School of Library and Information Studies.

Special Programme Extending Over One Academic Year or One Calendar Year Where Indicated: Applicants will be considered for a special programme, if they meet the requirement of the Faculty of Graduate Studies by possessing "an honours undergraduate degree in the same field as their graduate programme," i.e. BLS (Honours) or, in the opinion of Faculty, an equivalent qualification.

Field Trip

During each academic year the School of Library and Information Studies schedules a field trip to a city of major importance with regard to library activity. Students are urged to take this field trip. Approximately \$500-\$600 will be required to cover expenses. Consult *Information for Prospective Students*.

Classes Offered

In the following list the required classes are numbered 550.03-558.03. These and classes numbered in the 050 series are required of all students, 800 and 060 classes are electives. All classes with the 'O' prefix are non-credit; 700 classes are experimental or occasional classes. The curriculum has been organized with sufficient flexibility to allow students to pursue an individual research project, or to develop a subject specialty through reading classes for further academic work. There is also a thesis option.

If a student chooses as an elective a class offered by a department other than the School of Library and Information Studies, approval must be obtained from the head of the relevant department and the School.

- LS 050.00 Introductory Module I
- LS 051.00 Interim Module II
- LS 550.03 The Information Environment
- LS 551.03 Organization of Information
- LS 552.03 Research Methods
- LS 553.03 Information Sources & Retrieval
- LS 554.03 Database Management Systems
- LS 555.03 Classification & Subject Access
- LS 556.03 Collections Management
- LS 557.03 Organizational Management & Strategy
- LS 558.03 Systems Analysis
- LS 605.03 International Perspectives
- LS 606.03 Management Information Systems
(Cross-listed with School of Business Administration MBA 6903.03)
- LS 615.03 History of the Book
- LS 625.03 Young Adult Literature and Media Interests
- LS 630.03 Government Information Resources
- LS 635.03 Classification and Indexing Systems
- LS 637.03 Records Management
- LS 645.03 Children's Literature and Media Interests

- LS 650.03 User Services
 - LS 655.03 Bibliography
 - LS 659.03 Information Sources in Science, Technology and Business
 - LS 660.03 Information Sources in Humanities/Social Sciences
 - LS 665.03-668.03 Academic Courses
 - LS 670.03-671.03 Reading Courses
 - LS 675.03 Health Sciences Literature & Information Sources
 - LS 680.03 Archives
 - LS 681.03 Information Literacy
 - LS 682.03 Marketing and Public Relations
 - LS 683.03 Information Retrieval
 - LS 684.03 Automation and Networking
 - LS 707.03 Library Management and Current Problems in Librarianship
 - LS 732.03 Legal Literature and Librarianship
 - LS 739.03 Quantitative Methods
 - LS 9000.00 Theses: (4 1/2 credits)
 - LS 060.00 Practical Printing
 - LS 064.00 Hand-Binding
 - EDUC 5552.03 Planning and Development of School Library Programmes and Services
(Cross-listed with the School of Education)
- ### School Publications
- *Information for Prospective Students* (annual)
 - *Newsletter* (annual)
 - Occasional Papers Series (Write to the Director for a list)
 - *Y-A Hotline* (irregular)
 - Checklist of Canadian Copyright Deposits in the British Museum. Vols. I-III now available
 - Monographic series with Scarecrow Press, Metuchen, NJ

Marine Affairs Programme

Location: Weldon Law Building, 6081
University Avenue, Halifax, NS
B3H 4H9
Telephone: 902-494-3555
Fax: 902-494-1001
Telex: 019-21863
E-mail: PLEWIS@KILCOM1.UCIS.DAL.C
A

Coordinator:

A. Chiroop, LL.D. (Malta), LL.M., J.S.D. (Dal)

Teaching Faculty

M. Brooks, BOT (McG), MBA (Dal), PhD (Wales), Associate Professor, School of Business Administration
R. Côté, BSc (Loyola), MSc (Memorial), Adjunct Professor, Associate Director, School for Resource and Environmental Studies
D. Day, BA, Dip Ed, PhD, Professor of Geography, Saint Mary's University
A.I. Hatcher, BSc, MSc (Dal), PhD (Western Australia), Honorary Research Associate, Department of Oceanography
B. Hatcher, BSc, MSc (Dal), PhD (Sydney), Honorary Research Associate, Department of Oceanography
D.P. MacLellan, BA (Dal), APR, Adjunct Professor
L. Mazany, BSFS (Georgetown), PhD (UBC), Assistant Professor, Department of Economics
E.L. Mille, BSc (Carl.), MS, PhD (Yale), FLS, Professor, Department of Oceanography
G.F. Newkirk, PhD (Duke), Associate Professor (Research), Department of Biology
M.G. Satish, BSc, BE, CivEng, MEng, PhD, Associate Professor, Department of Civil Engineering, Technical University of Nova Scotia
D. VanderZwaag, BA (Calvin), MDiv (Princeton), JD (Arkansas, LL.M. (Dal)), Associate Professor of Law
P.G. Wells, BSc (McG), MSc (Tor), PhD (Guelph), Honorary Adjunct Professor, Resource and Environmental Studies

Marine Affairs is an interdisciplinary programme examining all aspects of the uses of the seas. The Master of Marine Management provides a theoretical and practical interdisciplinary basis for understanding ocean development, planning and regulatory issues affecting the optimal use of the seas and marine industries.

Master of Marine Management

The Master of Marine Management is a one-year, professional, non-thesis, interdisciplinary degree. Students are expected to take required classes covering the marine and social sciences, as well as a number of electives from approved marine-related classes. Students are also required to prepare a graduate project.

Admission Requirements

Enrolment is limited to 20 students. Applicants must satisfy general requirements for admission to the Faculty of Graduate Studies. These include a Bachelor's Degree from a university of recognized standing with honours or its equivalent with a minimum average of B. Selection criteria include relevant work experience and career objectives. Applicants from outside Canada whose native language is not English must also submit a Test of English as a Foreign Language (TOEFL) score, its equivalent, or have completed a university degree in English. Dalhousie sets a minimum acceptable TOEFL score of 580. Deadlines for applications are January 31st for applicants requesting financial assistance, and March 1st for all other applicants.

Classes Offered

Required

MARA 5001.06R Contemporary Issues in Ocean Management and Development: This class offers an introduction to ocean management. Subject areas addressed include coastal zone management, sea use planning, fisheries management, marine law and policy, maritime transport, development of non-living resources, protection and preservation of the coastal and marine environment, coastal tourism, maritime enforcement and conflict management. Instructors for the various subjects come from Halifax universities, Federal and Provincial government agencies and the private sector.

MARA 5002.06R Graduate Project: Students are required to apply the knowledge gained through course work to a specific planning and management problem or issue. As part of the project, students participate in internship programs with a local public or private sector agency of relevance to the project topic.

MARA 5003.03A Marine Science and Technology: This class provides a general introduction to the marine sciences and technology, and ocean engineering. Subject areas addressed include physical, chemical, and biological oceanography, coastal ecology, aquaculture, engineering and port

development. Instructors are drawn from Halifax universities, Federal and Provincial agencies and the private sector.

MARA 5004.00B Communications

Management (non-credit): This class develops skills of marine managers for handling information and communications, including crisis management, with decision-makers and various stakeholders in ocean development and management processes such as special interest groups, the media, business interests (shareholders), and the public at large.

Electives

Students select the remaining complement of classes from the broad range offered in the marine field at Dalhousie, St. Mary's University and the Technical University of Nova Scotia.

Math, Stats, & Computing Science

Location: Chase Building, Halifax, N.S.
B3H 3J5
Telephone: (902) 494-2572
Fax: (902) 494-5130

Chairperson of the Department

R.P. Gupta

Professors Emeritus

M. Edelstein, MSc (Jerusalem), DSc (Technion-Haifa)
S. Swaminathan, MA, MSc, PhD (Madras)
A. J. Tingley, MA, PhD (Minnesota)

Professors

P. Borwein, MSc, PhD (UBC)
J.C. Clements, MA (UBC), PhD (Toronto)
A.A. Coley, PhD (Lond)
K.A. Dunn, MSc, PhD (Toronto)
C.A. Field, MSc, PhD (Northwestern)
P.A. Fillmore, MSc, PhD (Minn), FRSC
G. Gabor, MSc, PhD (Eotvos)
L. Grunenfelder, PhD (ETH Zurich)
R.P. Gupta, MSc (Agra), PhD (Delhi)
P. Keast, PhD (St. Andrews)
K. Moriarty, MSc (Del), PhD (Imp Col)
R. Nowakowski, MSc, PhD (Calgary)
R. Paré, MSc, PhD (McGill)
H. Radjavi, MA, PhD (Minn)
M.A. Shepherd, MSc, PhD (Western)
P.N. Stewart, MA (Berk), PhD (UBC)
W.R.S. Sutherland, MSc, PhD (Brown)
K.K. Tan, PhD (UBC)
A.C. Thompson, PhD (Newcastle upon Tyne)
R.J. Wood, MSc (McM), PhD (Del)

Associate Professors

K. Dlicher, MSc, PhD (Queen's)
A.A. Farag, MSc (SFU), PhD (Alta)
D. Hamilton, MA, PhD (Queen's)
C.S. Hartzman, MS (Purdue), PhD (Colo)
K.P. Johnson, MSc (Tor), PhD (Brandeis)
C.C.A. Sastri, MSc (Andhra), PhD (NY)
K.R. Thompson, MSc (Manchester), PhD (Liverpool)

Assistant Professors

K. Bowen, PhD (California)
L. Manchester, MSc, PhD (Toronto)
A. Sedgwick, PhD (Tor)
B. Smith, MA (Calgary), PhD (Berk)
S. Srinivas, PhD (Inst. of Sci., Bangalore)

Postdoctoral Fellows

W. Jaworski, PhD (Queen's)
T. Koelr, PhD (Calgary)
D. MoManus, PhD (Alberta)
B. Piacha, PhD (Bielefeld)

S. Richman, PhD (Virginia)
T. Trappenberg, PhD (Aachen)
E. Woolgar, PhD (Toronto)
H-K. Xu, PhD (Xi'an Jiaotong)

Visiting Professors (1993/94)

M. Omladic (Ljubjana)
P.Y. Wu (Taiwan)

Honorary Adjunct Professors

M.A. Beattie, PhD (Queen's), Mt.A.
F. Bennett, PhD (Man), MSVU
J. Borwein, DPhil (Oxon), St. F.X.
R. Dawson, PhD (Camb), St. Mary's
B. Hartnell, PhD (Wat), St. Mary's
L. Oliver, PhD (McG), Acadia
M. Rahman, PhD (Windsor), TUNS
R. Rosebrugh, PhD (Dal), Mt.A.
S. Sanielevici, PhD (McG)
D. Zhuang, PhD (Dal), MSVU

Honorary Research Associates

P. Cabillo, PhD (Columbia), Acadia
V. Eastwood, PhD (Carl), Acadia

The department offers programmes leading to the degrees of MA, MSc and PhD in the following areas:

Mathematics (MSc, MA, PhD) - algebra, approximation theory, category theory, convex geometry, differential equations, functional analysis, graph theory, number theory, numerical analysis, operator theory, optimization, general relativity theory, stochastic modelling, topology.

Statistics (MSc, PhD) - statistical inference, robust statistics, data analysis, multivariate analysis, linear and nonlinear regression, time series analysis, statistical graphics and computing, information theory.

Computing Science (MSc, MA) - software development, database systems and design, parallel computing, supercomputers, numerical analysis and optimization, artificial intelligence, computer vision.

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies.

Candidates will normally be expected to hold a degree recognized by Dalhousie University as the equivalent of a Bachelor's degree with Honours in one of its own faculties.

GRE Aptitude and Advanced Mathematics scores are recommended for all applicants for graduate studies whose undergraduates work has been completed outside of Canada, and TOEFL scores are required for applicants whose native language is not English. Valid score reports must be received directly from

the Educational Testing Service. To ensure consideration for scholarship funds, application should be made early.

Masters Degree Programme

Requirements

1. At least three full-credit classes, not including seminar classes, at the graduate level to be chosen in consultation with a department adviser. In addition, students whose preparation is deficient will be required to complete appropriate classes which will be designated by the adviser.
2. Attendance and participation in seminars.
3. A satisfactory thesis.
4. Students are required to give an oral presentation of their thesis and at that time to answer questions about the thesis. This presentation will be made after the thesis is in the hands of the student's committee and will be taken into account when the committee makes its decision.

Note: For the degrees of MA, MSc in Computing Science, the classes must be chosen from the list of classes in Computing Science.

PhD Degree Programme

(Mathematics & Statistics)

Requirements

Note: The minimum and maximum time required to complete this programme are set out in section 5 of the Faculty Regulations.

1. At least one full-credit class during each of the first two years of the programme.
2. Comprehensive examinations which must be taken for the first time within 12 months and successfully completed within 18 months of registration in the programme.
3. Attendance and participation in an appropriate seminar.
4. A demonstration of reading competence in one of the following languages: French, German, Russian.
5. Preparation and defence of a satisfactory research thesis.

Classes Offered

A selection of the following graduate classes will be offered subject to demand.

Mathematics

NOTE: Students interested in pursuing a Master's degree programme in Applied and Computational Mathematics designed to prepare them for the work environment should consider the following classes: Math 5220.03; Math 5230.03; Math 5450.03; one of Math

5310.03; Math 5320.03; one of Math 5270.03; Math 5360.03; Comp 5350.03; one of Stats 5080.03; Stats 5370.03; Stats 5620.03.

MATH 5010.03/4010.03 Introduction to Measure Theory and Integration

MATH 5015.03/4015.03 Advanced Linear Algebra

MATH 5020.03/4020.03 Analytic Function Theory

MATH 5025.03/4025.03 Commutative Algebra I

MATH 5035.03/4035.03 Commutative Algebra II

MATH 5040.03 Homological Algebra

MATH 5045.03/4045.03 Advanced Algebra I

MATH 5055.03/4055.03 Advanced Algebra II

MATH 5065.03/4065.03 Algebraic Geometry

MATH 5070.03/4070.03 Topics in Number Theory

MATH 5090.03/4090.03 Probability

MATH 5120.03 Topics in Ordinary Differential Equations

MATH 5130.03/4130.03 Analysis of Algorithms

MATH 5135.03/4135.03 Introduction to Category Theory

MATH 5140.03/4140.03 Introduction to Functional Analysis

MATH 5150.03/4150.03 Functional Analysis

MATH 5160.03/4160.03 Operator Theory

MATH 5170.03/4170.03 General Topology

MATH 5180.03/4180.03 Introduction to Algebraic Topology

MATH 5185.03 Topics in Algebraic Topology

MATH 5190.03/4190.03 Ordinary Differential Equations

MATH 5195.03 Topics in Topology and Functional Analysis

MATH 5200.03/4200.03 Differential Equations - Qualitative Theory

MATH 5210.03 Topics in C^* - Algebras

MATH 5220.03/4220.03 Introduction to Partial Differential Equations

MATH 5225.03 Topics in Partial Differential Equations

MATH 5230.03/4230.03 Partial Differential Equations

MATH 5235.03 Topics in Operator Theory

MATH 5240.03 Topics in Banach Spaces

MATH 5270.03/4270.03 Numerical Software

MATH 5290.03 Advanced Topics in Operator Theory

MATH 5300.03/4300.03 Optimal Control Theory

MATH 5310.03/4310.03 Nonlinear Programming

MATH 5315.03 Convexity and Convex Programming

MATH 5320.03 Topics in Optimizaton

MATH 5330.03 Topics in Graph Theory

MATH 5350.03 Advanced Numerical Analysis

MATH 5360.03 Approximation of Functions

MATH 5400.03/4400.03 Applied Mathematics in Science and Industry

MATH 5410.03 Topics in Cosmology

MATH 5450.03 Mathematical Modelling III

MATH 5650.03/4650.03 Relativity and Cosmology

MATH 5660.03/4660.03 Automata and Computability

MATH 6000.03-6990.03 Reading Classes for Advanced Graduate Students

MATH 7030.03 Algebra Seminar

MATH 7190.03 Analysis Seminar

MATH 7230.03 Operator Theory Seminar

MATH 7670.03 Optimization Seminar

Statistics

STAT 5060.03/4060.03 Advanced Statistical Theory

STAT 5070.03/4070.03 Multivariate Distributions

STAT 5075.03 Multivariate Analysis

STAT 5080.03/4080.03 Advanced Topics in Time Series Analysis

STAT 5090.03/4090.03 Probability

STAT 5100.03/4100.03 Survival Analysis

STAT 5200.03/4200.03 Nonlinear Regression Analysis

STAT 5210.03/4210.03 Advanced Topics in Time Series Analysis

STAT 5300.03 Topics in Statistics and Probability

STAT 5350.03/4350.03 Applied Multivariate Analysis

STAT 5360.03/4360.03 Robust Statistics

STAT 5370.03/4370.03 Stochastic Process

STAT 5390.03/4390.03 Time Series Analysis I

STAT 5400.03/4400.03 Time Series Analysis II

STAT 5500.03 Topics in Advanced Statistics

STAT 5620.03/4620.03 Data Analysis

STAT 5990.03A Intermediate Statistics for Health Sciences

Format: Lecture 3 hours

Prerequisite: STAT 1060.03 or equivalent

Cross-listing: NURS 5000.03, PHSE 5003.03, PHAR 5990.03, LEIS 5503.03, KINE 5503.03, HEED 5503.03, HEAS 6500.03

Restriction: Not open to graduate students in Math, Stats., and C.S.

STAT 7320.03 Statistics Seminar

Computing Science

COMP 5100.03/4100.03 Operating Systems II

COMP 5130.03/4130.03 Analysis of Algorithms

COMP 5140.03/4140.03 Software Design and Development

COMP 5150.03/4150.03 Theory of Programming Languages

COMP 5200.03/4200.03 Topics in Artificial Intelligence

COMP 5210.03 Expert Systems

COMP 5250.03/4250.03 Information Retrieval

COMP 5330.03 Topics in Graph Theory

COMP 5350.03/4350.03 Object-Oriented Programming

COMP 5360.03 Topics in Vector and Parallel Computing

COMP 5400.03/4400.03 Programming Methodology

COMP 5450.03/4450.03 Data Communications

COMP 5650.03/4650.03 Selected Topics in Information Retrieval

COMP 5660.03/4660.03 Automata and Computability

COMP 5670.03/4670.03 Computer Graphics

COMP 5700.03/4700.03 Advanced Topics in Data Base Design

COMP 5800.03/4800.03 Computer Systems Modelling

COMP 6000.03 - 6990.03 Reading Classes for Advanced Graduate Students

Microbiology and Immunology

Location: Sir Charles Tupper Building, 7th Floor, Halifax, N.S. B3H 4H7

Telephone: (902) 494-3587

Fax: (902) 494 5125

Head of Department

K.B. Easterbrook

Professors

R. Anderson, PhD (Cologne) (Viral Pathogenesis)

K.B. Easterbrook, PhD (ANU) (Structure and Function in Microorganisms; Bacterial Spines)
G.C. Johnston, PhD (York) (Genetic Control of Cell Division)

S.H.S. Lee, PhD (Dal) (Virology; Interferon)

D.E. Mahony, PhD (McG) (Bacteriology; Bacteriocins and Plasmids of Clostridia)

K.R. Rozee, PhD (Dal), Dip Bact (Tor) (Viral Pathogenesis; Epidemiology)

D.B. Stoltz, PhD (McM) (Insect Virology)

C. Stuttard, PhD (Dublin) (Microbial Genetics; Streptomyces)

Associate Professors

R.I. Carr, MD (Tor), PhD (Rockefeller), Medicine (Rheumatology)

P.S. Hoffman, PhD (Virginia Polytech), (Microbial Pathogenesis), Graduate Studies Co-ordinator

A.C. Issekutz, MD (Dal), FRCP(C), Pediatrics (Inflammation)

T. Lee, PhD (Glasgow) (Immunoparasitology)

R. Rajaraman, PhD (Dal), Medicine (Integrins; Cancer Cell Biology)

Assistant Professors

G. Bezaeon, PhD (Carleton), Medicine (Molecular Pathogenesis)

R.A. Bortolussi, MD (Tor), FRCP(C), Pediatrics (Neonatal Infection)

M.A. Drebot, PhD (Dal), (Viral Diagnostics and Pathogenesis)

R. Duncan, PhD (Guelph) (Molecular Virology)

G. Faulkner, PhD (Dal) (Ultrastructure)

S.A. Halperin, MD (Cornell), FRCP(C), Pediatrics (Bordetella pertussis)

D.W. Hoskin, PhD (McG), (Cellular and Molecular Immunology; Natural Suppressor Cells; MHC-unrestricted Killer Cells)

T.B. Issekutz, MD (Dal), FRCP(C), Pediatrics (Cell-Mediated Immunity)

T. Marrie, MD (Dal), FRCP(C), Medicine (Infection; Pneumonia Disease)

W.F. Schlech, MD (Cornell), FRCP(C), Medicine (Listeria; HIV Infection)

A.W. Stadnyk, PhD (McM) (Intestinal Inflammation; Cytokines)

Disciplines Within Microbiology

Graduate degrees can be pursued in the areas of Virology, Bacteriology, Molecular Pathogenesis, Microbial Genetics, Molecular Genetics and Immunology. Graduate students are expected to acquire a conceptual understanding of the disciplines in microbiology and an indepth knowledge of their particular area of specialization. Notwithstanding this, the existence of specified streams in Immunology and Molecular Genetics in the Department may allow well-qualified students, with at least minimal training in Microbiology, but a strong background in the appropriate subject area, to concentrate their studies while acquiring the necessary conceptual understanding of Microbiology.

