

DALHOUSIE

U N I V E R S I T Y



GRADUATE STUDIES
CALENDAR

1993/94

KIM STEWART

DALHOUSIE

U N I V E R S I T Y

GRADUATE STUDIES

1993/94
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) 494-2450
Fax: (902) 494-1830

Table of Contents

Table of Contents

Schedule of Academic Dates	1
Definitions	2
Dalhousie University	3
Executive Officers	4
Academic Degrees and Diplomas	6
Special Institutes	7
Resources and Services	9
Financial Aid	18
General Information	18
Dalhousie Undergraduate Bursaries	19
Fees	20
University Regulations	29
Guide to Responsible Computing	32
Faculty of Graduate Studies	35
Administrative Officers	35
Council and Standing Committees	35
Faculty Regulations	36
Interdisciplinary and Joint	
Programmes	47
Interdisciplinary PhD	47
Neuroscience	48
Departmental Listings	50
Anatomy and Neurobiology	51
Biochemistry	53
Biology	55
Business Administration	60
Chemistry	67
Classics	70
Earth Sciences	72
Economics	74
Education	79
English	83
Environmental Studies	86
French	89
German	92
Health Services Administration ..	93
History	96
Human Communication Disorders	99
Interdisciplinary Studies	102
Law	102
Library & Information Studies ...	106
Marine Affairs Programme	109
Math, Stats, & Computing Science	110
Microbiology and Immunology ..	113
Neuroscience	114
Nursing	115
Oceanography	116
Oral and Maxillofacial Surgery ..	119
Pathology	120
Pharmacology	122
Pharmacy	124
Philosophy	126
Physics	129
Physiology and Biophysics	131
Political Science	133
Psychology	136
Public Administration	140
Recreation Physical & Health Education	144
Social Work	146
Sociology and Social Anthropology	149
Calendar	151
Campus Map	152

Schedule of Academic Dates

1993-94

Classes offered at Dalhousie have one of the letters "A", "B", "C" 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" and "C" classes are given throughout the entire session ("R" classes carry one full credit or more, "C" classes carry less than one full credit).

1993

May

- 5 Last day to register, Spring Session
- 10 Classes begin, Spring session
- 14 Last day to cancel registration in or to add "A", "C", and "R" classes, Spring session
- 19 Last day to withdraw without academic penalty from "A" classes, Spring session
- 24 Victoria Day - University closed
- 25-28 Spring Convocations

June

- 2 "A" Classes end, Spring session
- 3 "B" Classes begin, Spring session
- 4 Last day to withdraw without academic penalty from "R" and "C" classes, Spring session
- 9 Last day to cancel registration in or to add "B" classes, Spring session
- 14 Last day to withdraw from "B" classes without academic penalty, Spring session
- 25 Classes end, Spring session
- 30 Last day to register, Summer session

July

- 1 Canada Day - University closed
- 2 Last day to apply to graduate in October
- 5 Classes begin, Summer session
- 9 Last day to cancel registration in or to add "A", "R", and "C" classes, Summer session
- Last day to register with late fee, Summer session
- 14 Last day to withdraw without academic penalty from "A" classes, Summer session
- 27 "A" Classes end, Summer session
- 28 "B" Classes begin, Summer session

- 30 Last day to withdraw without academic penalty from "R" and "C" classes, Summer session
- Last day for those expecting PhD degrees in October to submit unbound theses to departments

August

- 2 Halifax/Dartmouth Natal Day - University closed
- 4 Last day to cancel registration in or to add "B" classes, Summer session
- 9 Last day to withdraw from "B" classes without academic penalty, Summer session
- 20 Classes end, Summer session
- 27 Last day for those expecting Masters degrees in October to submit unbound theses to departments
- 31 MBA orientation begins

September

- 6 Labour Day - University closed
- 7 Registration ends in Law and Library and Information Studies
- Registration ends and classes begin in MBA
- 8 Orientation begins, Human Communication Disorders (first year)
- Classes begin in Library and Information Studies and Law
- 10 Last day to register without late fee, Regular session
- 13 Classes begin, unless otherwise specified, Regular session
- 17 Last day for those expecting to receive graduate degrees in October to submit approved unbound copies of theses to Faculty of Graduate Studies Office
- 27 Last day to cancel registration in or to add "A", "C" and "R" classes, Regular session
- Last day to register with late fee

October

- 1 Last day to apply to graduate in February
- 11 Thanksgiving Day - University closed
- 16 Fall Convocation
- 25 Last day to withdraw from "A" classes without academic penalty

November

- 11 Remembrance Day - University closed
- 12 Last day for those expecting PhD degrees by approval of Senate in February to submit unbound theses to departments
- 30 Last day to change status (PT to FT, or FT to PT), Graduate Studies

2 Definitions

December

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

1994

January

- 3 University closed
- 4 Classes resume, second term begins
- 11 Last day for those expecting to receive graduate degrees by approval of Senate in February to submit approved unbound copies of theses to Faculty of Graduate Studies office
- 17 Last day to cancel registration in or to add "B" classes
Last day to withdraw from "C" and "R" classes without academic penalty

February

- 4 Munro Day - University closed
- 14 Last day to drop "B" classes without academic penalty
- 18 Last day for those expecting PhD degrees in May to submit unbound theses to departments
- 21 Study break begins
- 28 Classes resume

March

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

April

- 1 Good Friday - University closed
- 8 Classes end, Regular session
- 13 Examinations begin, Regular session
- 15 Last day for those expecting to receive graduate degrees in May to submit approved unbound copies of theses to Faculty of Graduate Studies Office
- 27 Examinations end, Regular session

May

- 24-27 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 125 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 11,000 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

4 Dalhousie University

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, SoD, FRSC

Vice-Presidents

Academic and Research

Denis Stalra, BA, MA, PhD, FRSC

Finance and Administration

Bryan G. Mason, BA

Student Services

Erio 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

Rowland J. Smith, BA, MA, PhD

Dentistry

William McInnis (Acting)

Graduate Studies

Judith Fingard, BA, MPhil, PhD

Health Professions

Lynn McIntyre, MD, MHSc, FECP(C)

Law

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

Management

James D. McNiven, BA, MA, PhD

Medicine

John Ruedy, MDCM, FRCP(C), FACP

Science

W.C. Kimmins, PhD

Hanson 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

Rowland Smith, PhD, Provost

Administrative Officers

University Secretary and Legal Counsel

Brian C. Crooker, QC, BA, LLB

University Librarian

William F. Birdsall, BA, MA, PhD

University Registrar

Guðrun 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

A.D. Tillett

Office of Institutional Planning and Analysis

Brian Christie, BA, MA

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, CIPR, BA, MSc, FIPM

Physical Plant and Planning

William Lord, BASc, PENG

Public Relations

Marilyn MacDonald, BA, MA

Board of Governors

Under the University's statutes, the Board of Governors is responsible for the operation of the University. The Board consists of

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, QC, BA, LLB, LLD

Chancellor Emeritus

Lady Beaverbrook, LLD

Officers

Dr. Howard C. Clark, BSo, MSo, PhD, ScD.

Mr. George C. Pieroy, Q.C., Chairperson

Ms. Peggy Weid, Vice-Chair

Mr. Allan C. Shaw, Vice-Chair

Dr. Donna M. Curry, M.D., Honorary

Secretary

Mr. Lawrence Doane, Honorary Treasurer

Members

Mr. David J. Almon

Dr. Marie Ann Battiste

Ms. Bath Beattie

Dr. D. Wayne Bell, M.D.

Mr. Aubrey D. Browne

Mr. Daniel M. Campbell

Dr. Mona L. Campbell

Dr. Fay Cohen

Mr. George T.H. Cooper

Mr. James S. Cowan

Mr. J. Dickson Crawford

Mr. Fred J. Dickson

Mr. Tom Digby

Mr. Peter R. Doig

Her Worship Mayor Moira Ducharme (ex officio)

Dr. John C. Fentress

Mr. Fred Fountain

Mrs. Linda Fraser

Dr. Jane Gordon

Mrs. Cynthia Robertson Gorman

Dr. Margaret Hansell

Chief Justice T. Alex Hickman

Mr. Brian Hill

Mr. Donald A. Kerr

Dr. Patricia Lane

Mrs. Evelyn Lukan

Mr. Thomas E.G. Lynch

Mrs. Annemarie Macdonald

Ms. Bernadette Macdonald

Mr. George W. MacDonald

Mr. Alex J. MacIntosh

Dr. Albro D. MacKeen

The Hon. Jacqueline R. Matheson

Mr. Ralph M. Medjuck

Dr. T. John Murray

Mr. Norman H. Newman

Mrs. Ann Petley-Jones

Mr. Peter Pottier

Ms. Ruth Puleifer

Dr. Cedric E. Ritchie

Ms. Patricia Roscoe

Dr. Donald C.R. Sobey

Ms. Maxine N. Tynes

Ms. Barbara Walker

Mr. Robert Zed

Mr. Sherman Zwicker

Secretary

Elizabeth A. Merriock

Observer for Faculty Association

Dr. Tom Sinclair-Faulkner, BA, MTh, MA, PhD
(President, DFA)

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. Berard, 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, and Sociology

Master of Science

1 or 2 years with thesis in: Anatomy, Biochemistry, Biology, Chemistry, Computing Science, Earth Sciences, Human Communication Disorders (3 years) (Audiology or Speech Pathology), Kinesiology, Mathematics, Microbiology, Oceanography, Oral and Maxillofacial Surgery (4 years), Pathology, Pharmacology, Pharmacy, Physics, Physiology and Biophysics, Psychology, and Statistics

Doctor of Philosophy

2 or 3 years, with thesis in: Anatomy, 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.

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 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 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 Biotechnology

Chief Executive Officer: W.E. MacLennan, BScA

The Atlantic Institute of Biotechnology works directly with Atlantic Canadian business to foster the adoption of appropriate new technology based on biological processes. Its purpose is to help focus business's thrust to technological superiority. Start-up companies can be assisted through market, financial and the biological fields within Canada and beyond, including research and development resources and programmes, and provides advisory services, dealing with patents, management, and commercialization.

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, 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 250 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 retardation 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 Department of National Health and Welfare, 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: D. W. Middlemiss, BA, MA, PhD

Established in 1971 with the assistance of a grant from the Donner Canadian Foundation, the Centre is concerned with teaching, research and other professional activities in various aspects of foreign policy and international politics. The work of the Centre is concentrated in the Canadian

8 Special Institutes

Maritime Policy and Strategy, and International Political Economy and Developmental Studies. Geographical specializations include Canadian, African, European, and American foreign policy. The Centre publishes monographs and occasional papers plus a monthly defence newsletter covering Canadian defence and security policy issues.

The Centre is affiliated with the Department of Political Science at Dalhousie University. Centre faculty offer courses in the Department on international relations, foreign and defence policy at both undergraduate and graduate levels. They also supervise masters and doctoral students in these fields.

Centre for International Business Studies

Director: P.J. Rosson, DipMS, MA, 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. Eggle, 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

Executive Director: A.D. Tillett, BA, MA

Associate 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 1980 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 1976 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 assault. It may involve threats that you will fail in class or that you will lose your job. It may make your study or work 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, you are encouraged to discuss your questions or concerns with the Sexual Harassment Advisor, Room 3, Arts and Administration Building, or phone the Sexual Harassment Information Line, 494-1659. All discussion will be kept confidential.

Alumni Association

The Alumni Association is composed of over 56,000 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 Alumna 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. For those who prefer less competitive activities, there is a great number of fitness, leisure and aquatic instructional programmes.

Recreation facilities on campus include: Delplex—offering a 50,000 sq. ft. fieldhouse, olympic-size pool, two weight rooms, numerous "no-fee" courts, and an indoor jogging track; the Dalhousie Memorial Arena,

10 Resources and Services

Studley Gym, and Studley Field. For details on fitness and recreation at Dalhousie contact Dalplex at 494-3372.

Black Student Advisor

The position of Black Student Advisor was created by Dalhousie University to provide information to prospective students, to increase access and promote retention of indigenous Black students. However, any Black student (African, American, Canadian, Caribbean, etc.) is encouraged to visit to explore the services. The Advisor offers orientation programs for incoming Black students and support to continuing students. The Advisor gives individual assistance, relevant information, and makes referrals to other services which may benefit the students' academic, personal and social development.

The Advisor will provide employment and scholarship information as it becomes available. The Advisor organizes program activities that assist indigenous Black students to develop contacts with other Black students. This is intended to foster a sense of support and community among the Black students, with other students and to increase intercultural awareness and understanding on campus.

For further information contact: 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, People Skills, 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. In addition, non-students who have been out of school for a period of time and are considering coming to university are welcome to take an interest test on a fee-for-service basis.

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 Revelation 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 Association of Graduate Students

DAGS, the Dalhousie Association of Graduate Students, represents the interests and concerns of all Dalhousie Graduate students. It is a registered society incorporated under the Nova Scotia Societies Act and is funded with fees collected as part of the student tuition fee. The Graduate House (your own private club on campus) located next to the Student Union Building is staffed and operated by graduate students and a full-time House Manager.

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 494-1108. 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 very low. It is therefore very important that students planning to attend Dalhousie think well in advance about their accommodation needs. It is fair to say two things about housing for Dalhousie students: first, early application for University residence is essential and second, students seeking off-campus housing should also begin to investigate that process well in advance of the beginning of term.

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. In each case the name of the person responsible is listed and telephone number provided. 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 Residences 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 to first-year students is approximately 50/50, except in Henderson house which is predominantly for freshmen.

12 Resources and Services

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 and laundry room.

Howe Hall is accessible to handicapped students.

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 four sections — Old Eddy and New Eddy, with predominantly double rooms for first-year students, and Newcombe and the Annex, with single rooms reserved for senior students. The Annex houses only 14 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 close to 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, close to the main campus, the buildings include bachelor, one and two-bedroom apartments and accommodate a total of 25 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 100 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 liaison with the Howe Hall Residence Co-ordinator to provide administrative and resident-related services.

International Student Houses

Dalhousie reserves two special houses for international students arriving in Canada for their first year of study. Located close to the main campus, these houses consist of single rooms with shared bathroom and kitchen areas. Rooms are furnished with a bed, desk, drapes and a chair as well as linen. Although cooking facilities are provided, utensils are not.

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 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.
- Applications to residence may be submitted prior to acceptance to the University for a course of study.
- Acceptance into an academic programme does not mean that application for a place in residence has been approved or vice versa.
- 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, Co-ed Apartment Units, International Student Houses:

Manager, Fenwick Place
Dalhousie University
5599 Fenwick Street
Halifax, N.S. B3H 1R2
(902) 494-2075

Instructional Development and Technology

The Office of Instructional Development and Technology (OIDT) is mandated to provide initiative, leadership, and co-ordination in the encouragement of improved teaching and learning at Dalhousie. To complement this primary goal, the Office has responsibility for the provision of improved instructional media services and distance education courses (primarily in the Health Professions).

14 Resources and Services

In consultation with the Dalhousie community, the Office of Instructional Development and Technology develops and presents a variety of workshops and sessions to faculty and graduate teaching assistants. The newsletter Focus on University Teaching and Learning is published five times a year. Other Office publications may be purchased or borrowed from the OIDT Resource Centre, which contains many articles and books on educational topics. Information, teaching resources, and individual consultations are also provided. Through active involvement in educational societies, the Office maintains a current inventory of practices and techniques designed to enhance teaching.

In supporting the development, planning, production, and presentation of distance education courses, the Office of Instructional Development and Technology assists the university in responding to the needs of those who wish to upgrade their education. To date, distance education courses have focused on the Faculty of Health Professions (e.g. Nursing, Physiotherapy, Occupational Therapy, and Social Work). However, other courses are also available from the School of Public Administration. Students should contact these schools directly about distance education offerings. General enquiries should be directed to the Registrar's Office. The Office of Instructional Development and Technology is located in the Killam Library Courtyard, telephone: 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, 1992, the total Dalhousie University Library System holdings include over 1,410,000 volumes of books, bound periodicals, documents, and bound reports, 497,600 microfiche microcards, maps, and other media. Approximately 8,100 serial 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. If 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, this office provides a point of referral for any student concerns. The Vice-President is the chief Student Services officer and coordinates the activities of Athletics and Recreational Services, Black Student Advising, Student Counselling and Psychological Services, Chaplaincy, Disabled

16 Resources and Services

Student Advising, Health Services, Housing and Conferences, Office of the Registrar, Writing Resource Centre, International Student Centre, and the Ombud' Office. Students who experience difficulties with their academic programmes or who are uncertain about educational goals, major selection, workload management, social or 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 one 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 created 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/2816, 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 494-3379.

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
10025-106 Street
Edmonton, Alberta
T6J 1G7
(403) 427-2740
(403) 422-5563
(status of application only)

British Columbia:

Student Services Branch
Ministry of Advanced Education,
Training and Technology
2nd Floor, 1106 Cook Street
Victoria, British Columbia
V8V 3Z9
(604) 387-8100
or
(604) 387-8101

Manitoba:

Student Financial Assistance Branch
Manitoba Education and Training
Box 6, 893 Taylor Avenue
Winnipeg, Manitoba
R3M 3T9
(204) 945-6321
or
(204) 945-6322

New Brunswick:

Student Services Branch
Department Of Advanced Education and
Training
P.O. Box 6000
Fredericton, New Brunswick
E3B 6H1
(506) 453-2577

Newfoundland:

Department of Education
Student Aid Division
Thompson Student Centre
Memorial University of Nfld.
St. John's, Newfoundland

A1C 5S7
(709) 729-4235

Northwest Territories:

Manager-Student Services
Department of Education
Government of the Northwest Territories
Yellowknife, Northwest Territories
X1A 2L9
(403) 873-7190
or
1-800-861-0793

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
(Street location: Trade Mart Building 2021
Brunswick at Cogewell 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
P.O. Box 2000
Charlottetown, Prince Edward Island
C1A 7N8
(902) 388-4640

Saskatchewan:

Student Financial Assistance Branch
Saskatchewan Education
1855 Victoria Avenue
Regina, Saskatchewan
S4P 3V5
(306) 787-5820

Yukon Territory:

Students' Financial Services
Department of Education
P.O. Box 2703
Whitehorse, Yukon Territory
Y1A 2C8
(403) 867-5310
or
(403) 867-5929

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) 643-3750

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

Dalhousie Undergraduate Bursaries

ANNOUNCEMENT

In 1991-92 there was a significant
increase in bursary funds to benefit students
attending Dalhousie. Students are urged to
seek advice and/or to make early application
for possible financial assistance, before
financial problems become unmanageable,
from the Registrar's Office - Awards.

The University will be implementing an
Entrance Bursary Programme during the
spring/summer of 1991, as part of the
enhancement of its bursary service.

Note to All Applicants:

Application kits, for students applying
after the academic year has begun, are
available at the Office of the Registrar, Room
133, Arts & Administration Building, normally
about mid-September. Completed application
forms will be accepted at the Office from the
first workday of October until the stipulated
deadline.

The deadlines for the different bursary
programmes will be announced with the
application material.

Completed applications are batched and
assessed on a comparative basis for available
funds. Applicants are sent written notification
of the decision.

Please note that University bursaries are
restricted to Canadian citizens and permanent
residents.

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 programme.

The University has at its disposal some
funds which are selectively awarded as
bursaries to students who may unexpectedly
find themselves in need of financial
assistance. While these bursaries are
awarded primarily on the basis of
demonstrable need, satisfactory academic
standing is also expected. Except under
exceptional circumstances, bursaries will not
be awarded to students who have not availed
themselves of assistance under the
federal/provincial student aid programmes.

In the event that the applicant may be
eligible for a restricted bursary, he/she should
annotate the application.

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

1993 - 1994

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 and winter 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 March. 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 10, 1993 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 27th 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.
- Bills 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 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 22).

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" in the amount of \$1700.00. 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 1993-94 academic fee schedule is not yet available. The Academic Fee Schedule shows the 1993-94 approved tuition and athletic fees, and the 1992-93 Student Union and Society fees. Once all fees are approved for 1993-94 the complete fee schedule will be made available. The official schedule will be included in the registration package.

For purposes of this section of the Calendar, a full-time undergraduate student is one who is registered for the first (fall) and second (winter) terms 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 IV). 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 sponsoring agency.)
- 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 27. A late registration fee and/or interest may be charged after September 27. 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 at time of registration and pay the Student Union, and Society Fee at 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 1993-94 academic fee schedule is not yet available. The Academic Fee Schedule shows the 1993-94 approved tuition and athletic fees, and the 1992-93 Student Union and Society fees. Once all fees are approved for 1993-94 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 deadline 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 21)

- a) Should students prefer to pay in two instalments, the first instalment is due on or before September 10 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 10 and January 4, respectively.
- c) Scholarships or awards paid by or through Dalhousie University will be applied to tuition and residence fees.

- d) When Canada Student Loan or co-payable bureauary 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 27, 1993 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 20) and Table IV.

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.)

- o) 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 III), 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 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 27 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 27 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 25.

Dates for Refund - Second Term

A student withdrawing or changing a class after January 4 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 14.

Dates for Refund - Commerce Co-op Summer session

A student withdrawing after May 19 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 22.

Delinquent Accounts

Accounts are considered delinquent when the balance of fees has not been paid by September 27 (January 31 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 \$12.00 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 willful damage regardless of whether or not a deposit is required.

Athletic Fee

Membership at Dalplex for 1993-94 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

24 Fees

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 referendum 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. 494-2146

1992 - 93 Student Union Fee

(For Information Only)

	Full-Time (20 credits or more)
General Income	
For Operations	\$40.00
Student Health Plan Insurance	\$44.00
Contributions to	
Capital Campaign	\$15.00
Capital Payback for	
Student Union Building	\$10.00
C K D U - RM	\$ 5.00
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
TOTAL	\$197.00

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
Late Graduation Application	\$50.00	Registrar
Letter of Permission		
per class - maximum \$50.00	\$10.00	Registrar
Reassessment Fee	\$10.00	Registrar
Replacement ID	\$12.00	Registrar
Transcript	\$5.00	Registrar
Priority Transcript Fee	\$10.00	Registrar
FAX Fee	\$5.00	Registrar
Residence Application Fee	\$25.00	Residence

Table II

Limited Enrolment Programmes

- Master of Business Administration
- 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 - Specified Limited Enrolment Programmes

Admission Deposit: Non-refundable

Student Union Fee: Non-refundable after Sept. 27 (Second Term Jan 4)

Athletic Fee: Non-refundable after Sept. 27 (Second Term Jan 4)

Society Fee: Non-refundable after Sept. 27 (Second Term Jan 4)

Tuition Fee: As follows:

Withdrawal Date	Regular Session	First Term Only	Second Term Only
Up to August 20	100%	100%	100%
August 21 - September 13	85%	85%	100%
September 14 - December 15	40%	0%	100%
December 16 - January 4	40%	0%	95%
January 5 - January 31	40%	0%	0%
After Jan. 31	0%	0%	0%

Table IV

Fee Refunds (Withdrawals)

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

Student Union Fee: Non-refundable after Sept. 27 (Second Term Jan 4)

Athletic Fee: Non-refundable after Sept. 27 (Second Term Jan 4)

Society Fee: Non-refundable after Sept. 27 (Second Term Jan 4)

BComm Co-op Fee: Non-refundable after September 27 (Second Term Jan 4)

Tuition Fee: As follows:

Withdrawal Date	Regular Session	Graduate Students	Graduate Students	Full-Time	Full-Time	Part-Time Students ³			
	Full-time ¹	Thesis Only	Part-Time for Degree	1st. Term Only ²	2nd. Term Only ²	A Class	B Class	C Class	R Class
Up to Aug 20	100%	100%	100%	100%	100%	100%	100%	100%	100%
Aug 21 - Sept 27	85%	85%	85%	85%	100%	85%	100%	85%	85%
Sept 28 - Oct 25	85%	85%	85%	67%	100%	67%	100%	85%	85%
Oct 26 - Nov 15	70%	70%	70%	0%	100%	0%	100%	70%	70%
Nov 16 - Dec 15	50%	50%	50%	0%	100%	0%	100%	50%	50%
Dec 16 - Dec 31	50%	50%	50%	0%	85%	0%	85%	50%	50%
Jan 1 - Jan 17	40%	40%	40%	0%	85%	0%	85%	40%	40%
Jan 18 - Jan 31	40%	40%	40%	0%	67%	0%	67%	40%	40%
Feb 1 - Feb 14	0%	0%	0%	0%	67%	0%	67%	0%	0%
After Feb 14th	0%	0%	0%	0%	0%	0%	0%	0%	0%

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 status.
- ² Students registered in one term only taking more than three one-half credit classes (more than 9 credit hours).
- 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).

ACADEMIC FEES - 1993-94

The complete 1993-94 academic fee schedule is not yet available. In order to provide some indication of the fee requirements, the schedule below shows the 1993-94 approved tuition and athletic fee as well as 1992-93 incidental fees. Once all fees are approved for 1993-94, 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 1993-94		(for information only) 1992-93 figures		Notes
	Tuition fee	Athletic fee	DSU fee	Society fee	
Law					
Full-time	2,118	50	197	38	(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.
Part-time Year 1 & 2 (4)	1,880		89	19	
Legal Aid Clinic (8)	1,310	50	137	38	
Term after Legal Aid (2)	1,505	50	157	38	
LLM	2,218	50	157	20	
JBD	2,218	50	157	20	
Medicine					
MD	2,485	50	137	28	
Postgrad Interns & Residents	900	50	-	-	
Dentistry (B)					
DDS (1)	2,495	50	197	70	
Masters - Oral Surgery	2,585	50	197	20	
Dental Hygiene (2)	2,900	50	157	35	
Graduate Studies					
Arts & Social Science					
Doctorate					
Full-time	2,955	50	197	20	
Masters					
Full-time	2,785	50	197	20	
Part-time	820	-	58	10	
Education & Management					
Doctorate (Education only)					
Full-time	2,980	50	197	35	
Masters					
Full-time	2,780	50	197	38	
Part-time	825	-	58	18	
Science (Including Interdisciplinary Studies)					
Doctorate					
Full-time	2,980	50	197	20	
Masters					
Full-time	2,880	50	197	20	
Part-time	890	-	58	10	
Health Professions (except MSW)					
Doctorate					
Full-time	3,210	50	197	20	
Masters					
Full-time	3,110	50	197	20	
Part-time	1,035	-	58	10	
Masters of Social Work					
Full-time	2,780	50	197	20	
Part-time	825	-	58	10	
Thesis Only - All Programmes					
Full-time	485	50	197	20	
Part-time	485	-	58	10	

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" in the amount of \$1,700. 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 Graduate Studies Calendar to determine the number of years a student is required to pay the differential fee.

Health Insurance (1992-93)
Visa Students **Postgraduate Medicine**
 Single - \$ 525 Single - \$ 893
 Married - \$ 1050 Married - \$ 1388

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

Changes, Refunds and Withdrawals - For all financial charges contact STUDENT ACCOUNTS or consult the Dalhousie University Calendar. Please note non-attendance at classes does not constitute withdrawal. Written notification of withdrawal is required. Refer also to Academic Fees section (page 20).

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 designate. Confirmation of accommodation will not be granted until the student has been accepted by the University for the coming session, and the \$125.00 residence application fee and deposit have been 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 15 to reconfirm the assigned space. Failure to make a second deposit by July 15 will result in automatic cancellation of room assignment. Once paid, the \$200.00 deposit 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, Co-ed Apartment Units and the International Student Houses 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 1992/1993 (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, 1993; and second semester - January 1, 1994, to April 30, 1994.

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. FEB(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	\$4,380	Or	\$2,190	\$2,200	\$4,715
Double Room	\$125	\$200	\$4,040	Or	\$2,020	\$2,030	\$4,375
Shirreff Hall and Eliza Ritchie Hall (2)							
Single Room	\$125	\$200	\$4,380	Or	\$2,190	\$2,200	\$4,715
Double Room	\$125	\$200	\$4,040	Or	\$2,020	\$2,030	\$4,375
Residence Houses							
Single Room	\$125	\$200	\$2,435	Or	\$1,215	\$1,230	\$2,770
Double Room	\$125	\$200	\$2,085	Or	\$1,040	\$1,055	\$2,420
Glengary Apartments							
Single Room	\$125	\$200	\$2,440	Or	\$1,220	\$1,230	\$2,775
Double Room	\$125	\$200	\$2,110	Or	\$1,055	\$1,065	\$2,445
Bachelor Apts.	\$125	\$200	\$3,480	Or	\$1,745	\$1,755	\$3,825
Fenwick Place (4)							
2-Person (2-Bdrm)	\$125	\$200	\$3,295	Or	\$1,645	\$1,650	\$3,620
3-Person (3-Bdrm)	\$125	\$200	\$2,960	Or	\$1,480	\$1,480	\$3,305
4-Person (2-Bdrm)	\$125	\$200	\$2,630	Or	\$1,315	\$1,315	\$2,955

Meals Only - Special Rate For Session

3 Meals Per Day	\$1,905
2 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, 1993, when the 1993/1994 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 Fee 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.

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 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 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.

Senate Discipline Committee

1. Composition

Academic Offenses 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.
- (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.

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 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.

34 Admission Deadlines

Final Dates for Receipt of Applications for Admission

Regular Session

College of Arts & Science

Foreign Students (except USA)	May 1
BEd Programme	March 15
Students entering from Canada or USA ¹	July 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	June 1
Physical & Health Education ¹	July 1

Management

Foreign Students (except USA)	May 1
Students entering from Canada or USA ¹	July 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 ¹	March 1

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

Winter Term

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

¹ Late applications may be considered up to August 1.

² Of year preceeding 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.