Admission Requirements

In conjunction with the general requirements for admission, candidates must have received sound basic instruction in Chemistry and Cell Biology and four credits with a B average or better (except for candidates for admission to specified streams, see above).

New students may be required to write a placement test to assist in the appropriate design of an individual programme of study.

MSc Degree Programme

For minimum time required to complete this programme, see Section 4. Normally, study equivalent to five credits at the graduate level is required. Attendance and participation in seminars is required. A research project must be completed, the result of which will be embodied in a thesis. The thesis can count for up to 3 of the required credits.

Part-time study is also allowed and conditions for admission to this programme are the same as for full-time students.

PhD Degree Programme

For minimum time required to complete this programme, see Section 4. Class and seminar requirements are the same as for the MSc programme.

Comprehensive knowledge of the area of specialty and an understanding of general microbiology and immunology must be demonstrated and will be assessed by oral examination.

Research of a high calibre is required, the results of which must be embodied in a thesis which makes a significant contribution to knowledge in the chosen field. An oral defense of the thesis before an external examiner is required.

MD/PhD Combined Programme

For information on the combined MD/PhD programme see "Interdisciplinary and Joint Programmes" (page 48).

Classes Offered

MICR 5001.06R Microbiology Seminars: seminar, P. Hoffman

MICR 5002.03A/5003.03B Advanced Topics in Microbiology: seminar, P. Hoffman

MICR 5004.06R Pathobiology of Cancer: lecture 2 hours, P. Hoffman

MICR 5022.03A or B Microbial Ultrastructure Project: lab 5 hours, G. Faulkner, D.B. Stoltz, K.B. Easterbrook

MICR 5024.03A Microscopy: G. Faulkner, D.B. Stoltz, K.B. Easterbrook

MICR 5026.03B The Mammalian Cell as a Microorganism: lecture 3 hours, lab 3 hours, R. Rajaraman

MICR 5027.03B Molecular Mechanisms of Cancer: lecture 3 hours, R. Rajaraman

MICR 5037.03A Genetics of Industrial Bacteria: lecture/seminar, 3 hours, C. Stuttard

MICR 5038.03B Molecular Biology of Yeast: lecture/seminar, 4 hours, C. Barnes, G.C. Johnston

MICR 5114.03B Topics in Basic and Medical Virology: lecture 2 hours, lab 3 hours, R. Duncan

MICR 5115.03B Immunology of Host Resistance: lecture/discussion 3 hours, D.W. Hoskin

MICR 5118.03A Molecular Pathogenesis: lecture 2 hours, P. Hoffman

MICR 5301.03A Immunobiology: lecture 3 hours, R.I. Carr

MICR 5302.03B Molecular Immunology: lecture 3 hours, T. Lee (not offered in 1994/95)

MICR 5601.03A Laboratory Techniques in Molecular Biology: lab, 8 hours, G.C. Johnston

MICR 9000.00 MSc Thesis

MICR 9530.00 PhD Thesis

Neuroscience

See Interdisciplinary and Joint Programme, page 48.

Nursing

Location: Forrest Building, 1st Floor,
5869 University Avenue,
Halifax, N.S. B3H 3J5

Telephones: (902) 494-2535

Director

E.J. Black

Professors

B.A. Keddy, BScN (MCSV), MA, PhD (Dal), RN
J.A. Ritchie, BN (UNB), MN, PhD (Pitta), RN
M. Stewart, BScN (McM), MN, PhD (Dal), RN

Associate Professors

M. Arkie, BN (Dal), MS (Boston), PhD (Texas), RN
E.J. Black, EdD (UBC), MEd (Boston), BN (Dal)
B. Downe-Wamboldt, BN, MEd (Dal), PhD (Texas), RN, Associate Director/Co-ordinator, Graduate Programme
H. Fraser-Davey, BScN (MSVU), MSc(A) (McG), PhD (Dal), RN
F. Gregor, BN, MN (Dal), RN
G.A. Hart, BN (McG), MSN (UBC), RN
M.J. Horrocks, BSN (UBC), MS (Psych N), MS (PHN), D.CMHN (UCSF), AED (Tor)
J.M. Hughes, BN (Dal), MS (Boston) RN
D. Sommerfeld, BScN (MSVU), MSN (UBC), RN
D.L. Tamiyn, BN (McG), MEd (Ottawa), PhD (Dal), RN

Assistant Professor

D. Meagher-Stewart, BScN (MSVU), MS (McM), RN

Admission Requirements

All applicants must be licensed to practice as registered nurses (active practitioner) in a province in Canada or in a foreign country. Applicants must have a Bachelor's degree with a minimum "B" standing. The Graduate Record Examination (Aptitude Test) must be taken and the results forwarded to the Graduate Programme Coordinator before a decision on admissibility can be made. Basic preparation including work experience for the clinical specialization study is required, as are introductory classes in research and statistics. Three letters of reference are also required.

MN Programme

Dalhousie University School of Nursing offers a two year research oriented programme leading to a Master of Nursing degree, with advanced preparation in a selected clinical area. The programme consists of 8 credits, made up of core nursing classes

(2 1/2 credits), clinical classes (2 credits), statistics (1/2 credit), elective class(es) (1 credit), and the thesis (2 credits).

The MN Programme is accepted by MPHEC as the regional programme for the Maritime Provinces. Non-nursing electives may be taken at other universities (prior approval must be obtained from the School of Nursing). Graduate nursing courses within the Programme are also offered by distance education modes to other Maritime regional centres.

Part-time studies are permitted.

Required classes: NURS 5000.03A, NURS 5100.03A/N5120.03B, NURS 5220.03B, NURS 5300.03A/N5320.03B, and one of NURS 5400.12R or NURS 5500.06A/NURS 5520.06B, NURS 5600.12R, NURS 5700.12R plus NURS 9000.00. The elective (R or A or B) is chosen in consultation with the academic advisor.

* The School of Health Services Administration in co-operation with the School of Nursing, offers a Nursing Service Administration Concentration in the MHSA programme. For details, refer to Health Services Administration.

Classes Offered

NURS 5000.03A (M209) Intermediate Statistics: Math Dept. (1/2 credit)

NURS 5100.03A/N5120.03B Research Methods: B. Keddy, B. Downe-Wamboldt (1 credit)

NURS 5220.03B Systems & Trends in Health Care Delivery: M.J. Horrocks (1/2 credit)

NURS 5300.03A/N5320.03B Theoretical Bases of Nursing I & II: J. Hughes, M. Arkle (1 credit)

NURS 5400.12R Community Health Nursing: B. Downe-Wamboldt (2 credits), open to independent completion of study

NURS 5500.06A/N5520.06B Nursing of Young Families I and II: J.A. Ritchie, D. Sommerfeld (2 credits), open to independent completion of study

NURS 5600.12R Psychiatric/Mental Health Nursing: (2 credits). Open to independent completion of study

NURS 5700.12R Nursing of Adults: F. Gregor (2 credits), open to independent completion of study

NURS 5800.06R Reading Class: (1 credit)

NURS 5850.03A Women and Aging: (1/2 credit)

NURS 5898.03B Health Promotion/Primary Health Care and Professional Practice: (1/2 credit)

NURS 5810.03A/N5820.03B Reading Class: (1/2 credit)

NURS 5900.06R Reading Class: (1 credit)

NURS 5910.03A/N5920.03B Reading Class: (1/2 credit)

NURS 5950.03 A or B Self-directed Learning in Nursing: (1/2 credit)

5990.03B Interdisciplinary Human Nutrition: (1/2 credit)

NURS 9000.00 Thesis: (2 credits)

Nursing Electives

***NURS 5960.03 Social Support:** M. Stewart (1/2 credit)

***NURS 5860.03 Grounded Theory:** (1/2 credit)

***NURS 5160.03 Analysis of Research:** M. Arkle (1/2 credit)

***NURS 6000.03A/MHSA 6000.03A Nursing Administration and Leadership:** D. Tamlyn (1/2 credit)

*Not offered every year

A minimum registration of three students is normally required for any class to be offered.

Oceanography

Location: Life Sciences Centre, 1355
Oxford Street, Halifax, N.S.
B3H 4J1
Telephone: (902) 494-3557
Fax: (902) 494-3877

Chair of Department

A.J. Bowen

Graduate Studies Co-ordinator

J. Grant

Professors

C. Beaumont, BSc (Sussex), PhD (Dal)
A.J. Bowen, MA (Cantab), PhD (Scripps)
C.M. Boyd, MA (Ind), PhD (Scripps)
P. Chylik, Diploma (Physics) (Charles,
Prague), PhD (Calif), joint appointment in
Physics
R.W. Doyle, MSc (Dal), PhD (Yale), cross
appointment with Biology
R.O. Fournier, MSc (Wm. & Mary), PhD (URI)
E.L. Mills, BSc (Carl.), MS, PhD (Yale), FLS
R.M. Moore, BA (Oxon.), PhD (Southampton)
B.R. Ruddick, BSc (Victoria), PhD (MIT)

Associate Professors

B.P. Boudreau, BSc (UNB), MS (Texas A&M),
PhD (Yale)
J. Grant, BSc (Duke), PhD (South Carolina)
M.R. Lewis, BS, MS (Maryland), PhD (Dal)
K.E. Loudon, BA (Oberlin), M.Ed. (Temple),
PhD (MIT)
K.R. Thompson, BSc, MSc (Manchester), PhD
(Liv), major appointment in Math, Stats, and
Comp. Sc.

Assistant Professors

I. Folkins, BSc (Dal), MSc, PhD (Tor), joint
appointment with Physics
P.S. Hill, A.B. (Dartmouth), MS (Wash), PhD
(Wash)
W. Hyde, BSc (Tor), MSc (Waterloo), PhD (Tor)
D. Kelley, BSc (MtA), PhD (Dal)

Honourary Research Associates

F.W. Dobson, BSc, MSc (Dal), PhD (UBC),
Atlantic Oceanographic Laboratory,
Environment Canada
B. Hatcher, BSc, MSc (Dal), PhD (Sydney)
J.W. Loder, BSc (Acadia), PhD (Dal), Dept. of
Fisheries & Oceans, BIO
R. Mohn, BSc (Rensseler Poly Tech) MSc, MA,
PhD (Dal)
M. Sinclair, BSc(Hon) (Qu), MSc
(Southampton), PhD (Scripps) Fisheries &
Oceans
R.L. Stephenson, BSc (Trent), PhD
(Canterbury), Fisheries & Oceans
A. Thomas, BSc (McG), MSc, PhD (UBC)

Honorary Adjunct Professors

R.G. Ackman, BA (Tor), MSc (Dal), PhD
(London), TUNS
A. Cembella, BSc (Simon Fraser), PhD (UBC),
NRC
R.C. Courtney, BSc, MSc (Dal), PhD
(Cambridge), BIO
J.S. Craigie, BA, MA, PhD (Qu), Atlantic
Regional Laboratory, NRC
J. Cullen, AB (Calif, Santa Cruz), PhD (Scripps)
K.T. Frank, BSc, PhD (Toledo), Dept. of
Fisheries & Ocean, BIO
B.T. Hargrave, BSc, MSc (Dal), PhD (UBC),
BIO, Fisheries & Oceans
K. Higuchi, BSc (Carleton), MSc, PhD (Tor),
Atmospheric Environment Service
G. Isaac, BSc, MSc, PhD (McG), Atmospheric
Environment Service
W.D. Jamieson, BSc, MSc (Dal), PhD
(Cantab), Atlantic Research Laboratory, NRC
M. King, BA (Colorado College), MS, PhD
(Arizona), NASA, Goddard Space Flight Center
G.B. Lesins, BSc, MSc, PhD (Tor)
L. Mayer, BS (Rhode Island), PhD (Scripps),
Ocean Mapping Group, UNB
N.S. Oakey, BSc (McG), MSc (Sask), PhD
(McM), BIO
S. Pearre, BSc (Virginia), MSc, PhD (Dal)
D.J.W. Piper, BA, MA, PhD (Cantab), Atlantic
Geoscience Centre, Energy, Mines & Resources
S. Sathyendranath, BSc (St. Teresa's College),
PhD (Univ. P & M Curie)
J.N. Smith, BSc (McG), MSc (Chicago), PhD
(Tor), BIO
P.C. Smith, BSc MS (Brown), PhD
(MIT/Woods Hole Oceanography Inst), Atlantic
Oceanographic Laboratory, Environment
Canada
P. Wangersky, BSc (Brown), PhD (Yale)
D.G. Wright, BSc (Laurentian), PhD (UBC),
Atlantic Oceanographic Laboratory, BIO

Admission Requirements

A good Honours degree, or its equivalent,
is required for admission to the Oceanography
Department.

Undergraduate preparation may be in any
of the basic sciences - Biology, Chemistry,
Physics or Geology. Degrees in Atmospheric
Science, Meteorology, Mathematics or
Engineering are also acceptable if the
undergraduate work includes a reasonably
good background in relevant basic science.

MSc Degree Programme

For minimum time required to complete
this programme, see Section 5.

Minimum course requirements are a total
of 5 half-credit classes at the 5000 level or
higher, at least three of which must be chosen
from the introductory classes
(5110.03-5140.03, 5520.03).

Additional classes may be required to strengthen a student's background in basic science.

Research and a thesis are required.

PhD Degree Programme

For minimum time required to complete this programme, see Section 5. In addition to completion of four of the five introductory half-classes (5110.03-5140.03, 5520.03), at least four half-credit classes in advanced classes, ordinarily in the area of the candidate's special interest are normally required. More classes will frequently be desirable.

Candidates must write and defend a proposal for thesis research.

Research and a thesis are required.

Classes Offered

Classes marked * are not offered every year. Please consult timetable upon registration.

OCEA 5080.03 Time Series Analysis II: K. Thompson; Cross-listed with STAT 5400.03.

OCEA 5110.03B Introduction to Geological Oceanography: P. Hill

OCEA 5120.03A Introduction to Physical Oceanography: B. Ruddick

OCEA 5130.03A Introduction to Chemical Oceanography: R.M. Moore

OCEA 5140.03B Introduction to Biological Oceanography: E. Mills

OCEA 5150.03A Principles of Biological Oceanography: C. Boyd

*OCEA 5180.03B Fisheries Oceanography: E. Mills

*OCEA 5210.03B Time Series Analysis: K. Thompson

OCEA 5221.03A Ocean Dynamics: B. Ruddick/D. Brickman

OCEA 5222.03B Estuary, Coast and Shelf Dynamics: A.J. Bowen

*OCEA 5230.03B Biology of Phytoplankton: staff

OCEA 5270.03R Special Topics in Biological Oceanography: staff

*OCEA 5280.03A Chemical Sedimentology & Early Diagenesis: B. Boudreau

OCEA 5290.03B Advanced Chemical Oceanography: R. Moore

*OCEA 5293.03A Advanced Marine Particles: P. Hill

*OCEA 5295.03A Solution Chemistry for Oceanographers: B. Boudreau

OCEA 5311.03A Fluid Dynamics I: D. Kelley

OCEA 5312.03B Fluid Dynamics II: D. Kelley

*OCEA 5330.03B Benthic Ecology: J. Grant

OCEA 5331.03B History of Oceanography: E.L. Mills

OCEA 5340.03B Marine Geology: TBA

OCEA 5350.03B Marine Geophysics: K.E. Loudon

*OCEA 5380.03B Marine Modelling: M. Lewis

OCEA 5411.03A Dynamic Meteorology I: TBA; Cross listed with PHYC 5441.03A

OCEA 5412.03B Dynamic Meteorology II: TBA; Cross listed with PHYC 5412.03B

OCEA 5440.03B Advanced Topics in Geophysics: C. Beaumont, K.E. Loudon

*OCEA 5450.03A Geodynamics: C. Beaumont

OCEA 5500.03A Atmospheric Physics I: Staff. Cross listed with PHYC 5500.03A

OCEA 5510.03B Atmospheric Physics II: Staff. Cross listed with PHYC 5510.03B

OCEA 5520.03A Introduction to Meteorology: Staff, Cross listed with PHYC 5520.03A

OCEA 5530.03B Introduction to Radiation and Climate: P. Chylek. Cross listed with PHYC 5530.03B

OCEA 5541.03A or B Synoptic Meteorology: Staff

OCEA 5545/-3A Boundary Layer Meteorology: TBA

OCEA 5555.03A or B Radar and Satellite Meteorology: Staff

OCEA 5560.03A Mesoscale Dynamics: Staff; Cross-listed with PHYC 5560.03A

OCEA 5570.03A Light Scattering and Radiative Transfer: P. Chylek

OCEA 5575.03A Topics in Atmospheric Radiation: P. Chylek

OCEA 5580.03B Cloud Physics: TBA

OCEA 5590.03 Paleoclimatology: W. Hyde

OCEA 5600.03B Invertebrate Fisheries and Aquaculture: J. Grant

OCEA 9000.00 MSc Thesis

OCEA 9530.00 PhD Thesis

In addition to the weekly oceanographic departmental seminar, each of the oceanographic subdisciplines has a regular seminar in its speciality. At the seminar, topics of specific interest are discussed and examined.

Oral and Maxillofacial Surgery

Location: 5981 University Avenue,
Halifax, N.S. B3H 3J5
Telephone: (902) 494-1679

Chair

D.S. Precious

Professors

M.M. Cohen Jr., AB (Mich), DMD (Tufts),
MSD, PhD (Minn), FCCMG
F.W. Lovely, DDS (Dal), MS (Mich), FRCD(C)
FICD
D.S. Precious, DDS, MSc (Dal), FRCD(C),
FICD, FADI, Programme Director

Associate Professors

B.B. Harsanyi, DDS, MS, FRCD(C)
R.E. Howell, DDS (Loma Linda), Cert Oral Path
(USC Med Ctr)
J.G.L. Lovas, BSc, DDS (Tor), MSc (Western),
FRCD(C)

Assistant Professors

A.K. Bhardwaj, BDS, DDS, FRCD(C)
A.A. Drysdale, MDCM, FRCP(C)
R.H.B. Goodday, DDS, MSc (Dal), FRCD(C)
B.A. Wright, BDS (Lond), LDS, RCS (Eng),
DDS (Dal), MS (Indiana), MD (Dal), FRCP(C)
R.H. Yabsley, MD, BSc, (Med), FRCS(C), FACS

The four-year programme in Oral and Maxillofacial Surgery which starts on June 1st each year is designed to provide graduate students with a comprehensive background for the practice and teaching of Oral and Maxillofacial Surgery, and to qualify them for examination by the Royal College of Dentists of Canada.