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. Thomsen

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

H. Blair, '93 Biochemistry
R. Currie, '93 Anatomy and Neurobiology
R. O'Dor, '93 Biology
C. Putnam, '93 Recreation, Physical & Health Education
C. Stuttard, '93 Microbiology and Immunology
M. Bishop, '94 French
J. Clements, '94 Math, Stats, & Computing Science
E. Frick, '94 Library and Information Studies
N. Martyn, '94 Business Administration
M.A. White, '94 Chemistry
B. Archibald, '95 Law
J. Elliott, '95 Sociology and Social Anthropology
M. Horeckova, '95 Physiology and Biophysics
K. Fierbeck, '95 Political Science
E. Ricker, '95 Education
T. Vinci, '95 Philosophy
D. Woolf, '95 History
W. Birdsall, University Library
S. Galligher, '93 Business, DAGS Rep
J. Hoar, '93 Biology - DAGS Rep
D. McNeil, '93 English - Secretary

J. G. Rutherford, Associate Dean
J. Fingard, Dean

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

Academic Planning Committee of Council

C. Stuttard, '93 Microbiology and Immunology
C. Putnam, '93 Recreation, Physical and Health Education
M. Bishop, '94 French
Clements, '94 Math, Stats, & Computing Science
E. Frick, '94 Library & Information Studies
J. Hoar, Biology (DAGS Rep.)
D. McNeil, Secretary to Faculty
J. G. Rutherford, Associate Dean
J. Fingard, (Chair) Dean

Curriculum and Calendar Committee

M. Martin, '94 Business Administration
J. Elliott, '95 Sociology and Social Anthropology
K. Fierbeck, '95 Political Science
H. Melanson, Killam Library
A.R. Thomsen, Administrative Assistant & Calendar Coordinator
J. Rutherford (chair), Associate Dean

Dalhousie and Killam Scholarship Committee

B. Greenfield, '93 English
J.S. Grosseart, '93 Chemistry
P. Kusmaul, '93 Classics
K. Johnson, '94 Math, Stats, & Computing Science
C. Neville, '94 History
E. Butler, '95 Pharmacy
W. Hyde, '95 Oceanography
L. Ashworth, '93 Political Science - DAGS Representative
J. G. Rutherford (Secretary), Associate Dean

Killam Postdoctoral Fellowship Committee

S. Cowan, '93 English
R. Croll, '93 Physiology/Biophysics
P. McGrath, '93 Psychology
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. Thlesen, '95 Sociology and Social Anthropology
J. G. Rutherford (Co-chair), Associate Dean

36 Faculty of Graduate Studies

Research Development Fund Committee (Humanities & Social Sciences)

M. Bradfield, '93 Economics
B. MacDonald, (Co-chair) '93 Library &
Information Studies
J. Singleton, '93 Recreation, Physical, &
Health Education
S. Brooke, '94 History
V. Thiesen, '94 Sociology and Social
Anthropology
M. Sullivan, '95 Psychology
R. Tetreault, '95 English
J. Fingard (Co-chair), Dean

Research Development Fund Committee in the Sciences

R. Wassersug, '93 Anatomy
S. Curwin, '94 Physiotherapy
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

J. Barresi, '93 Psychology
M. Bradfield, '94 Economics (1993 organizer)
R. Rosen, '94 Physiology/Biophysics
W. Schleich, '95 Medicine, Microbiology and
Immunology, Community Health and
Epidemiology
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
M.S. Cross, History
M.W. Gray, Biochemistry
B.K. Hall, Biology
W.F. Hare, Education/Philosophy
D.A. Hopkins, Anatomy
R.A. Jamieson, Earth Sciences
R. Klein, Psychology
C.B. Lazier, Biochemistry
K.T. Leffek, Chemistry
H.A. Robertson, Pharmacology
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

N. Brett, '93 Philosophy
A. Manicom, '93 Education, Women's
Studies, Multidisciplinary Studies
D. Tamlyn, '93 Nursing
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
J. Rutherford (Chair), Associate Dean

Academic Appeals Committee

W. Charles, '93 Law
A. Andrews (Chair), '94 Theatre
L. Barnes, '95 Recreation, Physical, & Health
Education

Reserve Panel for Academic Appeals Committee

P. DeMéo, '94 French
D. Arnold, '95 Chemistry
D. House, '95 Classics
D. Elliott, '95 Sociology and Social
Anthropology
A. Trillo, '95 Pathology
A. Wainwright, '95 English

Library Representatives on Faculty

J. Coughlan-Lambly, '92 Kellog Library
Lai Heiung, '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 (MBA/LLB)
Master of Development Economics (MDE)
Master of Education (MEd)
Master of Environmental Studies (MES)
Master of Health Services Administration (MHSA)
Master of Laws (LLM)
Master of Library and Information Studies (MLIS)
Master of Library and Information Studies/Bachelor of Laws (MLIS/LLB)
Master of Marine Management (MMM)
Master of Nursing (MN)
Master of Public Administration (MPA)
Master of Public Administration/Bachelor of Laws (MPA/LLB)
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, 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.

Only candidates with a Master's Degree (normally in the area of PhD study), or equivalent, may be able to complete the requirements for the degree in two (2) years of full-time study. Students normally take 4/5 years.

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.

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.

Classes taken under the "special student" category are not automatically eligible for advanced standing.

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 May 1 for non-Canadian applicants and July 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 February. All eligible Candidates should also apply for external awards.

38 Faculty of Graduate Studies

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. 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 who has been required to do a year of preliminary work in order to meet admission standards before being permitted to apply for admission to the regular programme. Classes taken in a Qualifying Year cannot necessarily be counted as credits towards a graduate degree.

Special: A student who elects to take one or more graduate classes, but who is not registered in a formal degree program at Dalhousie University. 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. Credit will not be given in a subsequent programme for a class or classes taken while 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 (11th September, 1992) for the academic year for which leave is requested.

4.4 Re-admission 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 these 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.

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, must include a report of progress in the previous year 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 31st.

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,

40 Faculty of Graduate Studies

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).

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.

Withdrawal From Classes: The final date for withdrawal from classes shall be: for 'A' classes - 28 October, for 'C' and 'R' classes - 18 January, for 'B' classes - 11 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 22, for Spring Convocation, January 11 for February, or August 31, 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. These 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 o.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 o.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

42 Faculty of Graduate Studies

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.

7.5 Binding

At the time of submitting unbound theses (original and four copies) to the Graduate Studies Office, students will present a cheque for \$75.00* payable to the Faculty of Graduate Studies, Dalhousie University. This sum will cover the cost of binding.

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 Masters 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 theses. 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 \$14,500 (1992-93) for a Master's programme and \$17,000 (1992-93) for a Doctoral programme. No remission of fees accompanies the scholarships, but additional

44 Faculty of Graduate Studies

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 recognized 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.

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 Godee Scholarship: This scholarship has been established by the Godee 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.

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. Laba Memorial Research Award: The income, earned from a fund established in memory of John P. Laba 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.

Kavanaugh Scholarship: The Social Action Commission of the United Baptist Convention of the Atlantic Provinces has established a fund to provide a scholarship of \$500 annually to a graduate student in the Master of Social Work degree programme awarded by the MSW Committee of the Maritime School prior to the commencement of the academic year. Interested applicants may obtain further information from the Maritime School of Social Work Office (494-3760).

(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 recognise the contribution to Dalhousie of one of its most important nineteenth-century graduates. After completing her undergraduate studies at Dalhousie in 1887, Eliza Ritchie (1856-1933) 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 inquire of your department or school.

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.

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
- 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

P. Prose (Public Administration)

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 Office of the Dean 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.

48 Interdisciplinary and Joint Programmes

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

- (1) Normally, the student will have completed at least one year of study in a Faculty of Graduate Studies and be in 'good standing'.
- (2) 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.
- (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

Location: Life Sciences Centre, Room 3203, 1365 Oxford Street, Halifax, NS B3H 4J1

Telephone: (902) 494-2131

Fax: (902) 494-8585

Contact: Dr. D. Rasmussen, Department of Physiology and Biophysics 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 510B Neuroanatomy

ANAT 507B Chemical Neuroanatomy

BIOC 5301B Biochemical Communication

NESC 6000C Selected Topics in Neuroscience

PHAC 5405B Advanced Pharmacology

PHAC 5800 series Neuropharmacology

PHYL 5494B Synaptic Transmitters

PHYL 5511B Neurophysiology

PHYL 5520A Cellular Biophysics and Physiology

PHYL 5521B Cell and Molecular Physiology

PSY 6270A/B Comparative Neurobiology

PSY 6370A or B Neuroscience Laboratory

MBA/LLB

A four-year programme leading to degrees of Bachelor of Laws and Master of Business Administration.

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

Students must apply to both the Law School and the School of Business Administration individually, satisfying the entrance requirements for both programmes.

For further information see entry for Business Administration in this calendar.

MPA/LLB

A four-year programme leading to degrees of Bachelor of Laws and Master of Public Administration.

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

Students must apply to both the Law School and the School of Public Administration individually, satisfying the entrance requirements for both programmes.

For further information see entry for Public Administration in this calendar.

MLIS/LLB

A four year programme leading to degrees of Bachelor of Laws and Master of Library and Information Studies. Normally students will register for Graduate Studies/MLIS in the first year of the programme and the Faculty of Law/LLB in the subsequent three years.

Students must apply for both the Law School and the School of Library and Information Studies individually, satisfying the entrance requirements for both programmes.

For further information see the entry for Library and Information Studies 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
 - "C" after the class denotes a half credit class lasting both fall and winter terms
 - "R" denotes a class lasting both fall and winter terms. It usually - though not necessarily - carries one full credit.
6. An extensive list of areas of specialization.

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.M. Chapman, MSc (Man), PhD (Cantab)
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) 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

52 Anatomy and Neurobiology

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 4-8 hours of lectures during the course of his/her training.

A written thesis (Anatomy 9530) 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.

Thesis 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 45).

Classes Offered

ANAT 503R Human Histology: one credit, co-ordinator M.M. Hansell

ANAT 504R Microanatomical Techniques: one credit, co-ordinator W.B. Mathieson

ANAT 505C Anatomy Research Seminar: half credit, co-ordinator Staff

ANAT 507B Chemical Neuroanatomy: half credit, co-ordinator K. Semba

ANAT 509B Cellular Development in the Nervous system: half credit, co-ordinator TBA

ANAT 510R Human Neuroanatomy: one credit, co-ordinator K. Semba

ANAT 512R Human Embryology: one credit, Prerequisite: Anatomy 515C and 516R, an equivalent or the consent of the instructor. Co-ordinators: D.M. Chapman, M.M. Hansell

ANAT 516R Human Gross Anatomy: one and one-half credits, co-ordinator R.E. Clattenburg

ANAT 517C Special Topics: half credit, co-ordinator arranged according to research topic

ANAT 9000 MSc Thesis

ANAT 9530 PhD Thesis

Biochemistry

Location: Sir Charles Tupper Medical Building, 9th floor, Halifax, N.S. B3H 4H7
Telephone: (902) 494-2480
Fax: (902) 494-1355

Head of Department

W. Carl Breckenridge, Carnegie and Rockefeller Professor

Professors

A.H. Blair, MSc (UBC), PhD (Calif), Graduate Coordinator (Telephone: 494-2407)
 W.C. Breckenridge, BSc (Queen's) MSc, PhD (Tor)
 P. J. Dolphin, BSc, PhD, DSc (Southampton)
 W.F. Doolittle, AB (Harvard), PhD (Stan)
 M.W. Gray, BSc, PhD (Alta)
 C.W. Helleiner, BA, PhD (Tor)
 C.B. Lazier, BA (Tor), MSc (UBC), PhD (Dal)
 F.B. Palmer, BSc, PhD (Western)
 R.A. Singer, AB (Princeton), PhD (Harvard)
 M.H. Tan, BSc, MD (Dal), 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 (McG), PhD (Dal), major appointment in Pediatrics
 F.I. Maclean, MA (Tor), DPhil (Oxon)

Assistant Professors

D.M. Byers, BSc, MSc (Dal), PhD (Alta), major appointment in Pediatrics
 D.E.C. Cole, BSc, MD (Tor), PhD (McG), major appointment in Pediatrics
 P.X-Q. Liu, BSc (Wuhan), PhD (Cornell)
 N.D. Ridgway, BSc, MSc (Dal), PhD (UBC), joint appointment in Pediatrics
 H.-S. Ro, BSc, PhD (McM)

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 score of at least 580 on the TOEFL 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. The programme is designed to ensure that all graduate students acquire a general background in biochemistry that will provide a solid foundation for career development regardless of future directions. 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 5910-5913) and in teaching/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 is taken at the end of the first year of study. Application may be made at that time to transfer from an MSc to a PhD programme. Scholarship support is available, and additional information can be obtained by contacting the Department for a copy of the 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 of the two MSc programmes are 1 and 2 years respectively (see section 4). 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 "Faculty Regulations"). 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 46)

Areas of Specialization

Research for graduate degrees may be undertaken in the following fields:

1. Structure, biosynthesis and metabolism of serum lipids and lipoproteins (W.C. Brackenridge, P.J. Dolphin, and M.H. Tan)
2. Metabolic bone disease and the role of inorganic anions in connective tissue metabolism (D.E.C. Cole)
3. Enzymes: mechanism of action and behaviour as targets of chemotherapeutic agents. (A.H. Blair)
4. Control of eukaryotic cell reproduction; the cell cycle (R.A. Singer)
5. Organization, expression and evolution of organelle genomes; ribosomal RNA structure, synthesis and evolution; biochemical mechanisms of transcription and RNA processing (M.W. Gray)
6. Insulin action in skeletal muscle (M.H. Tan)
7. Metabolism of physiologically active membrane phospholipids in neural cells; enzymes of phosphoinositide metabolism and regulation of signal transduction pathways. (F.B. Palmer)
8. Mechanism of estrogen action: estrogen receptors and gene expression, antiestrogenic drugs (C.B. Lazler)
9. Chemical and physicochemical studies on enzymes and seleno proteins (J.A. Verpoorte)
10. Molecular and genome evolution; gene structure and function in archaeobacteria and archaezoa. (W.F. Doolittle)
11. Metabolism of unsaturated fatty acids and membrane phospholipids in cultured cells; relationships to peroxisomal disorders; signal transduction mechanisms (H.W. Cook)
12. Mathematical programming, game theory and metabolic oscillations (F.I. Maclean)
13. Protein engineering by semisynthesis and site-directed mutagenesis. Control and branching at cytochrome c of mitochondrial electron transport (C.J.A. Wallace)
14. Mechanisms and enzymes of fatty acid activation in luminescent bacteria; transmembrane signalling; diseases of intracellular cholesterol metabolism (D.M. Byers)
15. Catalytic mechanisms of lipid metabolizing enzymes (P.J. Dolphin)
16. Heat shock proteins: relevance to growth factors, immunology and diabetes mellitus (S.K. Reddy)
17. Human molecular genetics and tumor suppression (D.C. Riddell)
18. Gene regulation in the biosynthesis of chloroplast and mitochondrial enzyme complexes; structure, function, and evolution of ribosomal proteins (P.X-Q. Liu)
19. Molecular Control of gene expression in adipocyte differentiation, human obesity and tumorigenesis (H.-S. Ro)
20. Regulation of sphingomyelin metabolism (N.D. Ridgway)
21. Lipoprotein metabolism and atherosclerosis (M.H. Tan)

Classes Offered

Classes marked (*) are not offered every year. Please consult current timetable.

BIOC 5000 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 gauged from the list of research topics.

BIOC 5300B Biochemical Communication - Membranes, Neurotransmitters and Hormones: lecture 3 hours, D.M. Byers, H.W. Cook, N.D. Ridgway, F.B.St.C. Palmer

BIOC 5301A Biochemistry of Lipids: lecture 3 hours, H.W. Cook, F.B. Palmer, N.D. Ridgway

BIOC 5302B Structure, Biosynthesis and Metabolism of Lipoproteins: lecture 2 hours, W.C. Brackenridge, P.J. Dolphin, J.A. Verpoorte

BIOC 5304B Integration and Control of Metabolism: lecture 3 hours, P.J. Dolphin and W.C. Brackenridge

***BIOC 5401B The World of RNA:** lecture/seminar and guided reading 2 hours, M.W. Gray

***BIOC 5402B Biochemical Evolution:** seminar and guided reading 2 hours, W.F. Doolittle, C.J.A. Wallace

BIOC 5403B (Microbiology 5403B) Structure, Organization and Replication of Genes: lecture 3 hours, W.F. Doolittle

BIOC 5404A (Microbiology 5404A) Gene Expression: lecture 3 hours, R.A. Singer

BIOC 5601C and BIOC 5602C Selected Topics in Advanced Biochemistry: guided reading and tutorial, Biochemistry faculty members.