Particular emphasis is placed upon the basic sciences and clinical hospital surgery practice.

Admission Requirements

Candidates to be considered must possess both a DDS or DMD and the National Dental Examination Board Certificate to be eligible for Licensure in the Province of Nova Scotia.

Candidates must register for the entire four years of the programme and pay full tuition for the first three years and thesis only registration for the fourth year.

Application must be completed prior to June 30 of the year preceding commencement of the programme.

MSc Degree Programme Requirements

1. Satisfactory completion or credit for the prescribed classes
2. Satisfactory knowledge and skills in all the phases of clinical oral and maxillofacial surgery
3. Satisfactory completion of a research study and submission of the results in the form of a thesis acceptable to the Director of the programme

Curriculum

Year 1

500.06 Anatomy 1 credit
501.06 Surg Anatomy 1 credit
502.06 Physical Diagn Audit
503.06 Clinical Lab Medicine Audit
504.06 Pharmacology Audit
506.06 Oral Pathology 1 credit
507.06 Seminar Audit
508.06 Clinical Oral Surgery 1 credit
509.06 Microbiology 1 credit
511.06 Pathobiology Audit

Year 2

600.06 Anaesthesia 1 credit
601.06 Medicine Audit
602.06 Clinical Physiology Audit
603.06 Oral Pathology 1 credit
604.06 Seminar Audit
605.06 Clinical Oral Surgery 1 credit
606.06 Orthopedics Audit
607.06 Infectious Diseases Audit
608.06 Emergency Medicine Audit
609.06 Neurosurgery Audit

Year 3

700.06 Oral Pathology 1 credit
701.06 Seminar 1 credit
702.06 Clinical Oral Surgery 1 credit
703.06 Research 1 1 credit

Year 4

800.06 Clinical Oral Surgery 1 credit
801.06 Seminar 1 credit
9000.00 MSc Thesis

Pathology

Location: Sir Charles Tupper Bldg., 11th Floor, 5859 University Avenue, Halifax, N.S. B3H 4H7
Telephone: (902) 494-2091

Head of Department
 M.A. Moss

Professors

T. Ghose, MB/BS/PhD (Calc), FRC Path (UK)
 M.L. Givner, BSc, MSc, PhD (McG)
 D.T. Janigan, BSc, MD (Dal) FRCP(C), FCCP
 M.A. MacAulay, MD (Dal), FRCP(C)
 G. Rowden, BSc (Exeter), MSc, PhD (Lond), DSc(Lond), FRCP (UK), MRC Path

Associate Professors

A.H. Blair, MSc (UBC), PhD (Calif) (major appointment in Biochemistry)
 A.D. Fraser, BA (Houghton), PhD (Boston), FACB, DABCC
 D.L. Guernsey, BA (Lehigh), MS (Bridgeport), PhD (Hawaii)
 R. Gupta, MB, BS (India), FRCP(C)
 S.J. Luner, BS (Cal Inst of Tech), PhD (UCLA)
 R.F. McCurdy, MPH, MSc (Minn), PhD, (TUNS)
 M.A. Moss, MB, BS (London), MSc (Dal), FRCP(C)
 A.A. Trillo, MD (Nat'l Univ Mexico), PhD (Western)

Assistant Professors

S.C. Boss, BSc/MD (MtA), MSc, PhD (Windsor)
 K.C. Dooley, PhD (UBC)
 L.C. Dymond, BSc (Memorial), MSc, MD (Dal), FRCP(C)
 R.B. Fraser, MSc, MD (Dal), FRCP(C), FCAP
 W.L. Greer, BSc, PhD (Western), FCCMG
 B.A. Nassar, BSc (Belrut), PhD (Newcastle), MB, BCh (Calro), FRCP(C)
 L. Resch, MD (Dal), FRCP
 D.C. Riddell, BSc, PhD (Queen's) (Graduate Studies Co-ordinator)
 G.T. Roberts, BSc (Durham), MB (Newcastle), FRCP(C)
 E.A. Wright, BDS (Lond), LDS, RCS (Eng), DDS (Dal), MS (Indiana), MD (Dal)
 J.R. Wright, Jr., BS, MA, MD (Ohio)
 E.Z.M.A. Zayed, MB, BCh (Egypt) FRCP(C)

Research for the MSc degree may be conducted in experimental pathology and/or allied fields of medical sciences (e.g. clinical chemistry, hematology or histopathology) for those planning a career as a laboratory scientist.

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. In addition, candidates with the MD degree may be admitted.

MSc Degree Programme

This programme is intended to give the student a strong background in the experimental approach in pathology. Although the programme may be completed in 12 months, most students require 24 months.

The research work and thesis defence are valued at 2 1/2 credits. All students are required to attend and participate in the research seminar programme (PATH 509.01). In addition, two other credits are required, in a subject related to the thesis or in the laboratory field chosen. Other classes may be required depending upon the background preparation of the student, the nature of their thesis, or the student's career goals.

Candidates must participate as appropriate in the weekly series of conference seminars in Pathobiology, Laboratory Medicine, Surgical and Autopsy conferences or molecular pathology/genetics.

Research and a thesis are required. The thesis must be defended by oral examination which covers the candidate's area of study and research. Yearly presentations to the Department are required of every candidate.

Classes Offered

Classes marked with an asterisk are normally offered in alternate years. Pathology 502.06 was taught in the 1993-94 academic year.

PATH 500.06A General Pathology: A reading/discussion course covering basic systems and processes in pathology.

***PATH 501.06R Clinical Medical Biochemistry:** Sessions: Two lectures and one problem solving session weekly throughout the academic year. L.C. Dymond

***PATH 502.06R Pathobiology:** Sessions: 50 lecture-seminar sessions will be given throughout the year. D.T. Janigan

***PATH 503.06R Principles of Instrumentation:** Sessions: Three one hour lectures including problem session weekly, plus assigned laboratory sessions throughout the academic year. R.F. McCurdy

***PATH 504.06R Pathobiology of Cancer:** Sessions: Two sessions weekly throughout the academic year.

***PATH 505.06R Special Topics: Molecular Pathology and Molecular Genetics**

PATH 506.06R Special Topics in Morphometrics and Stereology: M.A. MacAulay

PATH 507.06R Special Topics in Electron Microscopy

PATH 508.06R Special Topics in Immunocytochemistry and Histochemistry

PATH 509.01R Pathology Research Seminar Series

PATH 9000.00 MSc Thesis

Seminars - Conferences

A series of weekly seminars, journal clubs, and conferences is conducted throughout the year in various areas of pathology, and laboratory medicine.

Areas of Specialization for MSc Thesis

- Lung injury mechanisms induced by inhalation of combustion products from plastics and synthetics and occupational lung disease: D.T. Janigen.
- Human molecular genetics and tumour suppression: D.C. Riddell.
- Molecular genetics in cancer diagnosis: W.L. Greer.
- Immunology of type I diabetes mellitus; islet transplantation: J. Wright.
- Dermatopathology with respect to the immune system of the skin. Pigment cell biology. Immuno-electronmicroscopic staining methods. Dendritic cells of the mononuclear phagocyte system: G. Rowden
- Immunodiagnosis of cancer, antihormonal therapy of hormone-dependent cancers, new endocrine and Cyclosporin A assays: M.L. Givner.
- Atherosclerosis, cardiovascular pathology, nephropathology: A.A. Trillo.
- Quantitative chemical and microscopic techniques in evaluating clinical surgical methods of arresting organ function, e.g. open heart surgery. Expert computer systems in Laboratory Medicine: M.A. MacAulay.
- Computerization and instrumental methods in the clinical chemistry laboratory, use of gas chromatography/mass spectrometry in the investigation of metabolic disease: K.C. Dooley.
- Forensic toxicology, new analytical procedures for drug analysis, drug metabolism, drug interactions, and toxicity: A.D. Fraser.
- The malignant cell surface, blood cell membranes and monoclonal antibodies to tumour cell surface antigens: S.J. Luner.
- Trace metals, natural radionuclides and environmental health: R.F. McCurdy.
- Interference in digoxin assays, hypouricemic states: L.C. Dymond.
- Environmental pathology, trace metals and disease, biochemical aspects of forensic medicine, investigation of porphyrias: M.A. Moss.
- Coagulation and platelet disorders: E.Z.M.A. Zayed.
- Molecular pathology and molecular genetics: D.L. Guernsey
- Pathological Effects of Electromagnetic Radiation: L. Reach
- Immunodiagnosics and Enzymology: S. Boss
- Essential fatty acids and prostaglandins. Molecular diagnosis of hyperlipidemia: B. Nasser
- Neurogenetics, experimental neuropathology and linkage analysis: P.E. Neumann
- Antibody-linked drugs in cancer therapy: H. Blair
- Head and neck pathology. Oral disease and diseases of salivary glands: B.A. Wright
- Kidney transplant modulation of chronic rejection: R. Gupta
- Islet isolation, transplantation, and encapsulation: R.B. Fraser

Pharmacology

Location: Sir Charles Tupper Building,
6th Floor, 5859 University
Avenue, Halifax, N.S. B3H
4H7

Telephone: (902) 494-3435

Head of Department

K.W. Renton

Professors

J.W. Downs, BSc, PhD (Man)

G.R. Ferrler, BSc, PhD (Man) Graduate Studies
Coordinator

J.D. Gray, BSc, MD, (Alta.), FRCP(C), Medicine

K.W. Renton, BSc (Sir Geo. Wms.), PhD (McG)

H.A. Robertson, BA, MSc, (UWO), PhD
(Cantab)

J. Sawynok, BSc, MSc (Melb.), PhD (Queen's)

M.M. Vohra, BPhm, MPhm, PhD (Ban)

T.D. White, BSc, MSc (Western), PhD (Bristol)

Associate Professor

G.M. McKenzie, BSc (Windsor), MSc, PhD
(Dal)

Assistant Professors

J. Blay, BSc(Hons), PhD (Cantab)

R.I. Hall, BScPharm (Dal), MD (Dal), Anesthesia

O.R. Hung, BSc, MD (Dal), FRCP(C)

S.E. Howlett, BSc(Hons) (Concordia), MSc,
PhD (Mem)

M.E.M. Kelly, BSc(Hons), PhD (Southampton,
England)

T.C. Peterson, MSc, PhD (Dal)

P.T. Pollak, MD, PhD (Western)

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. Students registered in the Faculty of Medicine may, upon completion of the second year of studies, be admitted to a PhD programme.

Normally, a previous class in Biochemistry and in Physiology will be expected; however, applicants are advised to consult the department as to the appropriateness of their specific academic background. With departmental permission, specific classes in these subjects may be taken as part of a graduate programme in Pharmacology.

MSc Degree Programme

For minimum time required to complete this programme, see Section 6. Candidates must complete satisfactorily the following classes or their equivalents: 5403.06, 5405.03B, and a minimum of two half credit courses in the 5600 series. A course in

statistics is required if an appropriate course has not been successfully completed before entrance to the program. An ancillary class chosen from classes offered by another department in the Faculty of Graduate Studies may be required. Candidates must also satisfactorily complete short research projects in two departmental laboratories (5501.03, 5502.03). Students are expected to attend research seminars within the department. Laboratory teaching experience is included in the programme (5506.03). Thesis research, and preparation and oral defense of a thesis are required.

PhD Degree Programme

For minimum time required to complete this programme, see Section 4. A qualifying examination for entrance into the PhD programme may be required. Candidates must complete satisfactorily the course requirements listed for the MSc degree plus two additional half credit courses in the 5600 series. An additional short research project (5503.03) is optional. An ancillary class chosen from classes offered by another department in the Faculty of Graduate Studies is required. Students are expected to attend research seminars within the department. Lecture and laboratory teaching experience is included in the programme (5507.03). A comprehensive examination is required. Thesis research, and preparation and oral defense of a thesis are required.

PhD Programme in Pharmacology/ Neuroscience

Pharmacology also offers MSc and PhD programmes in Pharmacology/Neuroscience through the Interdisciplinary Neuroscience Programme.

MD/PhD Combined Programme

For information on the combined MD/PhD programme see Interdisciplinary and Joint Programmes (page 48)

Areas of Research Specialization

Faculty research interests include: cardiac electrophysiology and pharmacology, polypeptide growth factors and signal transduction, general anaesthetics, neurotransmitter receptor mechanisms, autonomic physiology and pharmacology, behavioral pharmacology, general anaesthetics, nerve regeneration, molecular biology, mechanisms of analgesia, drug metabolism, and experimental therapeutics.

Classes Offered

The 5501.03-5503.03 classes are normally for graduate students in Pharmacology, but available to others by special arrangement.

Three or four classes in the 5600 series are offered each term on a two-year rotating cycle as indicated below.

PHAC 5402.06R Systematic Pharmacology

PHAC 5403.06R Systematic Pharmacology:
(Includes laboratory)

PHAC 5404.03A or B Experimental Design and Interpretation

PHAC 5405.03B Advanced Pharmacology

PHAC 5406.03A Introduction to Pharmacology I

PHAC 5407.03B Introduction to Pharmacology II

PHAC 5408.03B Experimental Pharmacology:
(Prerequisite: PHAC 5501.03)

PHAC 5501.03R Introduction to Research in Pharmacology I

PHAC 5502.03R Introduction to Research in Pharmacology II: Same as 5501.03R

PHAC 5503.03R Introduction to Research in Pharmacology III: Same as 5501.03 and 5502.03. Available only to students in the PhD programme.

PHAC 5506.03R MSc Practice Teaching

PHAC 5507.03R PhD Practice Teaching

Offered in 1994/95*

PHAC 5605.03A Functions of Extracellular purines in the central and peripheral nervous System: T.D. White

PHAC 5607.03A Pharmacology of Calcium Handling in the Heart: S.E. Howlett

PHAC 5611.03A Drug Metabolism: K.W. Renton

PHAC 5619.03A Topics in Autonomic Pharmacology: J. Downie

PHAC 5623.03R Clinical Pharmacology: J. Gray

PHAC 5603.03B Neuropharmacology of Pain: J. Sawynok

PHAC 5616.03B Molecular neuropharmacology: H. Robertson

PHAC 5617.03B Pharmacology of Cell Growth: J. Blay

PHAC 5618.03B Pharmacology of Selected Cytokines in Disease: T. Peterson

Offered in 1995-96*

PHAC 5602.03A Cardiac Excitation and Contraction; Physiology and Pharmacology: G.R. Ferrier

PHAC 5610.03A Anesthesia: R. Hall

PHAC 5612.03A Clinical Trial Design: J. Gray

PHAC 5613.03A Pharmacology of Autocoids: M.M. Vohra

PHAC 5623.03R Clinical Pharmacology: J. Gray

PHAC 5615.03B Pharmacological and Biophysical Approaches to Understanding Cellular Ion Transport: M.E. Kelly

PHAC 5621.03B Pharmacology of Drug Abuse: (Pharmacy Elective) G. McKenzie

*Classes offered are subject to change. Please contact the department.

PHAC 9000.00R MSc Thesis

PHAC 9530.00R PhD Thesis

Pharmacy

Location: Burbridge Building, 5968
College Street, Halifax, N.S.
B3H 3J5

Telephone: (902) 494-2378

Director of College

R.F. Chandler

Professor Emeritus

J.G. Duff, BSP, MSc (Sask), PhD (Fla)

Professors

R.F. Chandler, BSc Pharm, MSc (Alta), PhD (Syd)

I.S. Sketris, BSc (Pharm) (Tor.), PharmD (Minn), MPA (HSA) (Dal)

D.K. Yung, BA, BSP, MSc (Sask), PhD (Alta)

Associate Professors

I. Abraham, BPharm, MPharm (UST Kai), PhD (Neb)

E. Butler, BSc (Chem), MSc (Chem), PhD (Colloid Chem, Bp)

P.S. Farmer, BSP, MSc (Sask), PhD (Portsmouth)

P.K.F. Yeung, BSc (Pharm), MSc (Man), PhD (Sask), Graduate Studies Co-ordinator

Assistant Professors

T.B. Burkness, BSc (Chem) (UWO), PharmD (FSU)

K.K. Janke, BA (Psych) (St. Olaf), PhD (Pharm.Ad.) (Minn)

A.M. Whelan, BSc(Pharm) (Dal), PharmD (MUSC)

M.R. Wright, BSc (Pharm), MSc, PhD (UBC)

The College of Pharmacy offers MSc and PhD programmes in the areas of pharmacokinetics, biopharmaceutics, drug disposition and metabolism, medicinal chemistry, physical pharmacy and drug analysis. For more detailed information on the administration of these programmes applicants and students are referred to the Handbook for Graduate Studies in the College of Pharmacy which is available from the Graduate Studies Coordinator, College of Pharmacy.

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies (see Section 2.). Applicants from outside of Canada must submit the results of the Graduate Record Examination (GRE, Aptitude). Canadian applicants also are advised to submit GRE scores, and the College reserves the right to make this a precondition to consideration of the student's application

for admission. A score of at least 580 on the TOEFL is required of applicants whose native language is not English (Section 2.).

Students entering with a BSc (Pharm) Degree or its equivalent will be registered in the 1-year MSc programme. Students entering with an Honours BSc Degree in a field other than pharmacy (e.g., biology or chemistry) may be required to register in the 2-year MSc programme, although candidates with suitable academic backgrounds will be registered in the 1-year programme. Applicants holding a Pass BSc Degree may exceptionally be eligible for admission to the 2-year MSc programme. In certain circumstances, a student may be admitted to a Qualifying Year programme of preliminary work in order to meet admission standards for the MSc programme.

An MSc in pharmacy is normally required for entry directly into the PhD programme, although students in the MSc programme may apply to transfer to the PhD programme subject to the conditions described in the Handbook for Graduate Students in the College of Pharmacy.

Ultimate approval of a student's transfer to the PhD programme must be made by the Dean of Faculty of Graduate Studies.

MSc Degree Programme

For minimum times required to complete this programme see Section 4.

Experience has shown that most candidates require an additional 6-12 months to complete the thesis requirement. A Graduate Advisory Committee chaired by the research supervisor and comprised of two other members will be appointed for each student.

Candidates must complete satisfactorily a minimum of two full-credit advanced classes, the actual programme of classes required to be determined by each student's Graduate Advisory Committee. Additionally candidates must participate in graduate seminars (Pharmacy 8000.03C) during each year in the programme. A major part of the requirements for the MSc Degree is the preparation and oral defence of a thesis (Pharmacy 9000.00) describing research done by the student. The primary purpose of the MSc Degree programme is to develop in the student research skills in an area of the pharmaceutical sciences at a level which will enable the student to carry out research relatively independently. The dissertation is expected to be of such scope and skilful presentation as to indicate that the candidate has acquired a command of the subject, has the demonstrated ability to contribute fresh

knowledge or a fresh outlook to the subject, and has mastered the research methodology of the discipline.

Candidates are normally required to demonstrate in an undergraduate Pharmacy class for at least one year.

Financial assistance is generally available for no more than two years.

PhD Degree Programme

For minimum times required to complete this programme see Section 4.