BIOC 5603A Advanced Laboratory in Biochemical Techniques: Lab: 72 hours total approx. The class will consist of a series of laboratory modules (each of 4 weeks' duration, 6 hours per week) organized collaboratively by the Departments of Biochemistry, Biology, and Microbiology. Several modules will be offered in 3 sections covering techniques used in the study of molecular biology, protein structure-function, and specific metabolic processes. Graduate students may select their three modules from any section or sections, subject to availability of space. Such students should consult the department regarding prerequisites. Biochemistry, Biology, and Microbiology faculty members. Coordinator: C.J.A. Wallace

BIOC 5700A Proteins: lecture 2 hours, tutorial 1 hour, alternate weeks, J.A. Verpoorte

BIOC 5701B Enzymes: lecture 2 hours. Presentations and discussion groups by arrangement. A.H. Blair

***BIOC 5800R (Pathology 501) Clinical Medical Biochemistry:** Lecture 2 hours, problem solving session 1 hour, lab by arrangement. L.C. Dymond and D.E.C. Cole

***BIOC 5802R (Pathology 503) Principles of Instrumentation:** lecture 3 hours, lab by assignment. Coordinator: R.F. McCurdy

BIOC 5910-5913R Biochemistry Seminar: tutorial, 1 hour; presentations by arrangement; seminars dealing with topics of current interest for Biochemistry graduate students. Coordinator: P.J. Dolphin

BIOC 9000 MSc Thesis

BIOC 9530 PhD Thesis

Biology

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

Telephone: (902) 494-3515
Fax: (902) 494-3736

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. Fentress, PhD (Cantab), major appointment in Psychology
B. Freedman, MSc, PhD (Tor)
B.K. Hall, PhD, DSc (UNE), FRSC, Kilam 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) - Director, Aquatron
D.G. Patriquin, MSc, PhD (McG)
R.E. Scheibling, BSc, PhD (McG)
D.B. Stoltz, 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 Athene), PhD (Chic)

Associate Professors

E.W. Angelopoulos, MS, PhD (Minn)
R.G. Boutilier, MSc (Acadia), PhD (East Anglia)
R. Croll, PhD (McG), major appointment in Physiology/Biophysics
G.S. Hioke, MSc (Carleton), PhD (Saek)
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

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

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

Honourary Adjunct Professors

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

D. Anderson, PhD (Saek), MSc, BSA (Man)

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

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

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

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

J.D. Caetell, MSc (Dal), PhD (Oregon State), Fisheries and Oceans

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

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

J.S. Craigie, MSc, PhD (Queens), Atlantic Regional Lab, NRC

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

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

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

J.P. LeBlanc, PhD (McG), NS Agric Col

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

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

J.L. McLaughlin, MA, PhD (Oregon State College), Atlantic Regional Lab, NRC

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

Y.A. Papadopoulos, PhD (Guelph), Neppan Exp. Farm, Agriculture Canada

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

R.K. Prange, MSc (UBC), PhD (Guelph), Kentville Research Station, Agriculture Canada

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

M. Ragan, PhD (Dal), NRC

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), Atlantic Res. Lab, NRC

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

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

J.L.C. Wright, PhD (Glasgow), Atlantic Regional Lab, NRC

Research Associates

S. Gallager, PhD (Boston)

C.M. Herbinger, MSc (DEA Paris), PhD (Dal), Gene Probe Laboratory

J. Hofman, MSc, PhD (U. of Tenn), Gene Probe Laboratory

J. Neleon, MSc, PhD (Wisc)

G. Pogson, PhD (UBC)

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

Y. Tang, MSc, PhD (Dal)

D. Webber, MSc (Dal)

Postdoctoral Fellows

P. Bentzen, MSc (UBC), PhD (McG)

G. Claireaux, PhD (Brest)

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

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

J.A. Nelson, MSc, PhD (Wisc)

B. Ramsay, MSc (Guelph), PhD (Carleton) Gene Probe Laboratory

S. Smith, MSc, PhD (Ottawa)

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

E. Taylor, MSc, PhD (UBC)

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.

Diploma in Aquaculture

This programme is not available in 1993/94.

The graduate programme normally requires one year to complete if pursued full time, but may be completed in a longer time

on a part-time basis. The minimum entrance requirement is a 3-year BSc degree or its equivalent from a recognized institution of higher education.

Classes and directed individual study programmes will be chosen for each student to provide an understanding of the experimental methods needed to solve problems that arise in the development of aquaculture systems.

The programme for the Diploma in Aquaculture will normally start in September and be completed within 11 months (8 months of class work and 3 months of independent study). During the academic year students will be expected to take a total of 8 half classes.

During the final three months of the course individual directed study will be carried out for an additional credit. The directed study will be supervised by a faculty member and will usually entail the preparation of an extensive paper based on library research but may also be a report of a study or research project undertaken in industry or in the laboratory. Interaction with the local aquaculture industry, research laboratories and government agencies will be encouraged in this final stage.

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 5700C and Biology 5705C; 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 5700C (or 5701C) and Biology 5705C (or 5706C/5707C) 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

Graduate credit in MSc and PhD programmes will be granted for the following NSAC classes: AS475 Ruminant Digestive Physiology and Metabolism (A.H. Freeden, A. Llette); B475 Agricultural Biology (J. Nowak); PS475 Plant Biotechnology (J. Nowak).

Graduate credit may be obtained for other NSAC classes on request to the Graduate Coordinator. Some modules in the Dalhousie classes 5705C, 5706C and 5707C will normally be given at Nova Scotia Agricultural College.

Classes Offered

Unless noted otherwise these classes designated A, B, C, are half-credit, all other are one-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.

BIOL 5012A or B Advanced Laboratory in Biochemical Techniques: Lab. 72 hours total approx. C.J.A. Wallace, J.M. Wright, B. Pohajdak

BIOL 5020A Advanced Cell Biology: lecture 3 hours, T.H. MacRae

BIOL 5024A Microscopy: lecture 2 hours, lab 3 hours, G. Faulkner, D.B. Stoltz, K.B. Easterbrook, J.H.M. Willison

BIOL 5030A Topics in Genetics: seminar 2 hours, R.W. Lee

BIOL 5060B Environmental Ecology: lecture 2 hours, lab/tutorial, 3 hours, B. Freedman

***BIOL 5061A Experimental Design and Data Analysis in Biology:** lecture, 3 hours, R. Scheibling and H. Whitehead

***BIOL 5070C Advanced Topics in Animal Physiology:** lecture 2 hours, open lab 3 hours, R.K.O'Dor, R. Boutilier, A. Pinder

***BIOL 5072R Animal Nutrition:** lecture, seminar 2 hours, J. Castell

BIOL 5101B Industrial Microbiology and Biochemistry: lecture, seminar 2 hours, M. Silver

***BIOL 5214B Physiology and Biochemistry of Marine Algae:** lecture 2 hours, J.S. Craigie

***BIOL 5439B Topics in Human and Medical Genetics:** lecture, seminar 2 hours, O.P. Kamra (Coordinator), J.P. Welch, and E. Zouros

***BIOL 5600B Invertebrate Fisheries and Aquaculture:** lecture, seminars, 3 hours, J. Grant, R. Mohn, G.F. Newkirk

***BIOL 5616B Ecosystem Analysis:** lecture/discussion 3 hours, P. Lane

BIOL 5651A Marine Mammalogy: lecture/discussion 3 hours, I. McLaren

BIOL 5654A Plant Ecology: lecture 2 hours, lab 3 hours, 1 or 2 field trips on weekends, B. Freedman

BIOL 5700C Communications Skills for Scientists: 2 hour, C. Corkett, and others

BIOL 5701C Communication Assignment: 1 hour, staff

BIOL 5705C Graduate Module Class I: Taken by MSc students only (graded) 2 hours, staff

BIOL 5706C Graduate Module Class II: Taken by PhD students (or for MSc students who wish to take additional modules) (graded) 2 hours, staff

BIOL 5707C Graduate Module Class III: Taken by PhD students only (pass/fail) 2 hours, staff

BIOL 5800-5899 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 A or B or C/5901R Special Topic in Agricultural Biology

BIOL 5802 A or B or C/5902R Special Topic in Animal Behaviour, H. Whitehead

BIOL 5803 A or B or C/5903R Special Topic in Animal Physiology, R.K. O'Dor

BIOL 5804 A or B or C/5904R Special Topic in Animal Science

BIOL 5805 A or B or C/5905R Special Topic in Aquaculture, G. Newkirk

BIOL 5806 A or B or C/5906R Special Topic in Biochemistry, B. Pohajdak

BIOL 5807 A or B or C/5907R Special Topic in Biological Education

BIOL 5808 A or B or C/5908R Special Topic in Biomathematics

BIOL 5809 A or B or C/5909R Special Topic in Biostatistics

BIOL 5810 A or B or C/5910R Special Topic in Cell Biology, T. MacRae

BIOL 5811 A or B or C/5911R Special Topic in Developmental Biology, B.K. Hall

BIOL 5812 A or B or C/5912R Special Topic in Ecology, I. McLaren

BIOL 5813 A or B or C/5913R Special Topic in Environmental Biology, J.H.M. Willison

BIOL 5814 A or B or C/5914R Special Topic in Evolutionary Biology, E. Zouros

BIOL 5815 A or B or C/5915R Special Topic in Fish Biology, S.R. Kerr

BIOL 5816 A or B or C/5916R Special Topic in Functional Morphology, A. Pinder

BIOL 5817 A or B or C/5917R Special Topic in Genetics, O.P. Kamra

BIOL 5818 A or B or C/5918R Special Topic in History of Biology, J. Farley

BIOL 5819 A or B or C/5919R Special Topic in Industrial Microbiology, R.G. Brown

BIOL 5820 A or B or C/5920R Special Topic in Limnology, P. Lane

BIOL 5821 A or B or C/5921R Special Topic in Marine Biology, R. Doyle

BIOL 5822 A or B or C/5922R Special Topic in Marine Ecology, R. Scheibling

BIOL 5823 A or B or C/5923R Special Topic in Marine Microbiology

BIOL 5824 A or B or C/5924R Special Topic in Microbiology, L.C. Vining

**BIOL 5825 A or B or C/5925R Special Topic
In Molecular Biology, J. Wright**

**BIOL 5826 A or B or C/5926R Special Topic
In Philosophy of Biology, K. von Moltzhan**

**BIOL 5827 A or B or C/5927R Special Topic
In Phycology, A.R.O. Chapman**

**BIOL 5828 A or B or C/5928R Special Topic
In Plant Biology, G. Hioke**

**BIOL 5829 A or B or C/5929R Special Topic
In Plant Ecology, B. Freedman**

**BIOL 5830 A or B or C/5930R Special Topic
In Plant Physiology, D.G. Patriquin**

**BIOL 5831 A or B or C/5931R Special Topic
In Plant Science**

**BIOL 5832 A or B or C/5932R Special Topic
In Population Biology, S. Walde**

**BIOL 5833 A or B or C/5933R Special Topic
In Zoology, E. Angelopoulos**

BIOL 9000 MSc Thesis

BIOL 9530 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. Fontrose)

Marine benthic ecology (B.T. Hargrave)

Marine phytoplankton (W.G. Harrison)

Marine population studies; ecology (S.R. Kerr)

Seal biology (W.C. Kimmings)

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)

Marine botany (J.L. McLachlan)

Population, evolutionary ecology of
zooplankton, birds and seals (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)

Foraging and life history strategies of marine
invertebrates; 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. Walde)

Evolutionary biology; anatomical adaptation
(R.J. Wassersug)

Social organization and population biology of
whales (H. Whitehead)

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. Hicks)

Regeneration and reproduction in lower
plants. (K.E. von Moltzahn)

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. Pohljak)

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

Respiratory and acid-base physiology in lower
invertebrates (R.G. Bourllier)

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. Meinertzhagen)

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 taser 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)

Pest management and pollination ecology (J.-P.R. LeBlanc)

Field crop management and multiple cropping systems (R.C. Martin)

Plant tissue culture (J. Nowak)

Plant anatomy, taxonomy (A.R. Olson)

Physiology, microbiology and ecology of nitrogen-fixing plant-bacterial associations; crop production and management (Y.A. Papadopoulos)

Biological Agriculture (D.G. Patriquin)

Ethology in Canadian Animal Science and its applications to research on cattle (T. Tennesen)

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. Rosson

Professors Emeritus

C.R. Brookbank, BA, MA, PhD (Tor)

R.E. George, BSc (London), MS (Bristol), PhD (London)

Professors

M.R. Brooks, BOT (McG.), MBA (Dal), PhD (Wales)

C.R. Dipchand, BComm (Queen's), MBA (Sask), PhD (Western), on leave 1992/93.

I. Fooladi, BSc (Iran), MA (Tehran), MS, PhD (Oregon), on leave July-Dec 1993

L.C. MacLean, BA, BEd (St.FX), MA, PhD (Dal)

M.J.C. Martin, BSc (Nottingham), PhD (Sheffield), on leave Jan-June 1994

J.D. McNiven, BA, MA, PhD (Mich)

J.R.E. Parker, B Comm (Dal), MBA (Wash), CPhil (Mich), CA

G.S. Roberts, AB (Oberlin), MA, PhD (Boston Col)

P.J. Roseon, Dip. MS (Salford), MA (Lancaster), PhD (Bath)

Y. Sankar, BA(McG), MA (Tor), PhD (Johns Hopkins)

D.A. Schellink, BSc, MBA (Dal), PhD (Illinois)

Associate Professors

B.C. Archibald, BA (Queen's), MSc (Stanford), PhD (Wet)

R.G. Blunden, BComm (Dal), MM (Northwestern)

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

F.G. Crane, BA (Acadia), DPA, MPA (Dal), PAdm (PADICSA), PhD (Bradford), on leave 1992/93
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. Gasemann, Vordiplom (Stuttgart), MS (Oregon), PhD (UBC)
R.E. Klapstein, BSc (Calg), BA (Alta), MBA, LLB (Dal), LLM (Osgoode), CMA
S.O. Larsson, BSc (SGW), MSc (Alta), PhD
R.N. Maddox, BA, MBA, PhD (Ohio)
L.W. Mealea, AB, MBA (Rutgers), PhD (Mass)
A. Oppong, BSc (Ghana), MBA (Chic), PhD (Iowa), CGA, on leave 1993/94
D.J. Patton, BA (UNB), MA (Tor), DBA (Indiana)
A.C. Peacock, BA, MA, PhD (Western), on leave 1992/94
R.S. Sandhu, BSc, BCL, LLM (Delhi), LLM (Yale), MBA (Dal), on leave July-Dec 1993
E.W. Scott, BComm (Dal), MBA (Col), CA, CMA, on leave July-Dec 1993
Y. Shafai, BSc, MPA (Tehran), MBA, PhD (Mich)
D.P.J. Sheridan, CD, BA, BEd, MEd(Admin) (Sask), PhD (Alta)
R.A. Street, BComm, LLB, LLM (Dal), MBA (Western)

Assistant Professors

R.G. Baltazar, BSc (Ateneo de Manila), MIM, AGSIM
J.K. Grude, BA (Alta), MSc, PhD (London)
B.W. MacLean, BComm, MBA (Dal), CA
F.S. Skinner, BComm (MUN), MBA (Tor)

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 programme, 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 and career management 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 July 1 cannot be processed. 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 deposit of \$100. 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 course 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 6004A (Strategy Formulation) and 6005B (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: 5801 The Firm in the International Environment, 6802 Strategic Management of International Operations, and at least two of the other International Business courses offered by the School. These include:

- 6803 International Transportation
- 6804 Ocean Shipping Seminar
- 6805 Seminar on Marine Resources and Ocean Industry
- 6806 International Marketing
- 6807 International Financial Management
- 6808 International Banking
- 6809 International Trade in Services
- 6812 Foreign Study Mission
- 6813 Management and the Natural Environment
- 6315 Intercultural and Comparative Management

In addition, MBA 6553 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, 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 6004A and 6005B 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 as early as possible.

Candidates for the MBA/LLB 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, one required non-credit class (except MBA/LLB), and eight free electives, (four for MBA/LLB).

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 5101A: Financial Accounting
- MBA 5703A: Business Economics
- MBA 5601A: Political and Legal Environment
- MBA 5503A: Quantitative Decision Making
- MBA 5801A: International Business (formerly 6801A)
- MBA 5003A: Communications and Career Management (non-credit)

Second Term

MBA 5102B: Managerial Accounting
(Prerequisite: MBA 5101, or permission of the instructor)

MBA 5201B: Financial Management
(Prerequisite: MBA 1501, 5703, or permission of the instructor)

MBA 5401B: Marketing Management

MBA 5551B: Production Management

MBA 5315B: Managing People (formerly 5311B)

MBA 5511B: Management Information Systems (formerly 6903B)

Combined MBA/LLB 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 5003A. With the permission of the Curriculum Committee, MBA 5601A may 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 6004A: Business Policy I: Strategy Formulation. Prerequisite: All first year required classes, or permission of the instructor.

MBA 6326A: Management Skill Development. Prerequisite: MBA 5315, or permission of the instructor.

4 electives

Fourth Term

MBA 6005B: Business Policy II: Strategy Implementation. Prerequisite: MBA 6004
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 6101A or B Public Auditing: seminar,
Prerequisite: MBA 5103

MBA 6102A or B Taxation: seminar,
Prerequisite: MBA 5101, MBA 5703

MBA 6103A or B Advanced Taxation:
seminar, Prerequisite: 8102 (not offered every year)

MBA 6106A Advanced Managerial Accounting 1: Cost Accounting: lecture,
Prerequisite: MBA 5102 or permission of the instructor

MBA 6107B Advanced Managerial Accounting 2: Organizational Control: lecture,
Prerequisite: MBA 6106 or permission of the instructor

MBA 6108A or B Advanced Financial Accounting 1: lecture, Prerequisite: MBA 5101 or permission of the instructor

MBA 6109A or B Advanced Financial Accounting 2: lecture, Prerequisite: MBA 6108 or permission of the instructor

MBA 6112A or B Financial Statement Analysis: lecture, Prerequisite: MBA 5101, MBA 5201, and MBA 5503 (not offered every year)

Finance

MBA 6201A or B Investments: lecture,
Prerequisite: MBA 5201. Recommended:
MBA 5102

MBA 6202A or B Investments II: lecture,
Prerequisite: MBA 5201. MBA 6201 or MBA 6205 recommended

MBA 6203A or B Canadian Capital Markets:
lecture, Prerequisite: MBA 5201.
Recommended: MBA 5102

MBA 6204A or B Short-Term Financial Management: lecture, Prerequisite: MBA 5201, Recommended: MBA 5102

MBA 6205A or B Capital Budgeting: lecture,
Prerequisite: MBA 5101 and MBA 5201

MBA 6206A or B Portfolio Theory: lecture,
Prerequisite: MBA 5101 and MBA 5201

MBA 6807A or B: (see International Business)

Management

MBA 5312A or B Organizational Design: lecture, Prerequisite: MBA 5315 or instructor's consent

MBA 5331A or B Introduction to Labour Management Relations: seminar

MBA 5313A or B Organizational Change: seminar & lecture, Prerequisite: MBA 5315 & MBA 5312 or permission of the instructor

MBA 5315A or B Intercultural and Comparative Management: lecture, Prerequisite: MBA 5801

MBA 5322A or B Selection: Testing & Interviewing: seminar/lecture, Prerequisite: MBA 5315 or permission of the instructor

MBA 5323A or B Training & Development: seminar, Prerequisite: MBA 5315 or permission of the instructor

MBA 5324A or B Performance Appraisal & Compensation: seminar/lecture, Prerequisite: MBA 5315 or permission of the instructor

MBA 5332A or B Collective Bargaining: seminar

MBA 5333AB Comparative Labour Relations: seminar, Prerequisite: MBA 5331 or permission of the instructor

Marketing and Transportation

MBA 5402A or B Buyer Behaviour: lecture

MBA 5401A or B Marketing Research and Information Systems: seminar, Prerequisite: MBA 5402, MBA 5401; strongly recommended MBA 5504

MBA 5402A or B Marketing Channels: lecture, Prerequisite: MBA 5401; recommended MBA 5402

MBA 5403A or B Advertising Management: lecture & seminars, Prerequisite: MBA 5401; recommended MBA 5402

MBA 5404A or B Consumer Behaviour: seminar, Prerequisite: MBA 5401 and MBA 5402

MBA 5405A or B Sales Management: lecture & case studies, Prerequisite: MBA 5401

MBA 5406A or B Domestic Transportation: lecture & seminar

MBA 5407A or B Physical Distribution Management: lecture & seminar, Prerequisite: MBA 5551 or permission of the instructor

MBA 5408A or B Transportation Management: lecture, Prerequisite: MBA 5201 and MBA 5315

MBA 5450B Marketing Strategy Seminar: seminar, Prerequisite: MBA 5401, and at least two 8000-level marketing classes, (which may be taken concurrently) or instructor's consent

MBA 5803A or B: (see International Business)

MBA 5804A or B: (see International Business)

MBA 5806A or B: (see International Business)

Management and Information Science

MBA 5501A or B Operations Research: lecture, Prerequisite: MBA 5503

MBA 5502A or B Forecasting Models: seminar, Prerequisite: MBA 5503 or equivalent

MBA 5503A or B Simulation Models: lecture & seminar, Prerequisite: MBA 5501 and 5502

MBA 5504A Applied Statistics: seminar, Prerequisite: MBA 5501

MBA 5505A or B Managerial Decision Making: lecture & seminar

MBA 5507R Advanced Operations Research Project: tutorial, Choice of instructor, See the M. & I.S. area co-ordinator for requirements

MBA 5553A or B Managing Technological Innovation: seminar

MBA 5904A or B Systems Analysis and Design: seminar, Prerequisite: MBA 5903

MBA 5906A or B Special Topics In Management Information Systems: seminar, Prerequisite: MBA 5903

MBA 5906A or B Database Management Systems: lecture/seminar, Prerequisite: MBA 5903

MBA 5907A or B Management of the Information Resource: seminar, Prerequisite: MBA 5903

MBA 5908A or B Expert Systems: lecture/seminar; prerequisite: MBA 5903B (5903B)

International Business

MBA 5802B Strategic Management of International Operations: seminar, Prerequisite: MBA 5801

MBA 5803A or B International Transportation: seminar, MBA 5801 (recommended)

MBA 5804A or B Ocean Shipping Seminar: seminar, Prerequisite: MBA 5803, (not offered every year)

MBA 5805A or B Seminar on Marine Resources and Ocean Industry: seminar, (not offered every year)

66 Business Administration

MBA 6806A or B International Marketing: seminar, Prerequisite: MBA 5401, MBA 5801 is strongly recommended

MBA 6807A or B International Financial Management: seminar, Prerequisite: MBA 5703, 5201 and 5101, MBA 5801 is strongly recommended

MBA 6808A or B International Banking: seminar, Prerequisite: MBA 5703, MBA 5801 is strongly recommended

MBA 6809A or B International Trade in Services: Lecture/Seminar (not offered every year)

MBA 6812 Foreign Study Mission: Prerequisite: MBA 5801

MBA 6813 Management and the Natural Environment - An International Perspective

General

MBA 6002A or B New Venture Creation: Prerequisite: MBA 5101, 5102, 5201, 5401

MBA 6003A or B Management of Diversification: Prerequisite: MBA 5101, 5102, 5201, 5315, 5401, 5503, 5551, or permission of the instructor

MBA 6901A or B Business Law: seminar

MBA 6902A or B Business and Government: lecture

MBA 6951A/6952B Research Reading and Conference: choice of instructor

Chemistry

Location: Chemistry Building, Dalhousie University, Halifax, N.S. B3H 4J3
Telephone: (902) 494-3305
Fax: (902) 494-1310

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. Aus, 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, SoD (Cambridge), President, Dalhousie University
 J.A. Coxon, MA (Cantab.), MSc, PhD (East Anglia)
 T.P. Forrest, BSc (MtA), MSc (Dal), PhD (UNB)
 J.S. Grosseart, BSc, MSc, PhD (Natal)
 J.C.T. Kwak, BSc, MSc, PhD (Amsterdam)
 K.T. Lefk, BSc, PhD (Lond)
 P.D. Pacey, BSc (McG), PhD (Toronto)
 J.A. Fincook, BSc, MSc (Man), PhD (Tor)
 L. Ramaley, BA (Columbia), MA, PhD (Princeton)
 R. Stephens, MA (Cantab.), MSc (Bristol), PhD (London), DIC
 R.E. Weayliehen, 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. Kuealk, 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
 A.J. Thakkar, University of New Brunswick
 K. Vaughan, Saint Mary's University
 M.J. Zaworotko, Saint Mary's University

Visiting Scientists (1992)

N. Foroughifar, Arak University, Iran
 Xavier Lopez, University of the Basque Country, Spain
 Russell G. Rose, University of East Anglia, United Kingdom, University of Umeå, Sweden
 J. Valkonen, University of Jyväskylä, Finland

Postdoctoral Fellows (1992)

G. Badnarz, MSc (Lódz), PhD (Dal)
 X. Du, PhD (Dal)
 K. Elohele, PhD (University of Tübingen, Germany)
 L.A. Eriksson, PhD (Uppsala, Sweden), Killam Postdoctoral Fellow
 W. Kwiatkowski, PhD (Tech. Univ of Lódz, Poland)
 Y.G. Lee, PhD (Chungnam National University, Korea)
 M. Mandy, PhD (Toronto)
 S. Mason, PhD (Leicester)
 I. McLennan, PhD (Guelph)
 K. McManus, PhD (Dal)
 Z. Shi, BSc (Shangdong), PhD (Dal)
 I. Sviehohev, PhD (Moscow)
 R. Thengarasa, PhD (Dal)

Research Assistants/Associates

R. Cordes, BSc (Dal), MSc (UBC)
 H. Furue, PhD (Queen's)
 M. Li, (Qinghai Inst. of Salt Lake, Chinese Academy of Science)
 K.C. Manthorne, BSc (Dal), BScEng (TUNS)
 R.R. Rao, PhD (IIT, Bombay)

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 (Chem 5880) 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 demonstrator 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 timetable to ascertain which classes are being given.

Analytical

CHEM 5201 - Advanced Topics in Separations

CHEM 5202 - Topics in Advanced Analytical Spectroscopy

CHEM 5204 - Chromatography

Inorganic and Structural

CHEM 5101 - Topics in Advanced Main Group Chemistry

CHEM 5102 - Topics in Advanced Transition Metal Chemistry

CHEM 5103 - Topics in Solid State Chemistry

CHEM 5104 - General Advanced Inorganic Chemistry

Organic

CHEM 5401 - Synthesis in Organic Chemistry

CHEM 5402 - Organic Structure Determination

CHEM 5403 - Organic Reaction Mechanisms

Physical and Theoretical

CHEM 5301 - Theory of Chemical Bonding

CHEM 5304 - Kinetics and Catalysis

CHEM 5305 - Introductory Statistical Thermodynamics

CHEM 5306 - Magnetic Resonance

CHEM 5306 - Molecular Spectroscopy

Interdisciplinary

CHEM 5503 - Symmetry and Group Theory

CHEM 5504 - 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. Some of the topics covered recently in specialized classes include: X-ray crystallography, free radical chemistry, pollution evaluation, organic photochemistry, organic electrochemistry, nuclear chemistry,

electronics for scientists, carbohydrate chemistry, analytical flame spectroscopy, electrolyte solutions, organic stereochemistry, colloid and surface science, chemical kinetics, solid state chemistry, and advanced electronic structure theory.

Approved classes from departments other than Chemistry may be taken for credit.

Chemistry Research Interests

Analytical Chemistry

W.A. Aue: Basic and applied chromatography
 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. Remaley: Electroanalytical chemistry, mass spectrometry and chemical instrumentation

R. Stephens: Analytical atomic spectroscopy

P.D. Wentzell: Computers in analytical chemistry and 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

H.C. Clark: Chemistry of organo and hybrid platinum and palladium compounds

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

Organic Chemistry

D.R. Arnold: Photochemistry, especially the development of synthetically useful methods; reactions of radical ions

T.P. Forrest: Expert systems for spectroscopic interpretation;

Stereochemistry; nmr spectroscopy

T.B. Grindley: The chemistry of carbohydrates and of carbanions; 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, including the study of reaction mechanisms and structure of strong neutral bases

J.A. Pincock: Studies on reaction mechanisms involving both ground and excited states

R.L. White: Biosynthesis of natural products, especially amino acids and antibiotics, and enzymes of secondary metabolism

Physical and Theoretical Chemistry

R.J. Boyd: Analysis of electron correlation and electron density distributions; theoretical studies of reaction mechanisms and molecular interactions

J.A. Coxon: Electronic spectra of small molecules; laser spectroscopy; weak chemiluminescence; potential energy curves

P.G. Kuehik: Computer simulation and theoretical studies of polar solvents and electrolyte solutions; liquid state theory

J.C.T. Kwak: Colloid and polymer chemistry.

P.D. Pacey: Temperature dependence of reaction rates

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: Thermal properties of solids, especially heat capacity and thermal conductivity

Classics

Location: 1244 LeMarchant Street,
Halifax, N.S. B3H 3P7
Telephone: (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 (Yind), STB (Harvard), MTh (Trinity), PhD (Harvard)
R. Friedrich, DrPhil (Gott)
C.J. Starnes, BA (Bishop's), STB (Harvard), MA (MoG), PhD (Dal)

Associate Professors
W.J. Hankey, BA (Yind), MA (Tor), PhD (Oxon)
D.K. House, MA (Dal), PhD (Liverpool) -
Graduate Studies Coordinator
P.F. Kusemaul, 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 Seminar on Greek Literature (1):
R. Friedrich

CLAS 5020 Seminar on Greek Literature (2):
R. Friedrich

CLAS 5030 Seminar on Latin Literature (1):
R. Friedrich/J.P. Atherton

CLAS 5040 Seminar on Latin Literature (2):
R. Friedrich/J.P. Atherton

Ancient History

CLAS 5530 Reading and research in Ancient History (1): P.F. Kusernaul

CLAS 5531 Reading and research in Ancient History (2): P.F. Kusernaul

CLAS 5550 Reading and research in Ancient History (2): P.F. Kusernaul

CLAS 5551A Reading and research in Ancient History: P.F. Kusernaul

CLAS 5552B Reading and research in Ancient History: P.F. Kusernaul

Classical Philosophy

CLAS 5600 Seminar on the Philosophy of Aristotle: J.P. Atherton

CLAS 5601 Seminar on Plato and Neoplatonism: J.P. Atherton

CLAS 5602 Seminar on Hellenistic Philosophy: D.K. House

CLAS 5603 Seminar on the Philosophy of Plato: D.K. House

Patristics

CLAS 5700 Seminar on the Philosophy of the Church Fathers: R.D. Crouse

CLAS 5701 Seminar on the Medieval Interpreters of Aristotle: R.D. Crouse

CLAS 5705 Seminar on St. Augustine (1): C.J. Starnes

CLAS 5706 Seminar on St. Augustine (2): C.J. Starnes

CLAS 5800 Seminar on Christian Beginnings: W.J. Hankey

CLAS 5801 Seminar on Christianity and Neoplatonism: W.J. Hankey

Classes Occasionally Offered

Greek and Latin Literature

CLAS 5011 Seminar on Greek Tragedy: R. Friedrich

CLAS 5012 Seminar on Greek Comedy: R. Friedrich

CLAS 5013 Seminar on Greek Lyric: R. Friedrich

CLAS 5031 Seminar on Roman Satire: Staff

CLAS 5032 Seminar on Roman Historians: Staff

CLAS 5033 Advanced Seminar on Latin Literature: Staff

CLAS 5034 Seminar on Greek Literature

Ancient History

CLAS 5631 Seminar on the Roman Empire and the Rise of Christianity: P.F. Kusernaul

CLAS 5651 Ancient Law and Jurisprudence: P.F. Kusernaul

Classical Philosophy

CLAS 5604 History of the Interpretation of Aristotle: Staff

CLAS 5605 Advanced Seminar on Neoplatonism: Staff

CLAS 5606 Greek Philosophical Texts: Staff

CLAS 5607 Latin Philosophical Texts: Staff

CLAS 5608 Reading and Research: Staff

CLAS 5609B Greek Philosophical Texts: J.P. Atherton

Patristics

CLAS 5707 Readings in Patristic Texts: Staff

CLAS 5708 Reading and Research: Staff

CLAS 5900 Departmental Seminar: Staff

CLAS 5901 Reading and Research: Staff

CLAS 9000 Thesis (MA)

CLAS 9530 Thesis (PhD)

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)

Professors

D.B. Clarke, BSc, MA (Tor), PhD (Edin)
J.M. Hall, BSc (Wales), PhD, DIC (Lond)
R.A. Jamieson, BSc (Dal), PhD (MUN)
F. Mediolì, PhD (Parma)
P.H. Reynolds, BSc (Tor), PhD (UBC) (Jointly
with Physioe)
P.T. Robinson, BSc (Mich), PhD (Calif)
P.E. Schenk, BSc (Western), MSc, PhD (Wisc)
M. Zentilli, BSc (Chile), PhD (Queen's)

Associate Professors

R. Boyd, BSc, PhD (Sydney), (on leave)
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

N. Culehaw, BA (Keele), PhD (Ottawa)
D. Godfrey-Smith, BA (Calgary), PhD (SFU)

Senior Instructor

P. Wallace, BSc, MSc (McM)

Research Associate

C. Beaumont, major appointment in
Oceanography Department

Honourary Research Associates

S. Barr, BSc (UNB), PhD (UBC), Acadia
University
H. Diok, BA (Pennsylvania), PhD (Yale),
Woods Hole
J. Doetal, BSc (Charlee), PhD (MoM), St.
Mary's University
M. Graves, BSc (Idaho), MSc (Dal), Cuesta
Research, Ltd.
P.R. Hill, BA (Oxon.), PhD (Dal), Univ du
Québec à Rimouki
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. Malpas, BA, MA (Oxon), MSc, PhD (MUN),
Memorial University of Newfoundland
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
D.J.W. Piper, BA(Hons) (St Catherine's Col,
Cantab), MA (Cantab), PhD (Darwin Col,
Cantab), Atlantic Geoscience Centre, BIO
R. Roeside, 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

Honourary Adjunct Professors

F.M. Gradstein, BA, MSc, PhD (Utrecht),
Atlantic Geoscience Centre, BIO
P.A. Hacquebard, BSc, MSc (Loiden), PhD
(Groningen), LLD (Dal)
M. Melchri, MSc (Waterloo), PhD (Western),
St. Francis Xavier University
P.J. Mudie, BSc (Cape Town), BSc
(Leicester), PhD (Dal), Atlantic Geoscience
Centre
M.H. Salisbury, BSc (MIT), MSc, PhD (Wash)
H. Williams, PhD (Exeter), Ontario Geological
Survey

Postdoctoral Fellows

D. Arne, BSc (Regina), MSc (Lakeland), PhD
(Melbourne), Killam Fellow
J. Pasava, BSc (Charles), PhD (Prague)

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 6200R 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 6200R.