It is expected that most candidates will require an additional 12 months to complete the thesis requirement. A Graduate Advisory Committee chaired by the research supervisor and comprised of two other members will be appointed for each student. Candidates must complete satisfactorily a minimum of two full-credit graduate classes in addition to those required for the MSc programme, the actual programme of classes required to be determined by each student's Graduate Advisory Committee. To determine courses in which a student should enrol, an oral and/or written examination may be required by the Graduate Advisory Committee prior to registration of a new student coming from outside of the College. Additionally candidates must participate in graduate seminars (Pharmacy 6000.03R) during each year in the programme. Reading comprehension of a foreign language and/or proficiency in an ancillary research skill such as computer programming may be required. Students are required to pass a preliminary oral examination not less than one year before defending the thesis.

The PhD Degree programme prepares the student to conceptualise, design and execute sound independent research. Thus the completion of an extensive, original investigation and the preparation and oral defence of a thesis (Pharmacy 9530.00) describing this research constitutes the major part of the requirements for the PhD Degree. The PhD research project is of more substantial dimensions than that for the MSc Degree, and the demonstration of a definite advance of knowledge is expected.

Candidates are required to obtain some teaching experience by demonstrating in an undergraduate Pharmacy laboratory class for at least one year and by presenting lectures in an undergraduate Pharmacy class.

Financial assistance is generally available for no more than four years post-baccalaureate or three years for a student entering with an MSc Degree.

Classes Offered

PHAR 4130.03A/5130.03A

Physicochemical/Industrial Aspects of Controlled Release Drug Delivery - An Introduction: E.V. Butler, lecture/workshop 2 hours; library and lab practices 2 and 6 hours; 2 term papers. Prerequisites: PHAR 2120.03B, 2130.06R, 3250.02A, CHEM 2400.06R, STAT 1060.03A or consent of the instructor. Offered every other year.

PHAR 4230.03A Dermopharmacy: M. Mezel, lecture 2 hours. Prerequisite: Consent of the instructor

PHAR 4330.03B Herbal Remedies: R.F. Chandler, lecture 3 hours second term

PHAR 4340.03R/5340.03R Drug Design: P.S. Farmer, lecture 2 hours first term, term paper second term. Prerequisite: Consent of the instructor

PHAR 4930.02B/5930.03B Introductory Drug Metabolism and Toxicology: P.K.F. Yeung, lecture 2 hours plus a special project for graduate students. Prerequisites: Pharmacology 3470.06 or 3480.06, Biochemistry 3100.06, Therapeutics 3500.09

PHAR 4910.03/5910.03A or B Advances in Drug Metabolism and Disposition: P.K.F. Yeung, G.A. Klassen, P.T. Pollak, and M.A. Quilliam, lecture 2 hours. Prerequisite: Pharmacy 4930.02B/5930.03B or instructor's consent. Offered every other year

PHAR 5000.03R/6000.03R Pharmacy Seminar

PHAR 5250.03B/4250.03B Advanced Pharmacokinetics: I. Abraham. Every other year; consult Department. Prerequisites: Pharmacy 4100.03R, Pharmacy 3250.02A

PHAR 5290.06 Topics in Biopharmaceutics: M. Mezel, lecture 2 hours. Prerequisite: Consent of the instructor

PHAR 5320.03A or B Topics in Medicinal Chemistry: P.S. Farmer, lecture 2 hours. Prerequisite: instructor's consent

PHAR 5980.03A (M2090.03A) Intermediate Statistics: C.A. Field (Math Dept.)

PHAR 9000.00 MSc Thesis

PHAR 9530.00 PhD Thesis

Areas of Specialization

- Studies on dose-dependent disposition kinetics of drugs; kinetics of enterohepatic circulation of drugs; drug-drug kinetic interactions. (I. Abraham)
- Physico-chemical, colloidal and surface characterization of particulate matter. Drug powders, liposomes, microspheres and microcapsules. Stability of dispersions

systems. Interfacial phenomena and application to pharmaceutical systems. Design and evaluation of controlled release drug delivery systems. Encapsulation efficiency, drug release rate. Study of bloodhesion and bioadhesive materials. (E. Butler)

- Design and synthesis of drugs, prodrugs, drug metabolites and rotationally restricted analogs. (P.S. Farmer)
- Stereospecific analytical methods development (HPLC, GC) and application to stereoselective pharmacokinetic/pharmacodynamic studies in pregnancy and the fetus, placental transfer and gender differences in disposition and pharmacological effect. (M.R. Wright)
- Analytical methods development (RIA, HPLC, GC, etc.) with application to pharmacokinetic, pharmacodynamic, and metabolism studies. Emphasis is on the kinetic aspects (*in-vivo* and *in-vitro*) of drug metabolism and its relationship to pharmacodynamic effects in animal species and in humans. (P.K.F. Yeung)

Philosophy

Location: 1400 Henry Street, Halifax,
N.S. B3H 3J5
Telephone: (902) 494-3810

Chairperson of Department
R.M. Martin

Professors Emeritus

D. Braybrooks, BA (Harvard), MA, PhD (Cornell) FRSC
R.P. Puccetti, BA (Illinois), MA (Tor), Docteur de l'Université de Paris (Sorbonne)

Professors

S.A.M. Burns, BA (Acad), MA (Alta), PhD (Lond), Graduate Co-ordinator
R.M. Campbell, BA (Harvard), PhD (Cornell)
W.F. Hare, BA (London), MA (Leic), PhD (Tor), major appointment in Education Dept.
R.M. Martin, BA (Columbia), MA, PhD (Mich)
P.K. Schotch, PhD (Wat)
S.B. Sherwin, BA (York), PhD (Stanford)

Associate Professors

N.C. Brett, BA (New Hampshire), MA, PhD (Wat)
D. Macintosh, BA (Queens), PhD (Tor)
T. Tomkow, BA (SFU), PhD (Cantab)
T. Vinci, BA (Tor), PhD (Pitta)

Assistant Professors

S. Campbell, BA, MA (Alta), PhD (Tor)
K. Vihvelin, BA (Dal), MA (Oxon), LLB (Dal), PhD (Cornell)

Honourary Adjunct Professor

C.J. Byrne, PhD (Tor) St. Francis Xavier

Candidates are expected to have some acquaintance with several areas of philosophy, including modern logic and the history of philosophy. Each student's programme is arranged individually in consultation with the department in relation to the student's interests and preparation. Enquiries should be addressed to the Graduate Studies Co-ordinator, in the Department.

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies.

MA Degree Programme

One Year: For students with an Honours BA or equivalent in philosophy. Requirements include three classes* and a thesis.

Two Year: For those with a BA in philosophy or an honours degree in a related field. Requirements include four classes* in the first year, three in the second, and a thesis.

* **Note:** A "class" means one full-year or two half-year classes.

PhD Degree Programme

For minimum time required to complete this programme, see Degree Requirements under general Faculty regulations. Normally, the doctoral student will be required to attend three graduate seminars beyond the requirements for the MA. Reading knowledge will usually be required in one language other than English in which a significant body of philosophical literature exists. There are three comprehensive examinations to be completed in (1) ethics and political philosophy; (2) metaphysics, epistemology, philosophy of language and science; (3) logic and philosophy of logic. Completion of the programme requires original research on a project of substantial dimensions, culminating in the submission and oral defence of a thesis. This research should be in an area already well-established as a specialty by members of the department, such as, political and social philosophy, ethics, philosophy of mind, epistemology, philosophy of language, or logic.

Classes Offered

The Philosophy Department offers four kinds of graduate classes: adjunct, general, seminar, and directed reading. Adjunct classes presuppose no prior preparation in the area covered by the class. Thus, a graduate student with no previous training in modern symbolic logic could take the combination 2130.03 and 2140.03 which provides a comprehensive introduction to this subject. These classes, since they are not intended for advanced study in the area designated, are open to graduate students in philosophy only in special cases and by permission of the Department. General classes cover a wide range of topics and presuppose some previous study in the area covered by the class. They are suitable for graduate students who want to deepen their understanding of a general area of study but have not specialized in it as an undergraduate. Seminar classes are relatively narrow in focus and presuppose extensive previous study in the area. Directed Reading classes are developed jointly by a student and an instructor in special cases to suit individual interests and needs. These are subject to departmental approval.

Note that the classes listed are half-year, unless otherwise indicated, and not all are given in any one year. Instructors in seminar

classes are likely to vary from year to year. Consult the department for further information.

Adjunct Classes

PHIL 2130.03 **Logic: Deduction:** R. Campbell, P.K. Schotch

PHIL 2140.03 **Logic: Logical Theory I:** P.K. Schotch

PHIL 2160.03 **Philosophical Issues of Feminism:** S. Sherwin, S. Campbell

PHIL 2260.03 **Philosophy of Art:** S.A.M. Burns

PHIL 2350.03 **History of Philosophy: Ancient Philosophy I:** T. Vinci and S.A.M. Burns

PHIL 2370.03 **History of Philosophy: Ancient Philosophy II:** S.A.M. Burns

PHIL 2410.03 **Philosophy of Psychology:** T. Tomkow

PHIL 2550.03 **Marxist Theory:** Staff

PHIL 2610.03 **History of Philosophy: The Rationalists:** S. Campbell, S.A.M. Burns

PHIL 2620.03 **History of Philosophy: The Empiricists:** S.A.M. Burns, T. Vinci, D. MacIntosh

PHIL 2700.06 **Philosophy in Literature (full-year):** R. Martin

PHIL 2705.03 **Philosophy in Literature (half year):** R. Martin

PHIL 2820.03 **Philosophy and Educational Administration:** W. Hare

General Classes

PHIL 5051.03 **Theory of Knowledge:** T. Vinci, D. MacIntosh

PHIL 5080.03 **Logic: Logical Theory II:** P.K. Schotch

PHIL 5100.06 **Ethics (full-year):** R. Campbell, K. Vihvelin

PHIL 5101.03 **Advanced Studies in Philosophy of Education (half year):** W. Hare

PHIL 5105.03 **Ethics (half year):** N. Brett, K. Vihvelin

PHIL 5170.03 **Theories of Feminism:** S. Sherwin

PHIL 5211.03 **Philosophy of Law:** N. Brett

PHIL 5265.03A or B **Aesthetics:** S.A.M. Burns

PHIL 5280.03 **Ethics and Education:** W. Hare

PHIL 5300.03 **Philosophy of Language:** T. Tomkow, R. Martin, D. MacIntosh

PHIL 5420.03B **Philosophy of Biology:** R. Campbell

PHIL 5440.03 Philosophy of Mind: T. Tomkow

PHIL 5460.03 Mind and Brain: T. Tomkow

PHIL 5530.03 Freedom, Action and Responsibility: P.K. Schotch

PHIL 5630.03 History of Philosophy: Kant: T. Vincl

PHIL 5640.03 History of Philosophy: 20th Century Philosophy: D. Macintosh

PHIL 5670.03 Philosophy of Science: D. Macintosh, T. Vincl

PHIL 5801.03A or B Ethics and Health Care: S. Sherwin

PHIL 5810.03 Open-Mindedness and Education: W. Hare

PHIL 5851.03 Metaphysics: T. Tomkow, K. Vihvelin

PHIL 5900.03 Logic: Logic and Philosophical Analysis: T. Tomkow

Seminar Classes

PHIL 5055.03 Topics in Epistemology

PHIL 5070.03 Topics in Philosophical Psychology

PHIL 5080.03 Topics in Logical Theory

PHIL 5115.03 Topics in Ethics I

PHIL 5120.03 Theory of Rational Decision

PHIL 5125.03 Topics in Ethics II

PHIL 5190.03 Topics in the History of Philosophy I

PHIL 5191.03 Topics in the History of Philosophy II

PHIL 5192.03 Topics in the History of Philosophy III

PHIL 5200.03 Topics in Normative Theory

PHIL 5215.03 Topics in Philosophy of Law

PHIL 5220.03 Contemporary Philosophical Issues

PHIL 5430.03 Game Theory as a Foundation for Ethics & Politics

PHIL 5470.03 Utilitarianism, Liberalism, & Democracy

PHIL 5490.03 Social Choice Theory

PHIL 5500.03A or B Topics in Feminist Philosophy: S. Sherwin

PHIL 5510.03 Topics in Philosophy of Language

PHIL 5600.03 Philosophy of Religion Seminars

PHIL 5690.03 Topics in Philosophy of Science

PHIL 5855.03 Topics in Metaphysics

Directed Reading Classes

PHIL 5960.03/5980.03 (half year); 5970.06/5990.06 (full year)

PHIL 9000.00 MA Thesis

PHIL 9530.00 PhD Thesis

Physics

Location: Sir James Dunn Science Building, Halifax, N.S. B3H 3J5

Telephone: (902) 494-2337

Fax: (902) 494-5191

Chairperson of Department

A.M. Simpson

Graduate Advisor

J.G. Cordes

Professor Emeritus

W.J. Archibald, MA (Dal), PhD (Virg), DSc (UNB), DSc (Dal), FRSC

Professors

D.D. Betts, BSc, MSc (Dal), PhD (McG), FRSC
B.L. Blackford, BSc (Acadia), MSc (MIT), PhD (Dal)

M.G. Calkin, BSc, MSc (Dal), PhD (UBC)
P. Chylek, Physics Diploma (Charles, Prague), PhD (Calif, Riverside), joint appointment with Oceanography

R. A. Dunlap, BS (Worcester), AM (Dartmouth), PhD (Clark)

D.J.W. Geldart, BSc (Acadia), PhD (McM), FRSC, A.C. Fales Professor of Theoretical Physics

M.H. Jericho, BSc, MSc (Dal), PhD (Cantab), George Munro Professor of Physics

D.B.I. Kiang, BSc (MtA), MSc, PhD (McM)

H.J. Kreuzer, MSc, DSc (Bonn), FRSC
G.F.O. Langstroth, BSc (Alta), MSc (Dal), PhD (Lond), Assistant Dean, Faculty of Science

R.H. March, BSc, MSc (Dal), DPhil (Oxon)

B.E. Paton, BSc, MSc (Waterloo), PhD (McG)

P.H. Reynolds, BSc (Tor), PhD (UBC), joint appointment with Earth Sciences

A.M. Simpson, BA (Cantab), MSc, PhD (Dal)

G. Stroink, BSc, MSc (Delft), PhD (McG), PEng, minor appointment in Physiology and Biophysics

M.A. White, BSc (UWO), PhD (McMaster), major appointment in Chemistry

Associate Professors

J.G. Cordes, BSc, MSc (Dal), PhD (Cantab)

D.F. Goble, BSc, MSc (Alta), PhD (Tor), BEd (Dal)

D.A. Tindall, BA, PhD (Cantab)

Assistant Professors

I. Folkins, BSc (Dal), MSc, PhD (Tor), joint appointment with Oceanography

W.T. Hyde, BSc (Tor), MSc (Waterloo), PhD (Tor), joint appointment with Oceanography

D. Labrie, BSc (Montreal), MSc, PhD (McM)

Honorary Adjunct Professors

M.N. Butler, PhD (Calif. Inst. of Tech), Physics, St. Mary's

N. Jan, PhD (Cambridge), Physics, St.F.X.

D.A.H. Pink, PhD (UBC), Physics, St.F.X.

M. Steinitz, PhD (Northwestern), Physics, St.F.X.

Research Associates

A.K. Das, DPhil (Oxon)

V. Gelfandbein, PhD (Tech. Inst., Israel)

A. Glinovker, PhD (Siberia Academy of Science)

P. Mulhern, PhD (UBC)

S.H. Payne, PhD (Cantab)

R.L. Wang, PhD (Dal)

Postdoctoral Fellows

B. Koslowski, PhD (Konstanz)

S. Masul, PhD (Tor)

G. Videen, PhD (Arizona)

Z. Yang, PhD (Oslo), Killam Postdoctoral Fellow

MacGregor Teaching Fellows

C. Adams

J. Aufgang

D. Boertjes

J. Kyriakidis

R. Petrie

C. Thomas

C. Unlok

H. Westlake

J. Wong

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. An MSc is the normal admission requirement for the PhD programme. It is recommended that all foreign students provide the Department with an official copy of the Advanced Graduate Record Examination in Physics. In some cases this will be made a precondition to consideration of the student's application for admission.

MSc Degree Programme

For minimum time required to complete this programme, see Section 5.

At least two and one half graduate classes are required, of which at least one and a half must be at the 6000 level.

Research, preparation, and oral defense of a thesis are required.

PhD Degree Programme

For minimum time required to complete this programme, see Section 5.

Normally, a minimum of three graduate classes is required, of which at least two must be at the 6000 level.

Within the first year of a PhD programme (and as soon as possible after a Dalhousie MSc), the candidate must take a preliminary oral examination.

Research and the preparation and oral defense of a thesis are required.

The PhD degree will be granted primarily on the basis of the candidate's ability to carry through original investigation. Part of the evidence of this will be acceptance of scientific material for publication in refereed journals and the preparation of a satisfactory thesis.

Classes Offered

6000-level classes are fourth-year undergraduate classes which may be taken for graduate credit in certain circumstances. They are normally taken by new graduate students having background deficiencies in specific areas. 8000-level classes are full graduate classes.

All graduate students will normally take a Problems Class (8320.03R or 8330.03R) once in each degree programme.

All graduate students are required to attend and participate in regular departmental seminars.

PHYC 5100.03A or B Electrodynamics: lecture 3 hours, Prerequisites: Physics 2110.06, 2120.06 prior to 1990, or Physics 2000.03A/2010.03B, and Math 3110.03A/3120.03B, or the permission of the instructor

PHYC 5151.03A Quantum Mechanics: lecture 2 hours, Prerequisites: Physics 3140.03A or permission of instructor

PHYC 5152.03B Quantum Mechanics: lecture 2 hours, Prerequisites: Physics 5151.03A

PHYC 5160.03A Mathematical Methods of Physics: lecture 3 hours, Prerequisites: Mathematics 3110.03A/3120.03B or permission of instructor

PHYC 5170.03B Topics in Mathematical Physics: lecture 3 hours, Prerequisite: Physics 5160.03A

PHYC 5180.03A or B Nuclear and Particle Physics: lecture 3 hours, Prerequisite: Physics 3140.03A or permission of instructor

PHYC 5220.03A Microcomputer Based Instrumentation: lecture 2 hours, lab 3 hours, Prerequisite: Physics 3810.03B or permission of instructor, this class is not given every year

PHYC 5230.03A or B Introduction to Solid State Physics: lecture 3 hours, Prerequisite: Physics 3140.03A or permission of instructor

PHYC 5311.03A/5312.03B Fluid Dynamics I/II: lecture 3 hours, Cross listed with Oceanography 5311.03A/5312.03B

PHYC 5411.03A/5412.03B Dynamic Meteorology I/II: lecture 3 hours, Prerequisite: permission of instructor, Cross listed with Oceanography 5411.03A/5412.03B

PHYC 5480.03A or B Optics: lecture 3 hours, Prerequisite: Physics 3440.03A or B or permission of instructor

PHYC 5480.03A or B Applied Group Theory: lecture 3 hours, Offered when there is sufficient demand

PHYC 5500.03A/5510.03B Atmospheric Physics I/II: lecture 3 hours, Prerequisite: permission of instructor, Cross listed with Oceanography 5500.03A/5510.03B

PHYC 5520.03A Introduction to Meteorology: lecture 3 hours, Prerequisite: permission of instructor, Cross listed with Oceanography 5520.03A.