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 5151A or B Mineral Deposits: M. Zentill

ESCI 5152A or B Fossil Fuels: M. Gibling

ESCI 5270A Applied Geophysics: P.J.C. Ryall

ESCI 5280B Marine Geophysics: K. Loudon (Ocean.)

ESCI 5290B Geodynamics: C. Beaumont (Ocean.)

ESCI 5350A Tectonics: J.M. Hall

ESCI 5351B Canadian Regional Tectonics: N. Culeshaw, M. Gibling, R. Jamieson

ESCI 5390A Advanced Geochemistry: G.K. Muecke

ESCI 5390B Advanced Igneous Petrology: D.B. Clarke

ESCI 5400B Advanced Metamorphic Petrology: R.A. Jamieson

The following classes are designed specifically for graduate students.

ESCI 6100C Seminar in Sedimentology and Stratigraphy

ESCI 6110C Research Topics in Micropaleontology

ESCI 6120A/6220B Seminar in Mineralogy, Petrology and Geochemistry

ESCI 6130C Seminar in Geophysics

ESCI 6150R Metallogeny in Mineral Exploration

ESCI 6160R Research Topics in Soft Rock Geology I

ESCI 6170R Research Topics in Soft Rock Geology II

ESCI 6200R Research Skills in Earth Sciences

ESCI 6250C Directed Studies

*Some classes not offered every year.

Both 6160R and 6170R are required for all graduate students specializing in sedimentology, stratigraphy, or micropaleontology.

All graduate students must be registered in one of:

ESCI 9000 MSc Thesis

ESCI 9530 PhD Thesis

Economics

Location: 6214 University Avenue,
Halifax, N.S. B3H 1X1
Telephone: (902) 494-2026

Chairperson of Department

E. Klein

Professor Emeritus

Z.A. Konozaeki, BSc (Lond), BEcon(Hons)
(Natal), PhD (Lond)

Professors

F.M. Bradfield, BComm (McM), PhD (Brown)
J.L. Cornwall, BA (Iowa), MSc (Lond), PhD
(Harvard), McCulloch Professor of Economics
S. DasGupta, BA (Calcutta), MA (Delhi), PhD
(Rochester)

E. Klein, LLM (Buenos Aires), MSc (Dal), Dr
Rer Pol (Hamburg)

C. Marfele, Dr Rer Pol (Berlin)

R.I. 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
(Montana), MA (SFU), PhD (Texas A&M)
Graduate Co-ordinator

D. Gordon, BA (Lethbridge), MA
(Saskatchewan), PhD (UBC)

B. Huber, BA, MA, PhD (Yale)

B. Leseer, BComm (Dal), MA, PhD (Cornell)

L. Mazany, BSFS (Georgetown), PhD (UBC)

S. Phipps, BA(Hon) (Victoria), MA, PhD (UBC)

Honourary Adjunct Professors

S. Amirkhalkhal, BAHons (Shiraz), MA, PhD
(Dal), Saint Mary's University

R.L. Comeau, BA, MA (St.F.X.), PhD (Brown)

W. Cornwall, BA (MSVU), PhD (Dal), Mount
St. Vincent University

R. George, BSc (London), MSc (Bristol), PhD
(London)

T. Ogwang, BStat (Makerere), MA (Leeds),
PhD (Dal), Saint Mary's University

T. Pinfold, BA, MA (Western), PhD (Minn)

Assistant Professors

P. Burton, BSc (Sask), MA, PhD (UBC)

A. Mansoorian, BSc (LSE), MA (McM), PhD
(Queen's)

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 70% (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 2220/2221) and a basic class in Statistics (equivalent to Dalhousie Mathematics 2060 and 2080). A first-level Mathematics class (equivalent to Dalhousie Mathematics 1000A or to both 1110B and 1120A) 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 that a student should have completed an Honours BA in Economics (or equivalent) with an average of at least 70% (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 1000A or B and 2030A 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 1000A or to 1110B plus 1120A) is also required.

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, the 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, 2030 and 2040 and Economics 2228).

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 5500A, 5509B, 6600B and 6609A, 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 5500A (Macroeconomic theory)
2. Economics 5509B (Microeconomic theory)
3. Economics 5508 (Economic History as available)
4. Two elective classes

Year 2:

1. Economics 6600B (Macroeconomic theory)
2. Economics 6609A (Microeconomic theory)
3. Economics 5533 (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 (half class); Metric Spaces and Elementary Topology, and Mathematics 4140 (half class); Introduction to Functional Analysis

OR

1. Mathematics 3300 (half class); Linear Integer Programming, and Mathematics 3310 (half class); Discrete and Dynamic Programming
2. Economics 6600B (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; Measure and Integration Theory, Mathematics 3120 (half class); Differential Equations, or Mathematics 4300 (half class); Control Theory
2. Economics 6619 (half class) and Economics 6620 (half class); Seminars in Mathematical Economics and Economic Theory
3. Economics 5533; 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 5000A or B Economic Theory for MDE Microeconomics

ECO 5001A or B Economic Theory for MDE Macroeconomics

ECO 5238A The Industrial Revolution In Europe: P.B. Huber

ECO 5238B The European Economy In Historical Perspective: After the Industrial Revolution: P.B. Huber

ECO 5250 Applied Development Economics

ECO 5251C Seminar In Development Studies

ECO 5333A Theories of Economic Development: B. Leseer

ECO 5334B Economic Development: Recent Debates, Controversies and Conflicts

ECO 5336B Regional Development: Post-1945 Canadian and Industrial Countries' Economic Policy Experience: R.I. McAllister

ECO 5350B Social Cost-Benefit Analysis: T. Pinfold

ECO 5431B International Payments: L. Mazany

ECO 5433B Intergovernmental Fiscal Relations:

ECO 5500A Macroeconomics: J.L. C

ECO 5502A Monetary Theory: Microeconomic Aspects

ECO 5505 Public Finance

ECO 5506 North American Economic History: B. Leseer

ECO 5509B Microeconomics: S. DasGupta

ECO 5511A Regional Economics: Theories: F.M. Bradfield

ECO 5512B Regional Economics: Empirical Studies and Policies: F.M. Bradfield

ECO 5514B Monetary Theory - Macroeconomic Aspects: R.L. Comeau

ECO 5515 Labour Economics: L. Osberg

ECO 5516A Natural Resource Economics I: M.L. Cross

ECO 5517B Natural Resource Economics II: P. Burton

ECO 5518A or B Antitrust Economics: C. Marfisi

ECO 5521A Mathematics for Economists: S. DasGupta

ECO 5533 Econometrics: U.L.G. Rao

ECO 5551A Special Topics in Monetary Policy

ECO 5552B Special Topics in Monetary Theory

ECO 5558 Special Topics in Industrial Organization: C. Marfisi

ECO 5559 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 5575A Applied Statistics and Econometrics I: D.V. Gordon

ECO 5576A Applied Statistics and Econometrics II: D.V. Gordon

ECO 5600R Special Topics in Macroeconomics: J. Cornwall

ECO 5601A or B Special Topics in Macroeconomics: J. Cornwall

ECO 5620A Special Topics in Resource Economics: M. Cross or P. Burton

ECO 5621R Special Topics in Resource Economics: M. Cross or P. Burton

ECO 5659A or B Special Topics in Labour Economics: L. Osberg

ECO 5670B Special Topics in Econometrics: G. Rao

ECO 5600B Economic Theory: J.L. Cornwall

ECO 5609A Economic Theory: E. Klein

ECO 5610 Mathematical Economics: S. DasGupta and E. Klein

ECO 5619A Seminar in Mathematical Economics and Advanced Economic Theory I

ECO 5620B Seminar in Mathematical Economics and Advanced Economic Theory II

ECO 5680 Directed Reading

ECO 9000 MA Thesis

ECO 9530 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 3J6
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 (Leics), 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. Bérrard, BA (Antioch), MA (McM), BEd (Dal), PhD (McM)
 R. Gernberg, 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), DipGuid (Delhi), BEd, PhD (Alta), Coordinator MEd Programme
 K.C. Sullivan, BSc, BEd (Dal), MEd, PhD (Alta)
 M. Welton, 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)

Honourary Research Associates

J. Eaton, BSo (Acadia), PhD (Dal)
 K. Kienapple, BA (Waterloo), MSc, PhD (Purdue); Mount St. Vincent University
 K.V. Mann, BN, MSc, PhD (Dal); Continuing Medical Education
 N. Vogan, BA (MtA), MMus, PhD (Rochester); Mount Allison University

Honourary Adjunct Professor

F.J. Dockrill, BA, BEd, MA (SMU), PhD (Dal); St. Mary's University

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 Miqmaq 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 Miqmaq 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 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 Honour's degree or equivalent will be required to complete a three-year residency); full time study; four to eight full credits or equivalent including Ed. 5800R; a reading knowledge of any language required

for successful completion of doctoral research; Preliminary Examination, thesis, oral defence of thesis.

To qualify for the award of the PhD degree, the thesis must make a substantial 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).

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 5800R (Graduate Seminar) is compulsory for all first-year MA students in Educational Foundations, Curriculum, 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 5021A The Development of a Progressive Curriculum in Canadian Public Schools, 1890-1914: A. Wood

EDUC 5022B The Development of a Progressive Curriculum in Canadian Public Schools, 1914-1940: A. Wood

EDUC 5031A or B Teachers, Their Organizations and Decision Making in Education: R. Béard

EDUC 5051A History of Canadian Education: E. Ricker/M. Welton

EDUC 5052B History of Canadian Education: E. Ricker/M. Welton

EDUC 5061A or B The History of Curricular Thinking: J.B. Roald

EDUC 5101A or B Advanced Studies in Philosophy of Education: W. Hare
Cross-listing: PHIL 5101

EDUC 5162A or B Open-Mindedness and Education: W. Hare

EDUC 5231A or B Social Issues in the Curriculum: A. Manicom

EDUC 5241A or B Gender Socialization: R. Gamberg

EDUC 5242A or B Gender Issues in Education: A. Manicom

EDUC 5251A or B Educational Tradition and Change in Regional Context: The Soviet Realm: S. Semple

EDUC 5252A or B Comparative Perspectives on Issues in Education: S. Semple

EDUC 5281R 19th and 20th Century Critical Thinkers: Marx to Habermas: M. Welton

EDUC 5291A or B Multiculturalism and Education: E. Ricker

EDUC 5301A Human Learning: S. Sodhi

EDUC 5302B Cognition: S. Sodhi

EDUC 5341A Special Education Policy Decisions: S. Sodhi

EDUC 5342B Learning Disabilities: S. Sodhi

EDUC 5360R Theories of Personality: J. Manos

EDUC 5370R Human Development: T. Laidlaw/J. Manos

EDUC 5380R Psychology of Special Education: Resource Teachers: S. Sodhi

EDUC 5381A or B Introduction to Counselling: T. Laidlaw

EDUC 5383A or B Theories of Career Counselling: Staff

EDUC 5385R Counselling Women: T. Laidlaw

EDUC 5391A or B Introduction to Educational Assessment: J. Murphy

EDUC 5392A or B Psychological Testing in Education: J. Murphy

EDUC 5401A or B Administration of Public Education in Canada: E. Ricker

EDUC 5402A or B Concepts in Educational Administration: K. Sullivan

EDUC 5411A or B Administration of Educational Personnel: K. Sullivan

EDUC 5412B Administration of Educational Programmes: staff

EDUC 5421A or B Politics of Education: R. Béard

EDUC 5431A Education and Public Policy: E. Ricker

EDUC 5432B The Local Government and Administration of Education: E. Ricker

EDUC 5460A or B Law and the Schools: staff

EDUC 5470R Local Government and Administration of Education: E. Ricker

EDUC 5471A or B Educational Finance: staff

EDUC 5481B The Use of Microcomputers in Educational Administration: K. Sullivan

EDUC 5484A or B Introduction to the Study of Teaching and Pedagogy: B. Roald

EDUC 5500R Curriculum: A. Barton

82 Education

EDUC 5516R Foundations of Curriculum Studies: B. Roald

EDUC 5530A or B Teaching and Instructional Development in Higher Education: A. Wright

EDUC 5552B Organizing and Administering School Library Media Center Programs: staff (Consult School of Library and Information Studies.)

EDUC 5571B Foundations of Second-Language Teaching: P. DeMeo (Consult the French Department)

EDUC 5573A or B Visual Pedagogy in Second Language Teaching: J. Brown (consult French Department)

EDUC 5601A or B Young Adult Literature and Media Interests: (Consult School of Library and Information Studies.)

EDUC 5612A or B Children's Literature and Media Interests: (Consult School of Library and Information Studies.)

EDUC 5621A New Directions in Mathematics Education: Instructional Practices: M. Crowley

EDUC 5622B New Directions in Mathematics Education: Programmes of Study: M. Crowley

EDUC 5637A/5638B Computers and Writing: A. Barton

EDUC 5650R Computer Lesson Writing: A. Barton

EDUC 5680R Geography in Education: S. Semple

EDUC 5670B New Dimensions for Curriculum in Geography: S. Semple

EDUC 5701A or B Special Topics in Education

EDUC 5702A or B Special Topics in Education

EDUC 5800R Graduate Seminar: staff

EDUC 5801A or B Qualitative Research Methods: A. Manicom

EDUC 5802A or B Advanced Seminar in Qualitative Research: A. Manicom

EDUC 5811A or B Quantitative Research Methods: J. Murphy

EDUC 5821A or B Educational Statistics: J. Murphy

EDUC 5900R Foundations of Continuing Education: Staff

EDUC 5910R Education and Aging: Staff

EDUC 5921A Programme Design in Continuing Education: Staff

EDUC 5923A Community College Education: Staff

EDUC 5930R Continuing Professional Education: Staff

EDUC 5931A Critical Perspectives on Adult Learning and Teaching: M. Welton

EDUC 5932B Adult Education Methods: M. Welton

EDUC 5933A or B Social and Intellectual History of Adult Education: M. Welton

EDUC 5935A or B Twentieth Century Adult Education Thinkers: M. Welton

EDUC 5941A or B Adult Counselling: J. Manos

EDUC 5950R Comparative Studies in Continuing Education: S. Semple

EDUC 5961A Adult Psychology: S. Sodhi

EDUC 5962B Adult Psychopathology: S. Sodhi

EDUC 5973A or B Community Education and Development: M. Welton

EDUC 5975R Selected Policy Issues in Continuing Education: D. Myers

EDUC5981A or B Issues in Adult Literacy: R. Gamberg

EDUC 5982A or B Adult Literacy Needs and Programmes: R. Gamberg

EDUC 5995R Special Topics in Adult Education: Staff

EDUC 6000-6911 Reading Classes

EDUC 7985R Practicum: Theory and Practice of Literacy Acquisition for Adults: R. Gamberg. Open to independent completion of study

EDUC 7990 Project - Educational Psychology: Consult School. Open to independent completion of study.

EDUC 7991R Project - Curriculum: Consult School. Open to independent completion of study. MEd programme only.

EDUC 7992B Practicum in Continuing Education: Staff. Open to independent completion of study.

EDUC 7993R Project - Educational Foundations: Consult School. Open to independent completion of study. MEd Programme only.

EDUC 7994R Practicum: Creating the Educative Workplace: M. Welton or R. Gamberg. Open to independent completion of study.

EDUC 7995A or B Practicum: Counselling: J. Manos

EDUC 7996R Practicum: Counselling: J. Manos

EDUC 7998R Project - Educational Administration: Consult School. Open to independent completion of study. MEd Programme only.

EDUC 9000R MA Thesis

EDUC 9530R PhD Thesis

English

Location: 1434 Henry Street, Halifax,
N.S. B3H 3J6
Telephone: (902) 494-3384

Chairperson of Department

R.M. Huebert

Professors Emeritus

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 (Windeor), 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
J. Fraser, MA (Oxon), PhD (Minn), George Munro Professor of English Language and Literature

R.M. Huebert, BA (Sask), MA, PhD (Fitt)

M.A. Klug, BA (Minn), MA (Kansas State), PhD (Illinois)

P. Monk, BA (Reading), MA (Carlton), PhD (Queen's)

R.J. Smith, BA (Natal), MA (Oxon), PhD (Natal), McCulloch Professor of English, Dean of the Faculty of Arts and Social Sciences

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, BA (Carlton), PhD (Tor)

J. Thompson, BA (Western), MA, PhD (Tor)

Honourary Adjunct Professor

R. Davies, PhD (Wales), Acadia

Honourary Research Associates

K. MacKinnon, PhD (Tor), Saint Mary's
M. West-Water, PhD (Dal), Mount Saint 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.

Two graduate seminars in English, one in the thesis area and one in an area unrelated to the thesis, and a third seminar in English, or, with the approval of the Department, a class in another department relevant to the candidate's programme, are required.

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 1993-94.

ENGL 5110R Middle English Literature: M. Furrow, H. Morgan

ENGL 5115R Medieval Romance: H.E. Morgan

ENGL 5120R Early English Drama: A. Higgins

ENGL 5220R Shakespeare: J. Baxter

ENGL 5230R Renaissance Poetry and Rhetoric: J. Baxter

ENGL 5231A Spenser, Shakespeare, Donne: Eric and Chastity: J. Baxter

ENGL 5232B Brave New Worlds in the English Renaissance: J. Baxter

ENGL 5235A Milton's *Paradise Lost*: R. Huebert

ENGL 5237R Gender in English Renaissance Drama: C. Luckyj

ENGL 5250R Renaissance Dissident Writers: R. Huebert

ENGL 5255B The Body in Renaissance Literature and Culture: R. Huebert

ENGL 5260B 17th Century Life-Writing: R. Huebert

ENGL 5305B The Restoration Theatre: D. McNeil

ENGL 5310R Restoration and Augustan Satire: D. McNeil

ENGL 5315R The Eighteenth-Century English Novel: D. McNeil

ENGL 5316A The Eighteenth-Century English Novel: D. McNeil

ENGL 5405R The Wordsworths and Coleridge in Conversation: J. Thompson

ENGL 5410R Innovation and Tradition in Romantic Poetry: R. Tetreault

ENGL 5411A or B Women and Men in the Romantic Era: R. Tetreault

- ENGL 5412 Women and Men in the Romantic Era:** R. Tetreault
- ENGL 5415R Wordsworth and Coleridge:** R. Tetreault
- ENGL 5420R Keats and Shelley:** R. Tetreault
- ENGL 5421A or B Keats:** R. Tetreault
- ENGL 5422A or B Shelley:** R. Tetreault
- ENGL 5430R The Literature of Victorian Social Criticism:** C.J. Myers
- ENGL 5435R Victorian Narrative Modes:** M. Stone
- ENGL 5436A Engendering the Muse: Victorian Poetry, Literary History and Feminist Poetics:** M. Stone
- ENGL 5510R Traditionalism and Experimentation in English Poetry, 1880-1920:** J. Fraser
- ENGL 5515R Literature and Society, 1900-1920:** J. Fraser
- ENGL 5517R The Ideology of Modernism: Pound and Eliot:** V. Li
- ENGL 5520R Joyce and Yeats:** M.A. Klug
- ENGL 5522A The Modernist/Post-Modernist Novel:** V. Li
- ENGL 5525R British Literature, 1920-1945:** R.J. Smith
- ENGL 5526A British Literature, 1920-30:** R.J. Smith
- ENGL 5527B British Literature, 1930-45:** R.J. Smith
- ENGL 5540R British Fiction Since 1945:** R.J. Smith
- ENGL 5615R Modern Canadian Poetry:** P. Monk
- ENGL 5620R Modern Canadian Fiction:** J.A. Wainwright
- ENGL 5625A or B Studies in Modern Canadian Poetry:** P. Monk
- ENGL 5628R Modern Canadian Literature: Re/writing History:** J.A. Wainwright
- ENGL 5630A or B Studies in Modern Canadian Fiction:** J.A. Wainwright
- ENGL 5710R Studies in Commonwealth Fiction:** R.J. Smith
- ENGL 5810R The American Scene: Major Figures of the Nineteenth Century:** B. Greenfield
- ENGL 5815R American Travel/American Literature:** B. Greenfield
- ENGL 5820R American Poetry 1910-1945:** L. Diepeveen
- ENGL 5825R A or B Recent American Fiction:** M.A. Klug
- ENGL 5830A Reading American Modernism:** L. Diepeveen
- ENGL 5835B Finding a Centre: Making Literary History in Contemporary American Poetry:** L. Diepeveen
- ENGL 5905R Problems in Literary Theory:** J. Fraser
- ENGL 5918A The Politics of Representation:** V. Li
- ENGL 5930B The New Historicism:** R. Huebert
- ENGL 9000 MA Thesis**
- ENGL 9530 PhD Thesis**

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
S.F. Guppy

International Programme Co-ordinator
R.E. Clarke, BA (Goddard), PhD (UBC)

Professors

R. Apoetle, BA (SFU), MA, PhD (Calif, Berkeley), major appointment in Sociology and Social Anthropology
R. Boardman, BSc, PhD (Lond), major appointment in Political Science
W.H. Charles, BA (Sir Geo. Wms.), LLB (Dal), LLM (Harvard), LLM (Mich), major appointment in Law
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
J.G. Ogden III, MA (Tenn.), PhD (Yale) major appointment in Biology
K.W. Renton, BSc (Sir Geo. Wms.), PhD (McG), major appointment in Pharmacology
B.H. Wildernith, 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
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. Patricin, MSc, PhD (McG), major appointment in Biology

D.J. Patton, BA (UNB), MA (Tor), DBA (Indiana), major appointment in Business Administration
J. Pinter, MSc (Eötvös), PhD (Moscow State)
D. VanderZwaag, BA (Calvin), MDiv (Princeton), JD (Arkansas), LLM (Dal), joint appointment with Law

Assistant Professors

J.R. Guernsey, BSc (Carleton), MSc, PhD (Iowa), cross appointment in Community Health and Epidemiology
S.F. Guppy, BSc (Nottingham), MSc, PhD (Wales), MArch (Columbia)
C. Lamson, BA (Skidmore), MS (Simmons), MA (Memorial), MES (Dal)
T. Li, BA, PhD (Cantab), major appointment in Sociology and Social Anthropology

Research Associates

J. Reade, BA (SMU), MLS (Dal)

Honourary Research Associates

J. Campbell, BA (Dal), MA, PhD (UC Irvine)
J. Grant, PhD, MA (Waterloo), MA (McM), BA (Western) NASCAD
G. Howell, BSc, MSc (Dal), Environment Canada
J. Leith, BPhysEd (McM), MA (Guelph)
P. Taschereau, BA (Sir Geo. Wms.), MA (Acadia), PhD (Man)

Honourary Adjunct Professors

T. Charles, BSc (Carleton), PhD (UBC), Saint Mary's University
A.J. Hanson, BSc, MSc (UBC), PhD (Mich)
L. Kasdan, MA, PhD (Chicago)
P.J. Ricketts, BA (Nottingham), PhD (Southampton), Saint Mary's University
D.J. Scarrat, 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

P.G. Wells, BSc (McG), MSc (Tor), PhD (Guelph)

International Programme Staff

S. Conover, AB (Oberlin), MSc (Yale), PhD (Dal)

J. Campbell, BA (Dal), MA, PhD (UC Irvine)

P. Lawrence, BSc (London)

J. Leith, BPhysEd (McM), MA (Guelph)

B. Patton, BA (UNB), MA (McMaster), MLS (Indiana)

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

Priority consideration for admission and financial assistance will be given to applications received by 15 February.

Programme Duration and Minimum Requirements

(a) The one-year programme

Note: 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 5000R and 5001B
2. One graduate-level class related to an environmental theme in the student's area of specialization.
3. Thesis

(b) The two-year programme

For all other students the minimum programme will occupy two years. Those accepted with an Honours bachelor degree, or a professional degree without environmental content, 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. The approved classes from which these three half-credits may be selected will include a meaningful introduction to environmental questions as related to the discipline. 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 5000R and 5001B
3. An approved graduate half-class in an area designed to relate the undergraduate major to an environmental theme
4. ES 5110A (or appropriate alternative)
5. ES 5200B (or appropriate alternative)

The requirements for the second year of a two-year programme are:

1. ES 5002A
2. An approved graduate level half-class

88 Environmental Studies

3. ES 9000 (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.

Classes Offered

All classes except ES5002A and ES9000 are open to students in other programmes by permission of the instructor.

ES 5000R Introduction to Environmental Studies: F. Cohen and staff

ES 5001B Environmental Assessment: G. Beaulieu

ES 5002A Environmental Studies Joint Project: Staff

ES 5004A or B Management of Toxic Substances: R. Côté

ES 5006A Environmental Toxicology: B. Freedman, P. Wells

ES 5020A Resource Systems and Economic Development: Staff (Cross-listed with Biology 4650A)

ES 5021B Fisheries Economics: staff

ES 5030A Seminar on Sustainable Development: B. Clarke

ES 5031B Seminar on Environmental Economics: S. Wood

ES 5032B Aquatic Toxicology: P. Wells

ES 5033B Resources and Communities: B. Clarke

ES 5034A or B Special Topic in Resource and Environmental Studies: Staff

ES 5035A Research Methods: S. Guppy

ES 5036B Resource and Environmental Management Tools: C. Lamson

ES 5037A Environmental Effects of Coastal Resource Use: C. Lamson

ES 5038A Urban Ecology: S. Guppy

ES 5039B Indigenous People: F. Cohen

ES 5100R Applied Economics: F. Siddiq (Cross-listed with MPA 5130A/5131B)

ES 5110A Resource Economics: P. Burton (Cross-listed with Economics 5516A)

ES 5120B Environmental Ecology: B. Freedman (Cross-listed with Biology 5060B)

ES 5180A Coastal Communities: V. Thiesen (Cross-listed with SOSA 3220A/5220A)

ES 5200A or B Introduction to Environmental Law: Staff. (Cross-listed with Law 2104/2105 A or B)

ES 5300A Natural Resources Administration: P. Pross. (Cross-listed with MPA 6530A, Political Science 5266A)

ES 5601A or B Management of the Marine Environment: C. Lamson, J. Vandermeulen

ES 9000 Thesis

French

Location: 1315 LeMarchant Street,
Halifax, N.S. B3H 3J5
Telephone: (902) 494-2430

Chairperson of Department

M. Bishop

Professors

M. Bishop, BA, BEd (Manocheater), MA (Man),
PhD (Kent, Canterbury)
J.W. Brown, AB (Miami), MA (Middlebury),
PhD (Penn)
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, CSo
(Charles, Prague) Graduate Co-ordinator
H.R. Runts, MA, MPh, PhD (Kansas)
M. Sandhu, Licence ès Lettres (Montpellier),
PhD (Yale)

Associate Professors

H.E. Bednarski, BA (Lond), MA (Dal), PhD
(Laval)
T.P. Carter, BA (Princeton), MA, PhD (Brown)
P. De Mào, BA, MA, PhD (UCLA),
Co-ordinator of MAT programme
M.J. Myers, DUEL, Licence ès Lettres, MA,
Dr. de 3e cycle (Louis Pasteur, Strasbourg)
I.Z. Oore, BA (Tel-Aviv), MA (Waterloo), PhD
(Western)
N. Trèves, BSo (American U, Cairo), PhD
(Rice)
K. Waterson, BA (Long Island), MA (NYU),
PhD (CUNY)

Assistant Professor

R. Bonnel, Licence (Paris), MA (Essex), Dr. de
3e cycle (Paris)

MAT Degree Programme

This degree programme, jointly administered by the French Department and the School of Education is a professional degree designed for the practicing teacher. It may be taken full-time or part-time.

BA in French with Honours and BEd from 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 these (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.
5. 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 novellists 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 5002A, B, or C Méthodes de recherche/ Research Methods: H. Runte and staff

FREN 5008A or B Philologie française: Séminaire d'ancien français/French Philology: Old French Seminar: H. Runte

FREN 5006A or B Philologie française: Séminaire de l'histoire du français moderne/French Philology: Seminar on the History of Modern French: H. Runte

FREN 5016A or B Aspects de la traduction/Topics in the Science of Translating: W.T. Gordon

FREN 5040R Stylistique avancée/Advanced Stylistics: M. Sandhu

FREN 5120R Linguistique/Linguistics: R. Kocourek

FREN 5121A or B Fonctionnalisme et structuralisme en linguistique/ Functionalism and Structuralism in Linguistics: R. Kocourek

FREN 5122A or B Créativité Lexicale/Lexical Creativity: R. Kocourek

FREN 5123A or B Langue et terminologie savantes/Learned Language and Terminology: R. Kocourek

FREN 5124A or B Vocabulaire et Culture/Vocabulary and Culture: R. Kocourek

FREN 5125A or B Sémantique/Semantics: W.T. Gordon

FREN 5140A or B Dialectologie acadienne et sociolinguistique/Acadian Dialectology and Sociolinguistics: B.E. Geener

FREN 5180A or B Linguistique de textes/Linguistics of Texts: R. Kocourek

FREN 5185A or B Les Métaphores dans les textes/Metaphors in Texts: R. Kocourek

FREN 5190A or B Le Linguistique du français enseigné/Linguistics in Teaching French: R. Kocourek

FREN 5250A or B Fondements de l'enseignement des langues secondes/Foundations of Second Language Teaching: P. De Méo

FREN 5260A or B Approches communicatives de l'enseignement du français langue seconde/ Communicative Approaches to French Second-Language Teaching: P. De Méo

FREN 5266A or B Enseignement de la phonologie en français langue seconde/ Teaching of Phonology in French as a Second Language: K. Waterson

FREN 5270A or B Enseignement de la lecture en français langue seconde/ Teaching of Reading in French as a Second Language: P. De Méo

FREN 5275A or B Informatique et enseignement de la langue française/Computers in Teaching French: T.P. Carter

FREN 5280A or B Enseignement de la culture francophone/Teaching of Francophone Culture: staff

FREN 5281A or B Culture française/French Culture: J. Brown

FREN 5285A or B Sémiotique appliquée/Applied Semiotics: J. Brown

FREN 5290A or B Analyse, exploitation et développement de matériaux pédagogiques/ Analysis, Exploitation and Development of Curricular Materials: P. De Méo

FREN 5295A/5296B Séminaire: Didactique des langues secondes/Seminar: Second-Language Teaching: Staff, Topic varies, Consult Department for current year's topic.