PHYC 5530.03B Introduction to Radiation and Climate: lecture 3 hours, Prerequisite: permission of instructor, Cross listed with Oceanography 5530.03B

PHYC 5540.03A/5550.03B Synoptic Meteorology I/II: lecture 3 hours, Prerequisite: at least 1 third year level physics

PHYC 5560.03A Mesoscale Dynamics: Cross-listed with OCEA 5560.03A

PHYC 5650.03A/5660.03B Relativity and Cosmology: lecture 3 hours, Prerequisite: Physics 2110.06 and 2120.06 prior to 1990, or Physics 2000.03A/2010.03B, Mathematics 3050.06R, or permission of instructor

PHYC 6120.06R Quantum Theory: lecture 3 hours, Prerequisite: Physics 4150.03A or its equivalent

PHYC 6141.03A/6142.03B Advanced Quantum Theory I/II: lecture 3 hours, Prerequisite: Physics 6120.06, which may be taken concurrently

PHYC 6201.03A/6202.03B Solid State Physics I/II: lecture 2 hours, Prerequisite: Physics 5230.03B, 4150.03A

PHYC 6241.03A/6242.03B Advanced Solid State Physics I/II

PHYC 6261.03A/6262.03B Statistical Mechanics I/II: lecture 3 hours, Prerequisite: Physics 3210.03B, 4150.03A or their equivalent

PHYC 6300.06R Electromagnetism: lecture 3 hours

PHYC 6320.03R Advanced Problems (MSc students)

PHYC 6330.03R Advanced Problems (PhD students)

The following 6000 level classes are more specialized than the above and consequently are not offered as frequently.

PHYC 6270.03A Order-Disorder Phenomena and Phase Transitions: Prerequisite: A basic knowledge of quantum statistical mechanics is assumed

PHYC 6271.03B Field Theoretical Methods in Critical Phenomena

PHYC 6280.03A or B Superconductivity: lecture 2 hours

PHYC 6291.03A Surface Science I

PHYC 6292.03B Surface Science II

PHYC 6350.03B Selected Topics in Physical Metallurgy: lecture 2 hours

PHYC 6421.03A Radiological Physics

PHYC 6422.03B Radiation Therapy Physics

PHYC 6500.03R Magnetism: lecture 1 1/2 hours

PHYC 6545.03A or B Boundary Layer Meteorology: cross-listed with Oceanography 5545.03A or B

PHYC 6550.03A or B Radar and Satellite Meteorology: cross-listed with Oceanography 5555.03A or B

PHYC 6570.03A Light Scattering and Radiative Transfer: cross-listed with Oceanography 5570.03A

PHYC 6575.03A or B Topics in Atmospheric Radiation: cross-listed with Oceanography 5575.03A or B

PHYC 6580.03B Cloud Physics. Cross-listed with Oceanography 5580.03B

PHYC 6600.03A or B Topics in Physics

PHYC 6710.03A or B Introduction to Disordered Materials

PHYC 6870.06R Selected Topics in Particle Physics: lecture 2 hours

PHYC 9000.00 MSc Thesis

PHYC 9530.00 PhD Thesis

Physiology and Biophysics

Location: Sir Charles Tupper Building,
3rd Floor, Halifax, N.S. B3H
4H7
Telephone: (902) 494-3517

Head of Department

T.F. McDonald

Professors Emeritus

Bela Issekutz, Jr., MD (Szeged), DSc (Budapest)
Enid MacLeod, MD (Dal)

Professors

J.A. Armour, BSc (McG), MD (Western), PhD (Loyola)
D. Guemaey, PhD (Hawaii), Major appointment in Pathology
B.M. Horacek, MSc(Eng) (Prague), PhD (Dal)
M. Horackova, MSc, PhD (Prague)
G.A. Klassen, MD (UBC), FRCP(C), major appointment Dept. of Medicine
T.F. McDonald, BSc (Alta), PhD (Dal), DIC (Imperial College)
I.A. Meinertzhagen, BSc (Aberdeen), PhD (St. Andrews), major appointment in Psychology, Interim Director Neuroscience Institute
W.H. Moger, BS (Cornell), PhD (Calif)
M.R. Oulton, BA (Acadia), PhD (Dal), major appointment, Obstetrics/Gynecology
D. Raemusson, BA (Colo C), MA, PhD (Dal)
R. Rosen, BSc (Brooklyn College), MA (Col), PhD (Chicago)
J.C. Szerb, MD (Munich), FRCP(C)
M. Wilkinson, BSc (Southampton), PhD (Lond), major appointment in Obstetrics/Gynecology
H. Wolf, Dipl Ing (Munich), PhD (Dal)
A.Y.K. Wong, MSc, PhD (Dal)

Associate Professors

R.E. Brown, BSc (Victoria), MA, PhD (Dal), major appointment in Psychology
R.P. Croll, BSc (Tufts), PhD (McG)
J.D. Dudar, MSc (Alta), PhD (Dal)
A. Fine, AB (Harvard), VMD, PhD (Penn)
D.J. Hirsch, MD (Dal), FRCP (C), major appointment in Medicine
N. Morgunov, BSc, MSc, PhD (Tor)
M.G. Murphy, MSc, PhD (Dal)
D. Palzer, Dr Med (Heidelberg), Priv-Doz in Physiology (Hamburg)
G. Stroink, PhD (McG), Major appointment, Dept. of Physics

Assistant Professors

D. Hirsch, MD (Dal), Major appointment, Department of Medicine

D.E. Johnstone, B.Sc, MDCM (McG),
FRCP(C), major appointment Department of
Medicine

A. Kholopov, MSc (Moscow State) PhD (USSR
Acad of Sci)

K. Landmore, BSc, MD, PhD (Dal), major
appointment Obstetrics/Gynecology

S.M. Martin, BA (MSVU), MSc (Alta), PhD
(Calgary), major appointment in Biology,

Mount Saint Vincent University (Professor and
Chair)

P.R. Murphy, MSc, PhD (Dal), Graduate
Studies Coordinator

S. Peizer, BSc, MSc, PhD (Freiburg)

R. Rittmaster, MD (Tufts Med Sch), major
appointment Dept of Medicine

Information on research interests in the
Department and openings for graduate and
post-PhD or post-MD study should be
requested from the Graduate Coordinator of
the Department.

Admission Requirements

Candidates must satisfy the general
requirements for admission to the Faculty of
Graduate Studies.

The following constitutes the minimum
entrance requirements for the graduate
programme in Physiology and Biophysics:

- a) An average mark of B+, with no mark
below B- in the following basic
undergraduate courses or their equivalent:
 - Mathematics 1000.03/1010.03
(differential and integral calculus)
 - Physics 1100.06 (using differential calculus)
 - Chemistry 1010.06 (general chemistry)
 - Statistics 1060.03/1070.03 (basic
statistics for scientists)
 - Biology 1000.06 (general biology)
 - Expository English (essay writing class)
- b) A minimum average mark of A- over the
last two years of the student's
undergraduate programme.

Unless exempted, applicants must also
provide the Department with an official copy
of the results of the Graduate Record
Examination General (Aptitude) Test and one
Subject (Advanced) Test.

MSc Degree Programme

For the minimum time required to
complete this programme, see Section 4.
Students should, however, expect to spend
two years working toward the MSc.

Students who have not completed upper
level classes in human physiology with at least
a grade of B- will be required to complete
Physiology 4403.06R Human Physiology.
Students are also required to take Cellular and
Molecular Physiology 5502.06R, Graduate

Seminar 5517.03R and two half courses, one
of which must be from the classes listed
below.

A research thesis which constitutes two
credits is required.

PhD Degree Programme

For minimum time required to complete
this programme, see Section 4.

Selected classes of this or other
departments may be required.

A preliminary examination in the field of
thesis research is required.

Research and the preparation and defense
of a thesis are required.

A candidate must demonstrate the ability
to carry out research of high quality leading to
an advance in knowledge of physiology and
biophysics.

PhD Programme in Physiology and Biophysics/Neuroscience

Physiology and Biophysics also offers a
PhD in Physiology and
Biophysics/Neuroscience through the
Interdisciplinary Neuroscience Programme.

MD/PhD Combined Programme

For information on the combined MD/PhD
programme Interdisciplinary and Joint
Programmes (page 48)

Classes Offered

Physiology

PHYL 4403.06R Human Physiology: N.
Morgunov (Cross-listed with Biomedical
Engineering at TUNS, BME6250)

PHYL 5459.03B Activity of Excitable Cells
and Tissues: A. Wong (offered every second
year, next offered in 1994/95. Cross-listed
with Biomedical Engineering at TUNS)

PHYL 5494.03B Synaptic Transmitters: M.
Wilkinson (offered every second year, next
offered in 1995/96)

PHYL 5502.06R Cellular and Molecular
Physiology: M. Wilkinson (offered every year)

PHYL 5505.03A Lab Animal Medicine:
Comparative Physiology: S. Craig (offered
every second year, next offered in 1994/95)

PHYL 5508.03R/5509.03R/5510.03R
Directed Reading in Physiology and
Biophysics: Staff.

PHYL 5511.03B Neurophysiology: A. Fine (offered every second year, next offered in 1994/95)

PHYL 5512.03B Physiology and Biophysics of the Heart and Circulation: D. Armour (offered every second year, or on demand)

PHYL 5513.03A Endocrine Physiology: W. Moger (offered every second year, next offered in 1994/95)

PHYL 5514.03A Reproductive Physiology: M. Wilkinson (offered every second year, next offered in 1995/96)

PHYL 5517.03R Physiology and Biophysics Graduate Seminar: Graduate Co-ordinator

PHYL 5608.06R/5609.06R/5610.06R Directed Reading Graduate Seminar: Staff

PHYL 9000.00 MSc Thesis

PHYL 9530.00 PhD Thesis

Biophysics

The following classes are given by the Biomedical Engineering Institute at the Technical University of Nova Scotia.

BIOP 5900.03A Biomedical Engineering I

BIOP 5910.03B Biomedical Engineering II

BIOP 5930.03A Digital Signal Processing I

BIOP 5940.03B Digital Signal Processing II

BIOP 5950.03A Biomechanics I

BIOP 5960.03B Biomechanics II

BIOP 5970.03A or B Directed Studies in Electrical Engineering

Neuroscience

The following classes are offered through the interdisciplinary neuroscience programme.

NESC 6000.03R Selected Topics in Neuroscience: R. Croll (offered yearly)

Political Science

Location: Arts & Administration Bldg,
3rd Floor, 6299 South Street,
Halifax, N.S. B3H 4H6
Telephone: (902) 494-2396
Fax: (902) 494-3825

Chairperson of Department

P. Aucoin

Graduate Co-ordinator

R. Boardman

Professors Emeritus

J.H. Aitchison, BA, BEd (Sask), BSc (Lond), PhD (Tor)

J.M. Beck, BA (Acadia), MA, PhD (Tor), LLD (Dal), FRSC

E. Mann Borgese, DipMus (Zurich), LHD (MSVU)

D. Braybrooke, BA (Harvard), MA, PhD (Cornell), FRSC

J. G. Eayrs, BA (Tor), AM, PhD (Col), FRSC

Professors

P.C. Aucoin, BA (SMU), MA (Dal), PhD (Queen's), jointly with Public Administration

H. Bakvis, BA (Hons) (Queen's), MA, PhD (UBC), jointly with Public Administration

R. Boardman, BSc, PhD (Lond)

D.M. Cameron, BA (Queen's), MA, PhIM, PhD (Tor)

D.W. Middlemiss, BA, MA, PhD (Tor)

T.M. Shaw, BA (Sussex), MA (East Africa, Prin.), PhD (Princeton), Director, Centre for Foreign Policy Studies

D.W. Stairs, BA (Dal), MA (Oxon), PhD (Tor), FRSC

G.R. Winham, BA (Bowdoin), Dip Int Law (Manchester), PhD (N Car), Eric Dennis Memorial Professor of Government and Political Science

Associate Professor

J. Smith, BA (McM), MA, PhD (Dal)

Assistant Professors

D. Black, BA (Trent), MA, PhD (Dal)

K. Fleribeck, BA (Aita), MA (York), PhD (Cantab)

R.G. Finbow, BA (Dal), MA (York), PhD (London)

F. Harvey, BA, MA, PhD (McGill)

Admission Requirements

Applicants must satisfy the minimum requirements set by the Faculty of Graduate Studies.

Successful applicants for the MA programme will have an Honours BA in Political Science, or its equivalent, with first-class or high second-class standing (GPA of 3.30 or higher).

Admission decisions are based on academic transcripts, letters of reference, a sample of written work submitted by the applicant, and the capacity of the Department to supervise a thesis in the applicant's proposed field of research.

Successful applicants for the PhD programme will have an MA in Political Science with first-class standing (GPA of 3.70 or higher). Admission decisions are based on the same considerations as apply to the MA programme, but PhD students are admitted only when a faculty member is prepared to supervise the applicant's programme, including the proposed thesis topic.

Applicants who do not meet all of the above requirements, but who have superior academic qualifications, may be considered for admission to the MA or PhD programmes, but may be required to satisfy additional requirements within the programme. All such requirements will be specified at the time of admission. This includes applicants without the Honours BA, who may apply for admission to a two-year MA programme, and applicants for the PhD who hold a Master's degree other than the MA in Political Science.

Applicants whose native language is not English must demonstrate a minimum TOEFL score of 800, or the equivalent score on a comparable test.

MA Degree Programme

The MA is a one-year (12 month) programme consisting of three full-credit classes (or the equivalent in half-credit classes) and a thesis. Classes include at least two of the core graduate seminars, other graduate classes (including directed reading classes and graduate classes in other departments), and not more than one credit of classes cross-listed as undergraduate/graduate (3000/5000).

The MA may be completed on a full-time or part-time basis.

PhD Degree Programme

The PhD programme requires two years of full-time residency, and can be completed in three to four years. The two principal requirements consist of comprehensive examinations in two fields (a major and minor field) and an original thesis. Course work will be required as appropriate to prepare the student for her or his comprehensive examinations. These examinations will

include both written and oral components. Before proceeding to the thesis, a student must present and defend a thesis proposal. Also, reading competence in a second language, usually French, must be demonstrated before the student begins work on the thesis. The thesis is written under the direction of a committee comprising the supervisor and two other members, and may include qualified faculty members from other departments and other universities. The completed thesis is subject to a public, oral defence.

Classes Offered

Classes offered by the Department are organized into four fields, as follows:

- Canadian Politics and Public Administration
- Comparative Politics
- Political Theory
- International Relations and Foreign Policy

Each field contains classes offered as core graduate seminars, and classes cross-listed at the undergraduate/graduate level. The latter usually contain a majority of undergraduate students, and graduate students will be required to satisfy appropriately higher standards. In addition, directed reading classes may be arranged on an individual or small group basis with appropriate faculty members. This will often be particularly appropriate in areas closely related to a student's thesis research, in conjunction with the thesis supervisor.

Not all classes are offered each year. A more accurate timetable will be available in the spring of each year.

Canadian Government and Politics

POLI 5204.06R Advanced Seminar in Canadian Politics: P. Aucoin and D. Cameron

POLI 5205.03A or B Canadian Political Thought: J. Smith

POLI 5206.03A or B Constitutional Issues in Canadian Politics: J. Smith

POLI 5212.03A or B The Politics and Government of Nova Scotia: P. Aucoin

POLI 5214.03A or B Quebec Politics: TBA

POLI 5216.03A or B Local and Regional Government: D. Cameron

POLI 5220A or B Intergovernmental Relations in Canada: H. Bakvis

POLI 5224.03A or B Canadian Political Parties: H. Bakvis

POLI 5228.03A or B Interest Groups: Representation, Management and Function: H. Bakvis

POLI 5233.03A or B Canadian Political Economy: R. Finbow

POLI 5235.03A or B Regional Political Economy in Canada: R. Finbow

POLI 5240.03A Policy Formation in Canada: P. Brown

POLI 5241.03B Introduction to Policy Analysis: P. Pross

POLI 5250.03A or B Canadian Public Administration: P. Aucoin

Comparative Politics

Core Graduate Seminars:

POLI 5301.03A or B Comparative Theory: R. Finbow

POLI 5340.03A or B Approaches to Development: T. Shaw

Cross-listed Classes:

POLI 5302.03A or B Comparative Development Administration: D. Black

POLI 5304.03A or B Comparative Federalism: H. Bakvis

POLI 5315.03A or B African Politics: D. Black

POLI 5360.03A or B Politics in Latin America: staff

POLI 5379.06R U.S. Constitution, Government, and Politics: J. Smith

Political Theory and Methodology

Cross-listed Classes:

POLI 5430.03A or B The Political Philosophy of Plato: TBA

POLI 5431.03A or B The Political Imagination in Literature: TBA

POLI 5445.03A or B Entitlement and Property: K. Fierbeck

POLI 5475.03A or B Democratic Theory: K. Fierbeck

POLI 5479.03A or B Classical Liberalism and Democracy: TBA

5496.03A or B Philosophy of the Social Science: TBA

International Relations & Foreign Policy

Core Graduate Seminar:

POLI 5520.06R Theories of International Relations: G. Winham

Cross-listed Classes:

POLI 5531.03A or B The United Nations in World Politics: R. Boardman

POLI 5535.03A or B The New International Division of Labour: T. Shaw

POLI 5537.06R Management and Conservation of Marine Resources: E.M. Borgese.

POLI 5540.03A or B Foreign Policies in the Third World: T. Shaw

POLI 5544.03A or B Conflict and Cooperation in Southern Africa: T. Shaw

POLI 5570.06R Canadian Foreign Policy: D. Stairs

POLI 5571.06R Strategy and Canadian Defence Policy: D. Middlemiss

POLI 5574.03A or B American Foreign Policy: G. Winham

POLI 5575.03A or B Nuclear Weapons and Arms Control in World Politics: D. Middlemiss

POLI 5581.03A or B Diplomacy and Negotiation: G. Winham

POLI 5585.03A or B Politics of the Environment: R. Boardman

POLI 5590.06R The Politics of the Sea: E.M. Borgese

POLI 5596.06R Theories of War and Peace: F. Harvey

Directed Reading Classes

Graduate students taking directed reading classes register under one of the following designations, depending on whether the class extends for the first term, the second term, or the full academic year:

POLI 5601.06R Readings in Political Science

POLI 5602.03A Readings in Political Science

POLI 5603.03B Readings in Political Science

Thesis

Students register for the thesis under the appropriate designation, as follows:

POLI 9000.00 MA Thesis

POLI 9530.00 PhD Thesis

Psychology

Location: Life Sciences Centre, 1356
Oxford Street, Halifax, N.S.
B3H 4J1
Telephone: (902) 494-3417
Fax: (902) 494-6585

Chairperson of Department

R.E. Brown

Professors

R.E. Brown, BSc (Victoria), MA, PhD (Dal)
P.J. Dunham, BA (DePauw), MA, PhD
(Missouri)
J.C. Fentress, BA (Amherst), PhD (Cantab)
W.K. Honig, BA (Swarthmore), PhD (Duke)
R. Klein, BA (SUNY), MA, PhD (Oregon),
Graduate Studies Coordinator
V.M. LoLordo, AB (Brown), PhD (Penn)
P. McGrath, BA, MA (Saskatchewan), PhD
(Queen's)
J.A. McNulty, BA, MA, PhD (Tor)
I.A. Meinertzhagen, BSc (Aberdeen), PhD (St.
Andrews)
D.E. Mitchell, BSc, MAppSc (Melb), PhD
(Berkeley)
S. Nakajima, BA (Chiba), MA (Wash), PhD
(McG)
H. Robertson, MSc (Western), PhD (Cantab),
Major appointment in Pharmacology
B. Rusak, BA (Tor), PhD (Berkeley)
S. Shaw, BSc (London), PhD (St. Andrews)
M.G. Yoon, BS (Seoul), PhD (Berkeley)

Associate Professors

J. Barresi, BS (Brown), MA (S Calif), PhD
(Wisc)
J.W. Clark, BA, MA (McG), PhD (Qu)
J.F. Connolly, BA (Holy Cross), MA (Sask),
PhD (London)
R. Croll, BSc (Tufts), PhD (McG), major
appointment in Physiology/Biophysics
B. Earhard, BA, MA, PhD (Tor)
J. McGlone, BA, MA, PhD (Western)
B.R. Moore, AB (Emory), PhD (Stanford)
C. Moore, BA (Cantab), PhD (Cantab)
M. Ozier, BA, MA, PhD (Tor)
D.P. Phillips, BSc, PhD (Monash)
K. Semba, BEd, MA (Tokyo), PhD (Rutgers),
major appointment in Anatomy

Assistant Professors

K. Davidson, BA (Queen's), MSc, PhD
(Waterloo)
P. McMullen, MSc (Tor), PhD (Waterloo)
M. Sullivan, MA, PhD (Concordia)

Honourary Adjunct Professors

J. Backman, MA, PhD (Carleton),
Education/Prov. of NS

C. Blisbury, BSc, PhD (Liverpool), Psych/Camp
Hill
S.E. Bryson, BA (Guelph), PhD (McG),
Psych/York
J.M. Byrne, MA, PhD (Kansas), Psych/IWK
H. Chipuer, BA (Sask), MA (Tor), PhD (Penn)
A.J. Cohen, BA (McG), MA, PhD (Qu),
Psych/UPEI
C. Ellsworth, MA, PhD (Queen's), Psych/IWK
G. Eskes, BA, PhD (Berkeley), Psych/VG
J. Fisk, BSc, MA, PhD (Western), Psych/Camp
Hill
J. Howes, BA (Dal), MA, PhD (Western),
Psych/Camp Hill
M. Lelzer, BA (Duke), MA (Vanderbilt), PhD
(Oregon), Psych/Acadia
G.W. MacDonald, BA (StFX), MA, PhD
(Windsor), Psych/IWK
C.C. Mate-Kole, BSc (Bruner), PhD (Leicester),
Psych/Rehab Centre
P. McLeod, BSc (Mt.A.), MSc (MUN), PhD (Dal)
P. O'Neill, MSc, PhD (Yale), Psych/Acadia
S. Pigott, BA (Western), PhD (McG),
Psych/Rehab. Inst. of Pittsburgh
G. Pretty, BSc, MSc (Acadia), PhD (Western),
Psych/SMU
K.E. Renner, BS (Penn), MA, PhD (Northwest),
Psych/Carleton
P. Ritvo, MA (Calif State), PhD (Calif Sch Prof
Psych), Psychology/Psychiatry/Camp Hill
R.S. Rodger, MA (Edin), PhD (Belf)
M. Schwartz, BSc (McG), MA, PhD
(Waterloo), Psych/VG
D. Symons, BSc (McM), MA, PhD (Western),
Psych/Acadia
T.M. Vallis, BSc (Dal), MA, PhD (Western),
Psych/Camp Hill

Senior Instructor

R.S. Hoffman, BSc (Col Coll), MA (Dal)

Instructor

J. Leary, BSc (Dal), MSc (Memorial), PhD
(Adelaide)

Postdoctoral Fellows

K. Krause, PhD (Dartmouth)
R. Maas, PhD (Nijmegen)
L. Nezlín, PhD (Moscow State Univ.)
H. Piggins, PhD (Ottawa)
G. Scott, PhD (Nottingham)
M. Tihova-Petrova, PhD (Moscow)
M. Vorenstova, PhD (Moscow State Univ.)
S.-W. Ying, MSc (Tianjin Medical Col.)

Admission Requirements

Candidates must satisfy the general
requirements for admission to the Faculty of
Graduate Studies.

Degree Programmes

The Department of Psychology offers graduate training leading to MSc, MA, and PhD degrees in Psychology, MSc and PhD degrees in Psychology/Neuroscience, and to a PhD in Clinical Psychology. Master's level students in Psychology and Psychology/Neuroscience are expected to advance into the corresponding PhD programmes. The Department does not have a "terminal" Master's programme nor does it offer a Masters degree in Clinical Psychology.

Psychology - The graduate programmes in Psychology emphasize training for research. They are best described as "apprenticeship" programmes in which students work closely with a faculty member who has agreed to supervise the student's research. Compared with many other graduate programmes, the Department places less emphasis on course work and greater emphasis on research, scholarship and independent thinking.

MSc/MA Degree Programme in Psychology

In addition to the Masters thesis (Psychology 9000.00), which is the major requirement of this programme, the Masters student must complete the following classes:

- Psychology 7500.06R: Methods of Psychological Inquiry
- Psychology 8001.03A: Fundamentals of Statistics and Experimental Design
- At least one other full credit of elective seminar(s)

During each residency year Masters students must register for and attend the weekly colloquium series (Psychology 8000.06R) and are required to do some teaching in the undergraduate programme. The minimum amount of teaching is the equivalent of no more than 10 hours/week for one term. This consists of working as a laboratory instructor, seminar leader, or teaching assistant.

PhD Programme in Psychology

Students are expected to conduct research leading to empirical, methodological and/or theoretical advances in their field of study, some or all of which will be included in their dissertation and defended publicly. In addition to the dissertation (Psychology 9530.06), which is the major requirement of this programme, students in the Ph.D. programme must complete the following classes (unless they were completed as part of the Masters program):

- Psychology 7500.06R: Proseminar in Methods of Psychological Inquiry

- Psychology 8001.03A: Fundamentals of Statistics and Experimental Design, and at least one other 1/2 credit class in the quantitative/analytic area
- Psychology 7100.03A: Seminar in Teaching Effectiveness
- 1 full credit of elective (with approval, this may be taken outside the department)

During each year in the Ph.D. programme students are required to register for Dissertation Research (Psychology 9530.06) and are encouraged to enrol in graduate seminars selected from the 8000 series. During each residency year students must register for and attend the weekly colloquium series (Psychology 8000.03) and do some teaching in the undergraduate programme (see Masters programme description). At least one year before submission of the dissertation students must also satisfy the comprehensive examination requirement. This requirement, which is administered by an examination committee of between three and five faculty members, entails completing at least three comprehensive 'projects' that are not directly related to the student's dissertation research.

Psychology/Neuroscience - The graduate programmes in Psychology/Neuroscience are coordinated jointly by the Psychology Department and an interdisciplinary Neuroscience Programme Committee with representation from the Departments of Anatomy, Biochemistry, Pharmacology, Physiology and Biophysics, and Psychology (see Neuroscience calendar entry). They are also designed as "apprenticeship" programmes in which students work closely with a Neuroscience faculty member who has agreed to supervise their research. Emphasis is placed on interdisciplinary research, scholarship and independent thinking rather than on course work.

MSc Degree Programme in Psychology/Neuroscience

In addition to the Masters thesis (Psychology 9000.00), which is the major requirement of this programme, the Masters student must complete the following classes:

- Psychology 7500.06R: Proseminar in Methods of Psychological Inquiry
- One full credit of Neuroscience (the core curriculum)
- Students are expected to take at least 1/2 credit of class work in the quantitative/analytical area

During each residency year Masters students must register for and attend a weekly colloquium series offered by one of the participating departments (such as Psychology 8000.03) and are required to do some teaching in the undergraduate programme. The minimum amount of teaching is the

equivalent of no more than 10 hours/week for one term. This consists of working as a laboratory instructor, seminar leader, or teaching assistant. Masters students must register for Psychology 9000.00 (Thesis). The Neuroscience and Psychology Graduate Programme Committees, in collaboration with the student and supervisor, will assess the needs of the student and determine any other requirements beyond the minimum outlined above.

PhD Degree Programme in Psychology/Neuroscience

Students are expected to conduct research leading to empirical, methodological and/or theoretical advances in their field of study, some or all of which will be included in their dissertation and defended publicly. In addition to the dissertation (Psychology 9530.06), which is the major requirement of this programme, students in the Ph.D. programme must complete the following classes (unless they were completed as part of the Masters programme):

- Psychology 7500.06R: Proseminar in Methods of Psychological Inquiry
- Psychology 7100.03A: Seminar in Teaching Effectiveness

During each year in the Ph.D. programme students are required to register for Dissertation Research (Psychology 9530.06) and are encouraged to enrol in graduate Neuroscience and/or Psychology seminars. During each residency year students must register for and attend a weekly colloquium series offered by one of the participating departments (such as Psychology 8000.03) and do some teaching in the undergraduate programme (see Masters programme description). The Neuroscience and Psychology Graduate Programme Committees, in collaboration with the student and supervisor, will assess the needs of each student and determine any other requirements beyond the minimum outlined above. At least one year before submission of their dissertation students must also satisfy the comprehensive examination requirement. This requirement, which is administered by an examination committee of between three and five faculty members, entails completing at least three comprehensive 'projects' that are not directly related to the student's dissertation research.

Clinical Psychology - The PhD programme in Clinical Psychology is cooperatively administered by the Psychology Department and the Clinical Programme Committee with representation from Acadia University, Dalhousie University, Mount Saint Vincent University, Saint Mary's University and professional psychologists from the teaching

hospitals. It is a structured five-year programme which follows the "scientist-practitioner" model. The department does not offer a Master's degree in Clinical Psychology.

PhD Degree Programme in Clinical Psychology

During the first four years of the Clinical Psychology programme students complete required and elective courses, conduct research and gain clinical experience through field placements (a minimum of 800 hours are required). Students are involved in research from the outset, and are expected to conduct research leading to empirical, methodological and/or theoretical advances in their field of study, some or all of which will be included in their dissertation and defended publicly. In the fifth year, students are placed in a full-year clinical internship. The Department does not offer a Master's degree in the Clinical Ph.D. programme, but students entering with a Master's degree in Psychology may receive advanced standing.

The following classes are required:

- Psychology 7500.06R: Proseminar: Methods of Psychological Inquiry
- Psychology 7000.03A or B: Seminar in Teaching Effectiveness
- Psychology 6200.06R: Psychological Assessment.
- Psychology 6205.06R: Interviewing and Intervention
- Psychology 6215.06R: Psychopathology and Treatment
- Psychology 6001.03A: Fundamentals of Statistics and Experimental Design. At least one other 1/2 credit class in the quantitative/analytic area.
- Psychology 6800.03A or B: Clinical Neuropsychology
- Psychology 8005.03A or B: Research Seminar
- Psychology 8201.03A or B: Ethics and Professional Decision-making
- Psychology 6220.06R: Seminar: Advanced Clinical Intervention
- at least two credits of elective seminars must also be completed.

Students in year one of the programme are required to register for Psychology 5000.06R Supervised Research. During each subsequent year in the Ph.D. programme students are required to register for Dissertation Research (Psychology 9530.06). During each residency year students must register for and attend the weekly colloquium series (Psychology 8000.03) Clinical rounds/Case Conference (Psychology 8010.06) and do some teaching in the undergraduate programme. The minimum

amount of teaching is no more than 10 hours/week for one term. This consists of working as a laboratory instructor, seminar leader, or teaching assistant. At least one year before submission of their dissertation students must also satisfy the comprehensive examination requirement. This requirement, which is administered by an examination committee of between three and five faculty members, entails completing at least three comprehensive 'projects' that are not directly related to the student's dissertation research.

Classes Offered

Required classes are offered on a regular basis. Other classes are offered, and seminar topics chosen, on the basis of faculty interests and student needs.

PSY 5000.06R Research Assignment: Staff

PSY 5001.03A Independent Study: Staff

PSY 5002.03B Independent Study: Staff

PSY 6001.03A or B Fundamentals of Statistics and Experimental Design: J. Barreal

PSY 6003.03A or B Multivariate Methods: M. Sullivan

PSY 6040.06R Animal Learning: W.K. Honig

PSY 6050.06R Perception: D.E. Mitchell

PSY 6051.03A or B Neural Basis of Perception: D. Phillips

PSY 6060.03A or B Biological Basis of Mental Illness: J. Connolly, B. Rusek

PSY 6071.03A or B Physiological Psychology: S. Nakajima

PSY 6081.03A or B Topics in Personality and Social Psychology: J. Barreal

PSY 6090.06R Biosocial Issues in Development: P. Dunham

PSY 6091.03A or B Topics in Child Development: P. Dunham, C. Moore

PSY 6100.03A or B Instrumentation and Computers in Psychology: D. Conrad, R. Hoffman

PSY 6130.03R Cognitive Psychology: R. Klein

PSY 6160.03A or B Comparative Psychology: R. Brown, J. Fentress

PSY 6200.06R Psychological Assessment

PSY 6205.06R Interviewing and Intervention

PSY 6211.03A or B Topics in Assessments: J. Connolly

PSY 6215.06R Psychopathology and Treatment

PSY 6220.06R Advanced Clinical Intervention: P. McGrath

PSY 6230.03A or B Psychology of Reading: R. Klein

PSY 6240.03A or B Topics in Animal Learning: W. Honig

PSY 6270.03A or B Comparative Neurobiology: I.A. Meinertzhagen, S.R. Shaw

PSY 6300.06R Cognitive Neuropsychology: R. Klein

PSY 6313.03A or B Topics in Cognitive Psychology: R. Klein

PSY 6370.03A or B Neuroscience Laboratory: M.G. Yoon

PSY 6410.03A or B Topics in Therapeutic Intervention: Staff

PSY 6420.03A or B Topics in Health Psychology: Staff

PSY 6470.03A or B Developmental Neuroscience: I.A. Meinertzhagen, S.R. Shaw

PSY 6580.06R History of Psychology: J.W. Clark

PSY 6600.03A or B Clinical Neuropsychology

PSY 6601.03A or B Dissociative Disorders: R. Klein

PSY 6602.03A or B Topics in Schizophrenia: J. Connolly

PSY 6603.03A or B Topics in Psychopathology: M. Sullivan

PSY 6604.03A or B Topics in Neuropsychology: J. McGlone

PSY 6610.03A or B Topics in Clinical Research Methods: P. McGrath

PSY 6620.03A or B Topics in Community Psychology: E. Renner

PSY 7100.03A or B Teaching Methods Seminar: P. Dunham

PSY 7500.06R Proseminar: Methods of Psychological Enquiry: R. Klein

PSY 8000.06R Psychology Colloquium: Staff

PSY 8005.03A or B Research Seminar

PSY 8010.06R Clinical Rounds/Case Conference

PSY 8040.06R Learning: W.K. Honig, V.M. LoLordo

PSY 8050.03A or B Selected Topics in Perception: D. Mitchell

PSY 8071.03A or B Selected Topics in Physiological Psychology: S. Nakajima

PSY 8081.03A or B Topics in Personality and Social Psychology: J. Barreal

PSY 8090.03A or B Biosocial Processes in Development: P. Dunham

PSY 8090.03A or B Topics in Child Development: P. Dunham, C. Moore

PSY 8100.03A or B Methodology in Psychology: Staff

PSY 8120.03A or B Clinical Methods and Issues: K.E. Renner

PSY 8130.06R Human Learning/Information Processing: B. Earhard, R. Klein, J. Barreal

PSY 8160.03A or B Ethology: R. Brown, J. Fentress

PSY 8201.03A or B Ethics and Professional Decision Making: Staff

PSY 8211.03A or B Topics in Assessments: J. Connolly

PSY 8240.03A or B Topics in Animal Learning: V. LoLordo

PSY 8313.03A or B Topics in Cognitive Psychology: R. Klein

PSY 8333.06R Field Placements

PSY 8410.03A or B Topics in Therapeutic Intervention: Staff

PSY 8420.03A or B Topics in Health Psychology: Staff

PSY 8801.03A or B Topics in Clinical Research Methods: P. McGrath

PSY 8802.03A or B Topics in Schizophrenia: J. Connolly

PSY 8803.03A or B Topics in Psychopathology: M. Sullivan

PSY 8804.03A or B Topics in Neuropsychology: J. McGlone

PSY 8820.03A or B Topics in Community Psychology: K.E. Renner

PSY 9000.00R MA Thesis

PSY 9530.00R PhD Thesis

Public Administration

Location: 1229 LeMarchant Street,
Halifax, N.S. B3H 3J5
Telephone: (902) 494-3742
Fax: (902) 494-7023

Director of School

Dale H. Poel

Associate Director and Graduate Co-ordinator

Fazley K. Siddiq

Professors

P. Aucoin, BA (SMU), MA (Dal), PhD (Qu),
Jointly with Political Science

H. Bakvis, BA (Qu), MA (UBC), PhD (UBC),
Jointly with Political Science

M.P. Brown, BA (MtA), MA (Dal), PhD (Tor)

J.D. McNiven, MSc, PhD (Michigan) Dean,
Faculty of Management

A.P. Pross, BA, MA (Qu), PhD (Tor)

Associate Professors

D.H. Poel, BA (Calvin), MA (W Mich), PhD
(Iowa)

F. Siddiq, BA, MA (Dhaka), PhD (Dal)

Assistant Professor

A. M. Cassin, BA (Man), MA (UBC), PhD, (Tor)

Special Lecturers

C. Blewett, BA, MPA (Dal)

K. Chaytor, BA (MSVU), MA, PhD (Dal)

M. Knox, BSc (Queen's Belfast), BEd (Dal),
MBA (SMU), MSc (Dal)

R. Moody, BComm (SMU), MPA (Dal)

K. Moors, BComm, MPA (Dal)

J. Novack, BComm, MPA (Dal)

A. O'Brien, BSc, LLD (Dal)

T. Vey, CMA

Students seeking further information or help in planning courses of study in the School of Public Administration should address themselves to:

Graduate Co-ordinator
School of Public Administration
1229 LeMarchant Street
Halifax, Nova Scotia B3H 3J5
(902-494-3742)

Degree Programmes

The graduate programmes of the School are designed to provide the professional education essential to a career in modern public service. They are offered to students who either are preparing for initial employment or are returning to university with work

experience. The School's location in Dalhousie's Faculty of Management allows students to develop an MPA programme that links public administration to business, the environment and the information sciences.

The programmes are professional in that they equip students with both the administrative skills required in public sector management and an understanding of the organization, process, and activities of government. Each component is essential, and consequently required of all students. They are expected to achieve an expanded awareness of the public interest and a personal appreciation of the ethical standards appropriate to a career in the service of the public. The professional requirements have been developed in consultation with senior officials of all levels of government (including graduates of the School).

Students entering the School will be expected to acquire an education as well as a profession, a matter which is properly of particular concern for a university-based programme. Accordingly, admission requirements for the Diploma and the MPA are those of the Faculty of Graduate Studies, and its standards must be maintained throughout the duration of the programme. The quantity and quality of work expected in individual classes will reflect the high scholarly standards of graduate education.

The curriculum encompasses the essential components of financial, personnel and statistical techniques on the one hand, and economic, organizational and policy analysis on the other. The Diploma programme and the first year of the two year MPA programme require students to complete courses in these basic fields. The second year of the MPA programme offers the student the opportunity to pursue further studies in one or more of these fields and to concentrate her or his programme in light of career plans. The offerings of related programmes and disciplines, such as economics, planning, business administration, health services administration, education, social work, law, and resource management, can be used by students as desired and necessary. The second year may include a research project in the field of concentration.

A one-year MPA is available to students who have completed, with a first-class standing, a BA honours degree in Public Administration, Political Science or Economics. Coursework in the honours degree must have included at least three of the five course credits required in the first year of the two-year MPA programme.

The School and the Faculty of Law offer a joint MPA/LLB programme. The programme allows students to take the two degrees

simultaneously and to complete them in four years, rather than in five years as is the case if each is taken independently. Students interested in entering the joint programme should apply separately to both the School and the Faculty, indicating in their applications that they wish to enter the MPA/LLB programme. The closing date for applications for the LLB is the end of February.

Applications Procedure

Application forms are available from the Admissions Office of Dalhousie University. Applications should be submitted as early as possible.

General Admission Requirement for DPA and MPA

Enrolment in the School is limited. In general, competitive applicants will have attained a good second class standing (B+ average) in their previous university work. About 15% of applicants have been accepted in recent years.

- Admission is based on an assessment of:
- professional experience and/or promise;
 - all previous academic work;
 - letters of reference;
 - TOEFL for foreign students (Test of English as a Foreign Language);

Therefore, it is imperative that in addition to your application we receive:

- a statement of career interest (one page should be sufficient);
- a current résumé;
- at least two letters of reference (one of which should be academic);
- a TOEFL score (if applicable)

Students may submit a score from the Graduate Management Admission Test (GMAT) in support of their application. In the case of North American candidates, applications for the test are accepted by the ETS in Princeton until approximately six weeks before test dates. For candidates in other countries, closing dates are eight weeks before test dates.

The Dalhousie School of Public Administration GMAT Number is 0957.

Applicants for the test should use an order form obtainable from the Registrar's Office of the nearest University, Dalhousie University, or you may write to the address below to obtain an information bulletin and registration form for the GMAT. If the order form is lost or omitted from the materials you receive, you should write directly to:

Graduate Management Admission Test
Educational Testing Service
Box 866

Princeton, N.J., 08540, U.S.A.

Students are required to demonstrate at an early stage in their studies that they are proficient in writing reports and essays in English. Candidates from countries outside Canada whose mother tongue is not English will be required to take the Test of English as a Foreign Language as a requirement for admission. (See section 2 of this calendar.)

For further information, contact the Administrative Secretary of the School.

Part-time Study

The programmes offered through the School are available to students on a part-time basis. A part-time student may enrol in up to two and one half full credit classes during the 12 months, September to August.

In order to ensure that graduate students benefit from a reasonable concentration of their studies, part-time programmes leading to the DPA must be completed within four years, and part-time programmes leading to the MPA must be completed within six years.

The Diploma in Public Administration (DPA) Programme

The Diploma in Public Administration is a one-year graduate programme designed for public servants who hold a first degree, and for students wishing to obtain professional preparation for a career in public administration.

Course Requirements

- The DPA requires the successful completion of five credits:
- PA 5100.03A Government Structure and Organization
- PA 5110.03B Public Sector Management
- PA 5120.03A Policy Formulation
- PA 5121.03B Introduction to Policy Analysis
- PA 5130.03A Applied Micro Economics
- PA 5131.03B Applied Macro Economics
- PA 5140.03A Quantitative Methods I
- PA 5141.03B Quantitative Methods II
- PA 5150.03A Public Sector Accounting
- PA 5151.03B Public Sector Financial Management

When a student has a demonstrated competence in the area of a required class, an alternate class may be substituted if approved by the Graduate Co-ordinator.

The Master of Public Administration (MPA) Degree Programme

The MPA is a graduate programme designed for individuals prepared to undertake advanced professional study. Individual programmes will vary in content to reflect each student's background and interests, while at the same time recognizing the central principles and functions of public administration.

Course Requirements

The two-year MPA will require the successful completion of 10 classes, which must include: PUAD 5100.03A, 5110.03B, 5120.03A, 5121.03B, 5130.03A, 5131.03B, 5140.03A, 5141.03B, 5150.03A, 5151.03B and 6000.03B. The remaining credits will be electives.

The one-year MPA will require the successful completion of five credits, including up to two credits from the 5000-level classes, the Senior Seminar (6000.03B), and at least two and a half elective credits.

Areas of Concentration

In the second year, students normally specialize in a concentrated programme, consisting of three credits in the field of specialization and electives, selected in consultation with the Graduate Co-ordinator. Concentrations are currently available in four areas: Personnel Management, Financial Management, Municipal Management, and Policy and Programme Management.

The LLB/MPA Programme

The combined LLB/MPA programme is a four-year programme which enables students to select classes leading to degrees of Master of Public Administration and Bachelor of Laws. The suggested order of the programme is:

- Year 1: First year classes of the MPA programme
- Year 2: First year classes of the LLB programme
- Year 3: One and a half credits from the MPA programme plus Civil Procedure, Constitutional Law, and 16 hours of classes from the LLB programme.
- Year 4: One credit from the MPA programme plus a minimum of 23 hours of classes from the LLB programme, which must include The Legal Profession and Professional Responsibility.

Candidates for the LLB/MPA programme must satisfy the entrance requirements of both programmes, and may obtain further information about the combined programme by writing either to the School of Public

Administration or to the Faculty of Law. For admission, students must apply to both the School of Public Administration and the Law School individually. Students applying for the MPA programme may submit LSAT results in lieu of GMAT results.

Advanced Standing

Advanced Standing of up to five credits (one year) may be granted to students who have completed graduate level classes which are relevant to the Masters in Public Administration Programme but which have not been used towards another degree. Students are advised to seek advanced standing when they apply for admission.

The Internship Programme

The Internship provides for formal integration of practical public service experience with academic studies in the MPA programme. It involves work by students for employers in the public service sector on projects deemed to be significant by the employer and appropriate to the skills of career-oriented graduate students. The terms of reference are established through consultation between the student, the participating employer, and the School.

The opportunity for an Internship placement is available to students who have completed one year of course work.

Previous work placements have been in the federal, provincial & municipal levels of government and in the private sector.

Classes Offered

PUAD 5100.03A Government Structure and Organization: P. Aucoin

PUAD 5110.03B Public Sector Management: M. Cassin

PUAD 5120.03A Policy Formulation: P. Brown

PUAD 5121.03B Introduction to Policy Analysis: P. Pross

PUAD 5130.03A Applied Micro Economics: F. Siddiq

PUAD 5131.03B Applied Macro Economics: F. Siddiq

PUAD 5140.03A Quantitative Methods I: M. Knox

PUAD 5141.03B Quantitative Methods II: H. Bakvis

PUAD 5150.03A Public Sector Accounting: T. Vay

PUAD 5151.03B Public Sector Financial Management: C. Blewett, K. Moors

PUAD 6000.03B Senior Seminar in Public Administration: P. Brown

PUAD 6100.03A Financial Administration & Budgeting: R. Moody

PUAD 6110.03A Public Sector Auditing: Staff

PUAD 6230.03A Intermediate Applied Economics I: F. Siddiq

PUAD 6231.03B Intermediate Applied Economics II: staff

PUAD 6235.03B Issues in Applied Economics: F. Siddiq

PUAD 6240.03B Social Cost Benefit Analysis: T. Pinfold

PUAD 6400.03A Local Government: D. Cameron

PUAD 6410.03B Municipal Management: A. O'Brien

PUAD 6420.03B Municipal Financial Administration: J. Novack

PUAD 6500.03A Business & Government: P. Pross, J. McNiven

PUAD 6505.03B Interest Groups: P. Pross

PUAD 6510.03A Policy Analysis: P. Pross

PUAD 6520.03A Programme Evaluation Seminar: K. Chaytor

PUAD 6521.03B Programme Evaluation Practicum: D. Poel

PUAD 6530.03A Natural Resource Administration: P. Pross

PUAD 6535.03B Politics & Administration of Fisheries Management: P. Pross

PUAD 6537.03A Environmental Policy: P. Brown

PUAD 6540.03B Canadian Regional Development Policy: F. Siddiq

PUAD 6600.03A Personnel Administration: M. Cassin

PUAD 6610.03B Compensation & Collective Bargaining: M. Cassin

PUAD 6620.03A Women and Men and Management: M. Cassin

PUAD 6625.03B Special Topics in Human Resource Management: M. Cassin

PUAD 6750.03A Intergovernmental Relations: H. Bakvis

PUAD 6755.03B Comparative Federalism: H. Bakvis

PUAD 6775.03B Management of Sustainable Development: B. Clarke

PUAD 6780.03B International Development Administration: D. Black

PUAD 6785.03B Advanced Quantitative Methods: F. Siddiq

PUAD 6800.06R Project: staff

PUAD 6850.06R Internship: P. Brown

PUAD 6900.06R Directed Reading: staff

PUAD 6910.03A Directed Reading: staff

PUAD 6920.03B Directed Reading: staff

PUAD 6925.03A or B Management Information Systems: staff

Not all classes are offered each year. Consult Department for current year offerings. In addition to the above, classes may be selected from other schools, departments, or faculties, subject to the approval of the Graduate Co-ordinator.

Recreation Physical & Health Education

Location: 6230 South Street, Halifax,
N.S. B3H 3H5
Telephone: (902) 494-2152
Fax: (902) 494-5120

Acting Director of School

J.F. McCabe

Professors

R.P. Beazley, BA, BEd (Acadia), BPE (McM), MPE (Dal), EdD (Tennessee)

E.G. Balzer, Jr., BS (West Chester), MS (Maryland), PhD (Illinois)

L.E. Hoyt, BS, MS (Springfield), PhD (S Illinois)

B. Keddy, BScN (MSVU), MA, PhD (Dal), RN, major appointment in the School of Nursing

A. Richards, Dip PE (Carnegie Schl PE, England), Teach Cert (Trent Park Col), MSc (Dal), EdD (Colorado)

J.F. Singleton, BA (Waterloo), MS (Penn State), PhD (Maryland)

A.J. Young, BS (West Chester State Col), MS, PhD (Maryland)

Associate Professors

H.C. Ballem, BPE (UNB), MSc (Dal), Head of the Leisure Studies Division

P.D. Campagna, BPHE (Windsor), BEd (Queen's), MEd (SUNY-Buffalo), PhD (Alta)

G.C.B. Elder, DipPE Adv (St. Mary's, London), MEd (Georgia Southern), PhD (McM)

N.M. Ipson, BA, MS, PhD (Brigham Young)

R.L. Kirby, MD (Dal), FRCP(C), major appointment in Medicine

C.L. Kozey, BPE (UNB), BSc (Waterloo), PhD (Dal), major appointment in the School of Physiotherapy

R.F. Lyons, BA (Dal), MEd (Xavier), PhD (Oregon), Graduate Co-ordinator of the Leisure Studies Division

L. Makrides, MCSP, BPT (Sask), MSc (Ottawa), PhD (McM), major appointment in School of Physiotherapy

T.L. Maloney, BPE, BEd (Alta), MA (Western), PhD (Alta), Graduate Co-ordinator of the Health Education Division

J.F. McCabe, BPE, BA (UNB), MS, EdD (Tenn), Graduate Co-ordinator of the Kinesiology Division

L.L. McIntyre, MD, MHSc (Tor), FRCP(C), Dean of the Faculty of Health Professions, joint appointment in Health Services Administration

C.A. Putnam, BPE (Man), MS (Wash), PhD (Iowa)

P.D. Richards, Teach Cert (Trent Park Col), Laban Arts of Movement Centre Cert (England), MA (Colorado)

C.A. Savoy, BPE (UNB), EdM (Boston), PhD (Tenn)

L.J. Verabloff, BA, BPHE (Queen's), MS (Mich), PhD (Ohio State), Head of the Physical Education and Kinesiology Division

Assistant Professors

L.J. Barnes, BPE, MSc (Dal)

C.D. Hood, BPE (Calgary), MS, PhD (Illinois)

C.R. Mangham, BEd, MA (UBC), PhD (Oregon)

D.P. McGuire, BA (Wright State), MA (Cincinnati), Head of the Health Education Division

The School of Recreation, Physical, and Health Education offers master's degree programmes in three areas: Master of Arts in Health Education, Master of Science in Kinesiology and Master of Arts in Leisure Studies. There are ongoing research programmes conducted in each of the areas of health education (basic health-related research and evaluation of school and community health education/health promotion policies, programmes, practices and content), kinesiology (exercise physiology, motor behaviour, biomechanics) and leisure studies (leisure and youth, women and the family, disabled persons, gerontology; sports history and sport sociology).

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies.

Students seeking admission to any of the masters programmes should have earned an excellent record during four years of undergraduate study. Qualifying work may be required of applicants whose background for advanced studies in Health Education, Kinesiology, or Leisure Studies is judged deficient.

Students from undergraduate programmes in related fields (other than Health Education, Kinesiology, or Leisure Studies) will be considered for graduate study in the School.

Programme Requirements

One full academic year (12 months) of resident study at Dalhousie University is a minimum requirement for the master's degrees. Although the MA and MSc degree programmes officially have a one-year residency requirement, students should expect to take from 18 to 24 months of full-time work to complete the degree. Ordinarily, for full-time students, the degree must be completed within three year of first registration.

Five credits (30 credit hours) at the graduate level are required in all programmes - 18 credit hours of classes and 12 credit hours

of thesis work. Required and elective classes for each programme are described below. Beyond the required classes, the classes are selected from the electives list for the appropriate programme. Each class is worth 3 credit hours. In addition, graduate classes from other departments at Dalhousie University may be used to fulfil degree requirements. When applicable, students may transfer as many as nine credit hours of graduate classes from other universities. In certain instances, undergraduate classes may count toward requirements for a master's degree.

The thesis topic will be determined by the student and academic advisor. A thesis proposal must be approved by the candidate's thesis examination committee, which consists of at least three examiners (at least two of whom are members of the School's graduate faculty), before the thesis research may be undertaken. The candidate's advisor (i.e., research supervisor) is not a voting member of this committee.

Once the proposal has been approved by the thesis examination committee, it shall be submitted to the appropriate ethics committee for consideration. Only after approval has been received from both the thesis examination committee and the ethics committee, will data collection proceed on the research.

The thesis examination committee is responsible for approving the completed thesis after a final oral presentation by the student covering the nature and findings of the research.

Students may take a maximum of 6 credit hours of ancillary courses above and beyond the required programme of study.

Completion of the degrees is also possible through part-time study.

However, financial assistance is not available for students undertaking the degree on a part-time basis.

Master of Arts Degree Health Education

While the general goal of health education is to promote the maintenance and enhancement of individual, family, and community health through educational processes, the Master of Arts (Health Education) focuses on the evaluation of health education programmes. Its graduates are prepared to assume major roles and responsibilities in evaluation of and research concerning health education activities.

Required Classes: 24 credit hours

HEED 8000.00R Thesis: 12 credit hours

EDUC 5811.03A Quantitative Research Methods

or

LST 5501.03B Advanced Social Research Methods

HEED 5503.03A Intermediate Statistics for the Health Sciences

OR

EDUC 625B Intermediate Statistics & Research Design (Mount St. Vincent University) Prerequisites: Before entering either LST 5501.03 or EDUC 625 students must have completed an introductory course in statistics with at least a "B" grade.

HEED 5595.03B Measurement & Evaluation in Health Education and Health Promotion

HEED 5514.03A Trends in Health Education

OR

HEED 5516.03B Theoretical & Scientific Bases of Health Education

Elective classes: 8 credit hours

HEED 5600-5699 Independent Studies: Staff. Class numbers and titles are assigned by the School - open to independent completion of study. Interested students should consult the Graduate Coordinator of the Health Education Division.

Students are encouraged to elect courses outside the Health Education Division that may help in the development of their research and/or professional interests, as well as courses within the Division. Electives must be approved by the student's advisor.

The Health Education Division holds research-oriented seminars during the Fall and Spring semesters. It is expected that Master's students will attend and participate in these seminars as discussants and presenters.

Master of Science Degree Kinesiology

Required Classes

KIN 5501.03 Research Methods for Natural Sciences: L.E. Holt, 3 credit hours

KIN 9000.00R Thesis: 12 credit hours

Elective Classes

Please note: not all classes listed below are offered every year. Please consult the timetable or the Graduate Coordinator of Kinesiology for a current list of courses offered.

KINE 5503.03 Interdisciplinary Statistics for Health Sciences: staff

KINE 5510.03 Cardiorespiratory Dynamics in Exercise: P.D. Campagna

KINE 5516.03 Neuromuscular Physiology: G.C.B. Elder

KINE 5520.03 Advanced Anatomy and Kinesiology: L.E. Holt

KINE 5523.03 Biomechanics of Human Motion: C.A. Putnam

KINE 5524.03 Research Techniques in Biomechanics: C.A. Putnam

KINE 5530.03 Motor Learning and Performance: J.F. McCabe

KINE 5572.03 Topics in Human Performance: J.F. McCabe

KINE 5580.03 Principles of Skill Acquisition: L.J. Verabioff

KINE 5600-5699 Independent Studies: staff, Class numbers and titles assigned by School - open to independent completion of study. Interested students should consult with the Graduate Coordinator of Kinesiology.

The Kinesiology Division conducts weekly research-oriented seminars during the academic year. Graduate students are expected to attend as part of their programme of studies.

Master of Arts Degree Leisure Studies

Required Classes

LEIS 5501.03 Advanced Social Research Methods: Staff, 3 credit hours

LEIS 5503.03 Interdisciplinary Statistics for Health Sciences: staff, 3 credit hours

OR

another intermediate statistics class approved by the Leisure Studies Graduate Co-ordinator.

LEIS 5592.03 Interdisciplinary Basis of Leisure Science: Staff, 3 credit hours

LEIS 9000.00R Thesis: 12 credit hours

Total: 21 credit hours

Elective Classes

LEIS 5512.03 Lifestyles of Ill and Disabled Persons: R.F. Lyons

LEIS 5550.03 Historical Analysis of Sport and Culture: A.J. Young

LEIS 5560.03 Sociological and Cross Cultural Perspectives on Sport: Staff

LEIS 5561.03 Gender, Leisure and the Family: Staff

LEIS 5562.03 New Perspectives on Youth: A. Richards

LEIS 5563.03 Leisure Behaviour in Older Adults: J.F. Singleton

LEIS 5600-5699 Independent Studies: staff. Class numbers and titles assigned by School - open to independent completion of study. Interested students should consult with the Graduate Coordinator of the Leisure Studies Division.

The Leisure Studies Division conducts weekly research-oriented seminars during the academic year. Graduate students are expected to attend as part of their programme of studies.

Social Work

Location: 6414 Coburg Road, Halifax, N.S. B3H 3J5
Telephones: (902) 494-3780

Director of School
J. Gilroy

Professors

R.W. Carlson, BA, MSW (Penn), PhD (Chicago)
J.E. Cummings, BA (Dal), MSW (StFX), DSW (Tor)
D.P. Kerans, BA (Loyola), MA (St. Louis), STL (Innsbruck), DRS (Straasbourg)
D. Moore, DipSocStud (Lond.), BA, MA (Dal), PhD (Boston)
F.C. Wien, BA (Qu), MA, PhD (Cornell)

Associate Professors

M.L. Courtney, BA (Dal), MSW (SMU)
G. Fitzgerald, BA (Dal), MSW (King's)
J. Gilroy, BA (Dal), MSW (King's), MA (Tor)
R. O'Day, BA (UBC), MA, PhD (Mich)
D. Williams, AB (Chicago), MSW (Calif), PhD (Brandeis)
R. Williams, BA (Acadia), MA (Tor), EdD (OISE)

Assistant Professors

J.B. Duplisa, BA, MSW (MtA)
J. Harblson, BA, BSS (Dublin), Grad Dip SW (Edinburgh), PhD (Tor)
R. Neal, BSW (McM), MSW (Tor)
B.K. Richard, BA (MtA), MSW (Dal), Graduate Studies Co-ordinator
A. Sexton, BA (St. Thomas), MSW (Dal)
W. Thomas-Bernard, BA (MSVU), MSW (Dal)

Field Instructors 1993-94

Jackie Berkley
Ann Blahop
Bonnie Carlson
Jane Cobden
Cathy Coffin
Deborah Dostal
Carolyn Fowler
Sharon Gibson
Carmen Johnson-Chapman
Jack Landesville
Jean McLelland
Patti Mel
Jan Morrell
Rose Raftus
Linda Roberts
Sara Shaw
Carol Short
Betty Smith

Master of Social Work (MSW)

The one year MSW programme is intended to advance knowledge about the resolution of social problems in Canada and the Maritime region, and especially to increase the effectiveness of regional social services. It offers professional social workers, and other persons with an outstanding background for social work, an opportunity to study in-depth subject matter of interest to the student.

Two areas of specialized study are available: Community Practice and Individual and Family Practice. The latter offers the choice of one of two concentrations: Family and Child Welfare or Physical and Mental Health.

Admission Requirements

MSW candidates are expected to hold a Bachelor of Social Work degree, or an equivalent degree in Social Work, from a university or recognized standing. The minimum requirements for admission to the Faculty of Graduate Studies apply with respect to academic average and English language competency. Relevant work experience is also an important prerequisite for admission to either of the Social Work specializations. Applicants should show evidence of personal maturity and suitability for social work.

Candidates with a baccalaureate degree in a discipline other than Social Work may apply for a qualifying year programme, provided that they have several years of significant social work or exceptional community practice experience. Students accepted to a qualifying year must reapply for admission to the MSW programme. Similarly qualified candidates with a master's degree may apply for a two-year MSW degree programme, for which the content of study in the first year is equivalent to that of the qualifying year but reapplication for the second MSW year is not required.

The programme is normally taken in the form of one full-time academic year, or three part-time academic years in accordance with the recommended part-time course sequencing policy. Any other part-time arrangements require careful consideration and formal approval. All applicants must demonstrate a sound plan of study. The Proposal for Study, submitted with the application for admission, describes areas of particular interest to the applicant and their relevance to her/his background experience and the area of specialization (and concentration) chosen. The student may, however, make adjustments to the stated focus of study after enrolment, in consultation with the faculty advisor. (Further details are contained in the MSW Programme Brochure.)

Affirmative Action Policy

The Maritime School offers affirmative treatment of applications for admission from indigenous minorities - Aboriginal, Acadian and Black - of the Atlantic Region.

Application

MSW Programme brochures and application packages are available throughout the year from the Registrar's Office, Dalhousie University. Further information may be obtained from the Admissions Co-ordinator, Maritime School of Social Work. The deadline for receiving applications and all supporting documentation is February 15th.

The Programme

The Master of Social Work is a five-credit programme of study consisting of the following three components: a core component which includes a one-credit theory class, a one and one half-credit practice class, and a one-credit Master's project or a one and one half-credit Master's thesis; an elective component which includes one and one-half credits of study in selected areas of interest for students who enrol in the Master's project, or one credit of study for students who enrol in the Master's thesis; and a non-credit colloquium component.

Students are assisted in choosing between a project or thesis and in selecting a suitable topic and faculty advisor. The Master's Project is intended to be completed within one year of full-time study or three years of part-time study. The Master's Thesis may be expected to require an extension for an additional six months to one year of registration in the programme for full-time students, or an additional one to one and one-half years for part-time students.

Field Experience

Students should note that the required applied theory and practice class (1 1/2 credits) of the MSW programme includes a field experience component of 400 hours in an appropriate agency other than the place of employment. This is taken between September and March concurrently with the classroom seminar.

Part-time Study

Students accepted on a part-time basis attend the same classes as full-time students. All core classes are scheduled during afternoon hours only.

The core classes are taken in sequence, beginning with one-credit of advanced Social Work theory (SLWK 6335.06R, or 6380.03A or B and 6385.03A or B) in the first year. The one and one-half credit applied theory and

practice class, which includes the field placement (SLWK 6340.09 or 6345.09 or 6390.09), is taken in the second year. The Master's Project or Thesis is undertaken in the third year.

The electives and the non-credit colloquium may be taken concurrently with the core classes at any point in the programme.

Classes Offered

Students register for only those classes that apply to the concentration in which they have been accepted.

Individual and Family Practice Specialization

Required Courses

SLWK 6335.09R Theory and Methods of Intervention: 1 credit
and

SLWK 6340.09R Social Work in Family and Child Welfare: 1 1/2 credits, for students of this concentration

OR

SLWK 6345.09R Social Work in Physical and Mental Health: 1 1/2 credits, for students in this concentration

and

SLWK 6020.06R Master's Project in Individual and Family Practice: 1 credit, open to independent completion of study

OR

SLWK 6030.09R Thesis in Individual and Family Practice: 1 1/2 credits, open to independent completion of study

Community Practice

Required Courses

SLWK 6380.03A or B The Social Policy Context of Community Work: 1/2 credit

SLWK 6385.03A or B Community and Social Change Analysis: 1/2 credit

SLWK 6380.03 and 6385.03 constitute the one-credit theory class.

and

SLWK 6390.09R The Theory and Practice of Community Work: 1 1/2 credits

SLWK 6240.06R Master's Project in Community Practice: 1 credit, open to independent completion of study

OR

SLWK 6230.09R Thesis in Community Practice: 1 1/2 credits, open to independent completion of study

Electives

All students are required to enrol in the one-half credit Social Work elective Cross Cultural Issues. Another one-half credit elective must be taken outside the Maritime School. The third elective taken by students who opt to do the Master's Project may either be a Social Work class or a class selected from another discipline.

The following Social Work electives are offered:

SLWK 5220.03A or B Cross Cultural Issues for Social Workers: (compulsory)

SLWK 6385.03A or B Community Socio-Economic Development: (not offered 1994-95)

SLWK 6370.03A or B Advanced Practice Skills

SLWK 6375.03A or B Group Dynamics

Colloquium

Students are also required to register for a non-credit series of colloquia dealing with contemporary issues in social work:

SLWK 5990.00 Colloquium: (Non-credit)

Required Withdrawal from the Master of Social Work Programme

The MSSW acting through its Programme Committee and its Director may require a student to withdraw if judged to be unsuitable in aptitude and fitness for the profession of Social Work. Because of the nature of the study and practice of Social Work, which places clients in a position of special trust in relation to social workers and social work, certain impairments or some types of conduct unbecoming to a member of the social work profession may be grounds for dismissal, or suspension. Aptitude and fitness for the profession of Social Work, as determined by the M.S.W. Programme Committee, are requirements for continuation in the programme.

The following list of examples illustrates the criteria used to assess the unsuitability in aptitude and fitness. This list should not be considered to exclude other such behaviours:

- (i) conviction for criminal activity (e.g. assault, sexual assault, fraud and drug trafficking);
- (ii) persistent substance abuse (e.g. alcoholism, drug addiction, use of illegal drugs);

(iii) any medical condition which affects an individual's ability to perform as a social worker if that condition is chronic and/or recurring and affects judgement;

(iv) unethical behaviour (see C.A.S.W. Code of Ethics, 1983)

The Committee will consider the student's situation in confidence and shall determine whether the student is fit for the study and practice of Social Work. The principles of natural justice and due process will be observed in all Committee deliberations.

Sexual Harassment

See Advisory Committee on Sexual Harassment in the Resources and Services section of this calendar.

Sociology and Social Anthropology

Location: Corner of Seymour and South Streets, Halifax NS B3H 3J5

Telephone: (902) 494-6593

Fax: (902) 494-2897

Chairperson of Department

Richard Apostle

Professors

R. Apostle, BA (Simon Fraser), MA, PhD (Calif, Berkeley)

J.H. Barkow, AB (Brooklyn), AM, PhD (Chicago)

M. Binkley, BA, MA, PhD (Tor)

D.H. Clairmont, BA, MA (McM), PhD (Wash)

M. Cohen, Jr., BA (Mich), DMD (Tufts), MSD (Minn), PhD (Minn), major appointment in Oral Pathology

F. Cohen, BA (Harv-Rad), MEd (Harv), PhD (Minn), major appointment in Resource and Environmental Studies

J.L. Elliott, BA (Wells), MA (Kan), PhD (Pitt)

H.V. Gemberg, BA (Brandeis), AM, PhD (Princeton)

B. Keddy, BScN (MSVU), MA, PhD (Dal), major appointment in Nursing

V. Thlessen, BA (Man), MA, PhD (Wis)

Associate Professors

J. Benoit, BA, MA (Guelph), PhD (Johns Hopkins), major appointment in Henson College

P.M. Butler, BA, MA, PhD (Tor)

D.H. Elliott, BA (Yale), PhD (Pitt)

T. Li, BA, PhD (Cambridge)

R. Lyons, BA (Dal), MEd (StFX), PhD

(Oregon), major appointment in Recreation, Physical and Health Education

V.P. Miller, BA (Calif, Berkeley), MA, PhD (Calif, Davis)

J.G. Morgan, BA (Nott), MA (McM), DPhil (Oxon)

C. Murphy, BA (StFX), MA (Dal), PhD (Tor), Graduate Co-ordinator

J.F. Singleton, BA (Waterloo), MS (Penn State), PhD (Maryland), major appointment in

Recreation, Physical, and Health Education

J.D. Stolzman, BA (Ore), MS (Fla), PhD (Ore)

Assistant Professors

P.G. Clark, BA, MA (McM), PhD (UBC)

D. Findlay, BA, BSW, MA, PhD (McM)

P. Gardiner Barber, BA, MA (Auckland), PhD (Tor)

J. Jarman, BA, MA (Tor), PhD (Cambridge)

Honorary Adjunct Professors

B. Franck, Dip.Ed. (NSTC), BA, BEd, MEd (Acadia), PhD (Dal), MSVU

J. Gordon, BA (Antioch), MA, PhD (S. Illinois), MSVU
R.C. Kaili, BA (Dal), BD, MA (Tor), PhD (McG)
L. Kasdan, MA, PhD (Chic)
D. Looker, BA (Carleton), MA (Waterloo), PhD (McM), Acadia University

Honorary Research Associates

A. Davis, BA (SMU), MA (Man), PhD (Tor), St. Francis Xavier University
T. Thomson, BA, BEd, MA (Dal), PhD (Cambridge), Acadia University

The Department of Sociology and Social Anthropology offers a programme of both full-time and part-time study leading to the degree of Master of Arts in Sociology or to the Master of Arts in Social Anthropology.

Admission Requirements

All candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. Candidates will normally be expected to hold a four-year degree in sociology or social anthropology with at least an upper second class (B+) standing. It is expected that a candidate's undergraduates work will have included classes in theory and methods which are appropriate to the particular discipline, research methods and statistics. Promising applicants who fail to meet these requirements may be admitted to a qualifying year which, if successfully completed, would permit subsequent enrolment in the MA programme.

MA Degree Programme

For the minimum time required to complete these programmes, see Section 5.1. A full-time programme is normally of one year's duration. Part time students in a one-year programme are expected to complete all requirements within four years of their initial enrolment in the programme.

The normal programme is made up of five full credits. A thesis (SOSA 9000.00), worth two credits, is required as are the following classes: Graduate Seminar (SOSA 5200.06R) and Area Examination (SOSA 5300.06R). An elective class (or two one-half credits) approved by the Graduate Education Committee constitutes the final credit.

An examination in the student's chosen area of specialization as well as defence of a thesis proposal are required.

Classes Offered

Classes may not be offered every year. Please consult the current time table on registration to determine if these classes are offered.

SOSA 5004.03A or B Issues in Work and Industry: Regional and International Perspectives

SOSA 5005.03A or B Issues in Social Disorder and Human Justice

SOSA 5006.03A or B Issues in Health and Illness

SOSA 5011.03A or B Issues in Social Theory

***SOSA 5012.03A or B Special Topics in Sociology and Social Anthropology**

SOSA 5200.06 Graduate Seminar

SOSA 5300.06 Area Examination

****SOSA 5510.03A or B Graduate Readings in Sociology**

****SOSA 5520.03A or B Graduate Readings in Sociology**

SOSA 9000.00 MA Thesis

* Please consult the department for specific class descriptions. The topics will change from year to year.

** Permission of the graduate education committee is required for registration in these classes.

1994

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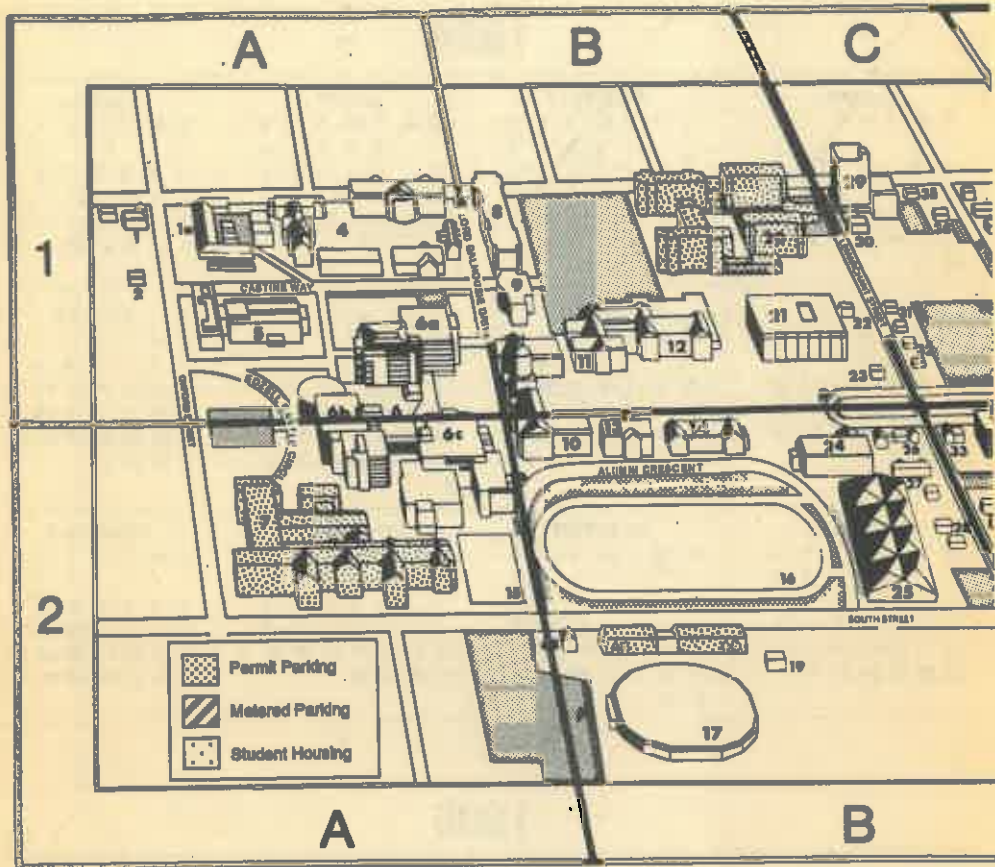
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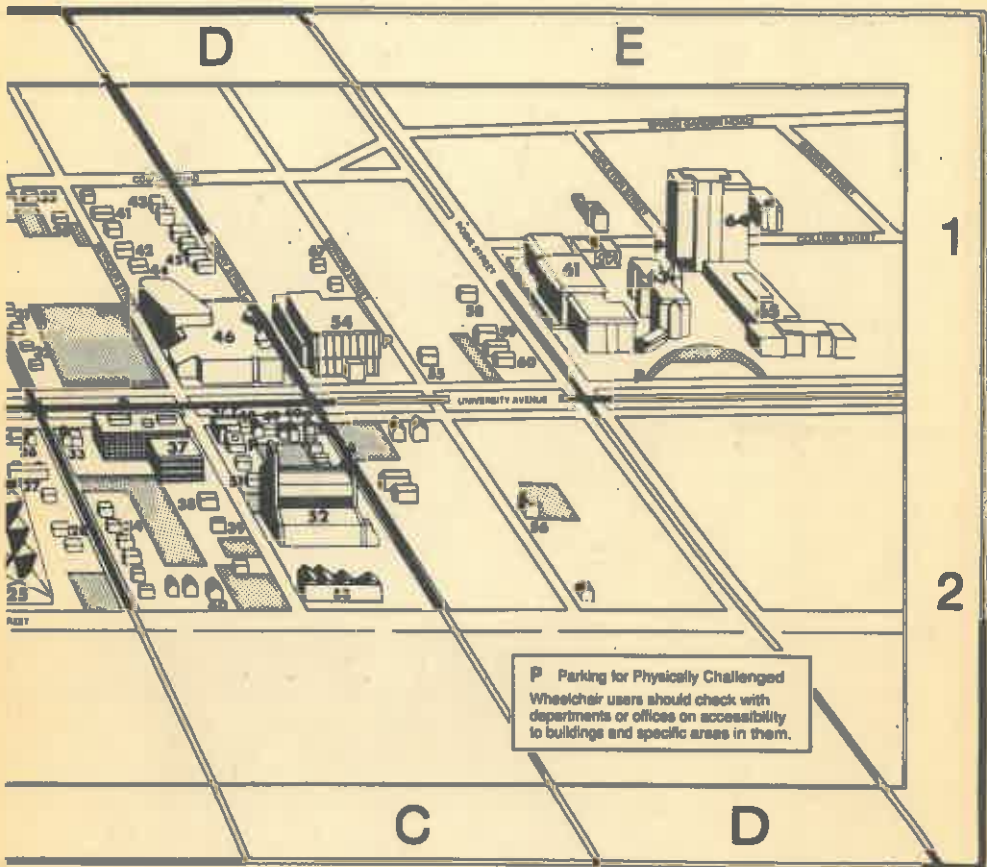
SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER												
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					1	2						1	2	3	4							1	2	3	4							1	2
3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9						
10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16						
17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23						
24	25	26	27	28	29	30	29	30	31					26	27	28	29	30			24	25	26	27	28	29	30						

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- | | |
|--|---|
| Admissions — 10 (B1, B2) | Eliza Ritchie Hall — 68 (B2) |
| Alumni Office — 11 (B1) | English — 42, 43 (C1) |
| Arts and Administration Building — 10 (B1, B2) | Forrest Building — 63 (E1) |
| Arts Centre — 48 (C1) | French — 23 (B1), 32 (C1) |
| Biology — 6a (A1) | German — 31 (C1) |
| Bookstore — 37 (C2) | Graduate House — 33 (C2) |
| Burbridge Building — 62 (E1) | Henson College — 47, 48, 49, 50, 51 (C2) |
| Business Administration, School of — 29 (C1) | History — 41 (C1) |
| Canadian Studies — 36 (C1) | Housing Office — 37 (C2) |
| Central Services Building — 52 (C2) | Howe Hall — 20 (B1) |
| Chase Building — 8 (B1) | International Development Studies — 38 (C1) |
| Chemistry — 11, 12 (B1) | International Student Centre — 67 (D1) |
| Classics — 27 (B2) | Killam Library — 21 (B1) |
| Comparative Religion — 23 (B1) | King's College — 4 (A1) |
| Computer Centre — 21 (B1) | Law Building — 54 (D1) |
| Counselling and Psychological Services — 37 (C2) | Life Sciences Centre — 6a,b,c (A1, A2) |
| Dalplex — 17 (B2) | Macdonald Building — 11 (B1) |
| Day Care — 1a (A1), 6c (A2) | Mathematics, Statistics, Computing Science — 9 (B1) |
| Dentistry and Dental Hygiene — 61 (E1) | Medicine — 64 (E1) |
| Development Office — 11 (B1) | Multidisciplinary Centre — 38 (C1) |
| Disabled Student Advisor — 37 | Nursing, School of — 63 (E1) |
| Dunn Building — 8 (B1) | Occupational Therapy, School of — 63 (E1) |
| Earth Sciences — 6a (A1) | Oceanography — 8b (A1, A2) |
| Economics — 28 (B2) | Part-time Studies (Centre for Community Education — 48, 49, 50 (C2) |
| Education — 14 (B2) | |
| Engineering — 8 (B1) | |

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- Pharmacy, College of — 62 (E1)
- Philosophy — 45 (C1)
- Physics — 8 (B1)
- Physiotherapy, School of — 63 (E1)
- Political Science — 10 (B1, B2)
- Psychology — 6c (A2)
- Public Administration, School of — 34 (C2)
- Public Relations — 11 (B1)
- Registrar's Office — 10 (B1, B2)
- Recreation, Physical and Health Education,
School of — 19 (B2)
- Resource and Environmental Studies — 60 (D1)
- Rink — 25 (B2)
- Russian — 22 (B1)
- Security Services — 40 (C2)
- Shirreff Hall — 7 (A2)
- Social Work — 1 (A1)
- Sociology and Social Anthropology — 53 (C2)
- Spanish — 22 (B1)
- Student Union Building — 37 (C2)
- Studley Gymnasium — 24 (B2)
- Theatre — 46 (C1)
- Transition Year Program — 30 (C1)
- Tupper Building — 64 (E1)
- University Club — 13
- University Health Services — 20 (B1)

Women's Studies — 36 (C1)

For specific locations of offices and departments, consult the university switchboard, 494-2211, the Halifax-Dartmouth telephone directory, or the Dalhousie telephone directory.

January 1994

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For further information

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