FREN 5300A Séminaire: Littérature médiévale/Seminar in Mediaeval French Literature: H. Runte

FREN 5301B Lectures: Littérature médiévale/Supervised Readings in Mediaeval French Literature: H. Runte

FREN 5400A or B Rabelais et son temps/Rabelais and his Time: N. Trèves

FREN 5401A or B Montaigne et son temps/Montaigne and his Time: N. Trèves

FREN 5402A or B La Poésie de la Renaissance/ Renaissance Poetry: N. Trèves

FREN 5500A or B L'Aventure intellectuelle du Grand Siècle/The Intellectual Adventure of French Classicism: K. Waterson

FREN 5600A or B Le roman épistolaire du 18^e siècle/18th Century Epistolary Novel: R. Bonnel

FREN 5700A or B La Révolution romantique/The Romantic Revolution: M. Sandhu

FREN 5701A or B Le Roman du dix-neuvième siècle/ Nineteenth-Century Novel: M. Sandhu

FREN 5705A or B Le Poème en prose au 19^e siècle/ The Prose Poem in the 19th Century: J. Brown

FREN 5706A or B Impressionnisme et symbolisme/ Impressionism and Symbolism: M. Bishop

FREN 5801A or B Anti-romans du vingtième siècle/ Anti-Novels of the 20th Century: D. Lawrence

FREN 5802A or B La Poésie moderne de Char à Bonnefoy/Modern Poetry from Char to Bonnefoy: M. Bishop

FREN 5803A or B La Littérature Contemporaine I/ Contemporary Literature I: M. Bishop

FREN 5804A or B Art et Littérature/Art and Literature: M. Bishop

FREN 5805A or B La Stylistique structurale/Structural Stylistics: J. Brown

FREN 5806A or B Poétique et théorie de la littérature/ Poetics and Theory of Literature: J. Brown

FREN 5807A or B Culture contemporaine/ Contemporary Culture: M. Bishop

FREN 5808A or B La Littérature Contemporaine II/ Contemporary Literature II: M. Bishop

FREN 5876A or B Aspects de la littérature du Canada français/ Studies in French Canadian Literature: B. Bednarek

FREN 5877A or B Analyse de textes littéraires québécois/ Analysis of Quebec Literary Texts: I. Coore

FREN 5910A or B Lecture de textes acadiens contemporains/Supervised Readings in Acadian Literature since 1968: H. Runte

FREN 5920A 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 5990R Projet indépendant/ Independent Project (MAT): Subject to independent completion of study.

FREN 5998A/5999B Recherches indépendantes/ Independent Research: Subject to approval by graduate coordinator and department chairperson.

FREN 9000 MA Thèse/Thesis

FREN 9530 PhD Thèse/Thesis

German

Location: 1355 LeMarchant Street,
Halifax, N.S. B3H 3J5
Telephone: (902) 494-2181/2182

Chairperson of Department

H.-G. Schwarz

Professors

F.W. Gaede, PhD (Freib.) McCulloch
Professor, Graduate Co-ordinator
H.-G. Schwarz, MA (Munich), PhD (MoG)

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 5500R Literature and Thought from
Reformation to Enlightenment

GER 5520R Goethe and the Enlightenment

GER 5530R Hegel's Aesthetics and the
Ancients

GER 5540R Kant and the History of German
Idealism

GER 5550R Hegel: Phenomenology of Spirit

GER 5570R Goethe and Romanticism

GER 5580R Goethe's Faust

GER 5590R Studies in German Idealism

GER 5600R Heidegger and German Idealism

GER 5610R Literature of the 19th Century

GER 5620R Modern German Literature

GER 5630R Aesthetic Theory

GER 5640R Ancient and Modern Dialectics

GER 5660R History and Theory of the
German Novel

GER 5670R Hegel's Philosophy of Nature

GER 5700A Special Topics I

GER 5701B Special Topics II

GER 5800R Research Seminar

GER 9000R Thesis

Health Services Administration

Location: 1234 Seymour Street,
Halifax, N.S. B3H 3M3
Telephone: (902) 494-7097
Fax: (902) 494-8849

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
M.G. Brown, BA (Western), MA (Qu), AM,
PhD (Chio), major appointment in Community
Health and Epidemiology

Assistant Professors
G. Johnston, BSo(Hons) (MoG), MHSA (Alta),
PhD (Western)
K. Rondeau, BSc Hons, BLT (Regina), DIA,
MA, MBA (Concordia)

Lecturers
W.D. Cochrane, BA(Hons), LLB (Dal)
M. Kuttner, BA, MHSA (Dal)
K. MacIntyre, RN, BBA, MHSA (Dal)
M. Maxwell, BA(Economics), BD(Planning)
(NSCAD), MES, MHSA (Dal)
A. Maxwell, BN, MPA(HSA) (Dal)
D. McKillop, BA (York), MIR (Toronto)
P. O'Brien, RN, BN, MHSA (Dal)
D.W. Rice, BEng, MEng, PEng (TUNS)
V. Hicks, BA(cum laude), MA Economics (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:

- (a) transcripts of all previous work
- (b) at least two letters of reference
- (c) Résumé/Curriculum Vitae
- (d) a statement of career interests and reasons for seeking admission to the School
- (e) GMAT (see below)
- (f) 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 0690.

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 988
Princeton, N.S., 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.S., 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.

Class Requirements

The two-year programme leading to a Master of Health Service Administration degree features both an academic and results-oriented curriculum. It requires the successful completion of 9-11 credits which must include:

Required Classes

MPA 5130A Applied Economics I
MPA 5140A Quantitative Methods I
MPA 5150A Financial Management & Accounting I
MHSA 5300A Introduction to the Canadian Health System
MHSA 5310B Health Institution Management
MHSA 5320B Epidemiology for Health Administration
MHSA 5330A Organizational Behaviour in Health Services
MHSA 5335B Information Systems in Health Administration
MHSA 5340B Health Care Economics
MHSA 5350B Health Services Accounting
MHSA 6000A Nursing Administration and Leadership
MHSA 6315A Organization Theory and Design of Health Services
MHSA 6330A Health Services Planning
MHSA 6380B Senior Seminar in Health Services
MHSA 6390R Health Services Residency

Six half-credit classes must be chosen from the following classes:

MHSA 5200B Principles of International Health
MHSA 6310C Health Care Policy
MHSA 6312A Management Control & Funding Systems
MHSA 6320A Managed Care
MHSA 6325A Long Term Care Administration
MHSA 6340A Human Resources in the Health Care Setting
MHSA 6350A Economic Evaluation of Health Services
MHSA 6360B Health Care Law
MHSA 6365B Quality Management
MHSA 6370B International Comparative Health Care Systems
MHSA 6375B Health Care Marketing
MHSA 6394A or B/R Directed Project (full or half credit)
MHSA 6395A, B, or R Directed Reading (full or half credit)
MHSA 6500A Intermediate Statistics for Health Services

1 full credit - graduate elective:

The remaining one-credit requirement may be made up from any of the classes offered by the School of Health Services Administration or any other graduate studies programme, subject to approval of a faculty advisor.

Students with an appropriate background may be admitted to a one-year programme

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 MHSA 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:

- MPA 5130A Applied Economics I
 - MPA 5140A Quantitative Methods I
 - MPA 5150A Financial Management & Accounting I
 - MHSA 5300A Introduction to the Canadian Health System
 - MHSA 5310B Health Institution Management
 - MHSA 5320B Epidemiology for Health Administration
 - MHSA 5330A Organizational Behaviour in Health Services
 - MHSA 5335B Information Systems in Health Administration
 - MHSA 5340B Health Care Economics
 - MHSA 5350B Health Services Accounting
 - MHSA 6380B Senior Seminar in Health Services
 - MHSA 6390R Health Services Residency
 - MHSA 6500A Intermediate Statistics for Health Services
 - N 5100A Research Methods I
 - N 5120B Research Methods II
 - N 5300A Theoretical Bases of Nursing I
 - N 5320B Theoretical Bases of Nursing II
- 1 credit: MHSA elective
1 credit: general graduate elective (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 six years.

Further Information

Prospective applicants who do not meet the academic admission requirements of a graduate programme may wish to consider improving their qualification by means of a "Special" (no degree) programme. All special students must achieve a minimum average of B+ in order to be considered for admission to the programme. The Faculty of Graduate Studies requires that the School submit a progress report on each special student at the end of each term to monitor students' progress.

It should be emphasized that any such undertaking carries no assurance of subsequent admission to a graduate programme.

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 MHSA 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

- MPA 5130A Applied Economics I
- MPA 5140A Quantitative Methods I
- MPA 5150A Financial Management & Accounting I
- MHSA 5200B Principles of International Health
- MHSA 5300A Introduction to the Canadian Health System
- MHSA 5310B Health Institution Management

- MHSA 6320B Epidemiology for Health Administration
- MHSA 6330A Organizational Behaviour in Health Services
- MHSA 6335B Information Systems in Health Administration
- MHSA 6340B Health Care Economics
- MHSA 6500A Intermediate Statistics for Health Services
- MHSA 6350B Health Services Accounting
- MHSA 6312A Management Control & Funding Systems
- MHSA 6310C Health Care Policy
- MHSA 6315A Organization Theory and Design of Health Services
- MHSA 6320A Managed Care
- MHSA 6325A Long Term Care Administration
- MHSA 6330A Health Services Planning
- MHSA 6340A Human Resources in the Health Care Setting
- MHSA 6350A Economic Evaluation of Health Services
- MHSA 6360B Health Care Law
- MHSA 6365B Quality Management
- MHSA 6370B International Comparative Health Care Systems
- MHSA 6375B Health Care Marketing
- MHSA 6380B Senior Seminar in Health Services
- MHSA 6390R Health Services Residency
- MHSA 6394 Directed Project
- MHSA 6395 Directed Reading

Note: Not all classes are offered each year; consult the school for current year offerings. In addition to the above, classes may be selected from other schools, departments, or faculties, subject to the approval of a faculty advisor.

History

Location: 1411 Seymour Street,
Halifax, N.S. B3H 3M6
Telephone: (902) 494-2011

Chair of Department

J.E. Crowley

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)

M. Turner, BA, MA (Manchester), PhD (Lond)

Associate Professors

S.J. Brooks, BA (Dal), MA (MoG), DPhil (Oxford)

G. Hanlon, BA, MA (Tor), PhD (Bordeaux)

J.T. O'Brien Jr., BA (Wiscconsin), 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. Bleasdale, BA, MA, PhD (Western)

C. Danyek, BA (Concordia), MA, PhD (MoG)

C.J. Neville, BA, MA (Carleton), PhD (Aberdeen)

Honourary Research Associate

M. Conrad, BA (Aoadia), 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 5000A or B Directed Readings*

HIST 5001A or B Directed Readings II*

HIST 5002R Selected Readings in History*

HIST 5090A Russian Society in Historical Perspective

HIST 5116A or B culture, Class and Society in Twentieth-Century Britain

HIST 5222A Topics in Canadian Social History, 19th and 20th Centuries

HIST 5292A Wealth and Power in North America

HIST 5388A or B The United States since 1929

HIST 5380R Latin American History

HIST 5481A or B Women and Development in Africa

HIST 5482A or B Distortion or Development: African History

HIST 5500A or B Topics in Modern History

HIST 5610A or B Women in North America

HIST 5612A or B Women in Socialist Development

HIST 5701A Medieval Civilization

HIST 5704A Crime and Society in Post-Conquest England

HIST 5705A or B The Early Modern Mind

HIST 5985 A 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) 494-5151

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

J. Bedrosian, BA, MA, PhD (Mao)
E. Yang, MD, MCD, PhD, (Texas)

Assistant Professors

J. Armeon, BSo, MS, PhD (Temple)
R. Caesle, BPa, MSc, PhD (McG)
J.E. Fee, BA, MA, PhD (UBC)
J.J. Kallnowski, BS, MS (Northeastern)
E. Kay-Raining Bird, BA, MS (Columbia)
M. Roland Mieszkowski, BSc, MSo, PhD (Dal)
Sr. D. Uryase, BA, MA, PhD (Conn)

Lecturers

M.N. Wall, MD
T. Jiang, MSc

Clinical Coordinators

C. Tompkins, MSo
L. Carey, MA

Clinical Instructors, (Employed at Nova Scotia Hearing and Speech Clinic)

Audiology

B. Dunphy
S. Fortier
M. Gulliver
S. Maxwell
C. Santilli
S. Sturtard
C. Tompkins
G. Whitehead

Speech-Language Pathology

S. Anthony
L. Carey
L. Campbell
S.A. Delva
C. Dobblessteyn
T. Farrell-Walker

S. Fisher
Å. Grantmyre
A. MacDonald
L. MacDonald
H. MacLean
J. Martin
M. Merchant
J. Schmidbauer
C. Scholten
E. Shaw
C. Smith
J. Smith-Lamothe
B. Stoesz
S. Wozniak

Practicum Supervisors, (Employed at Nova Scotia Hearing and Speech Clinic)

Audiology

S. Fortier
T. Jaing
D. Lyon
D. Moffat
M. Weckman

Speech-Language Pathology

M. Blunston, St. John's General Hospital
J. Cale, Nova Scotia Hearing & Speech Clinic
L. Cobham, Saint John Regional Hospital
C. Coles Mazerolle, Moncton Hospital
J.G. Cormier, Hospital Georges Damont,
Moncton
C. DeWolfe, Dr. Everett Chalmers Hospital,
Fredericton
G. Dicko-O'Keefe, St. John's General Hospital
G. Eldridge, St. John's Children's
Rehabilitation Centre
D. Elsing, Dept of Health and Social
Sciences, PEI
R. Farnie, Nova Scotia Hearing and Speech
Clinic
V. Fleming, St. John's Dr. Charles Janeway
Child Health Centre
L. Fraser, Nova Scotia Hearing and Speech
Clinic
S. Greer, Dr. Everett Chalmers Hospital,
Fredericton
A. Howe, Bedford District School Board
L. Ivany, GB Cross Memorial Hospital,
Clareville
S. Joaza, Bedford District School Board
C. Kearney, Central Newfoundland Regional
Health Centre, Grand Falls
E. Keating, Forest Hill Rehabilitation Centre,
Fredericton
L. LaVallee, St. Thomas Roddick Hospital,
Stephenville
A. MacDonald, Saint John Regional Hospital
J. MacDonald, Dept. of Health and Social
Sciences, PEI
S. MacDonald, Halifax City School Board
M.A. Maher, Hotel Dieu Joseph, Campbellton

M. McCarthy, Central Newfoundland Regional Health Centre, Grand Falls
 L. McCarvill, Dept of Health and Social Sciences, PEI
 D. McFarlane-King, Dr. Everett Chalmers Hospital, Fredericton
 N. Moore, Forest Hill Rehabilitation Centre, Fredericton
 D. Morgan, St. John's General Hospital
 C. Murphy, St. John's Children's Rehabilitation Centre
 D. Oates, James Paton Hospital, Gander
 E. Pease, Dartmouth District School Board
 M. Roussel, Forest Hill Rehabilitation Centre, Fredericton
 G. Steves, Hotel Dieu Hospital, Perth Andover
 J. Stephenson, Saint John Regional Hospital
 S. Surette, Saint John Regional Hospital
 R. Tabor, Nova Scotia Hearing and Speech Clinic
 J. Townsend, Dartmouth District School Board
 A. Turner, School District 28 & 29, Woodstock
 M. Vowles, Saint John Regional Hospital
 L. Walsh, Moncton, Hospital
 J. Wells, St. John's General Hospital
 M. Wells, Western Memorial Hospital, Cornsbrook
 J. Whebbly, Nova Scotia Hearing and Speech Clinic
 J. Williams, Bedford District School Board

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, Neuropsychology, 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 5020B Phonetics
- HC 5060R Practicum
- HC 5110A Anatomy and Physiology of the Speech Mechanism
- HC 5120B Hearing Measurement
- HC 5130A Introduction to Speech-Language Pathology
- HC 5140A Aural (Re)habilitation with Children
- HC 5150B Speech and Language Acquisition
- HC 5230A Human Communication Processes
- HC 5260B Hearing Disorders
- HC 5060A Topics in Clinical Procedures
- HC 6310A Audition I
- HC 6600A Seminars in Communication Disorders
- HC 6960B Research Design
- HC 7000R Research Project
- HC 7060R Practicum

Speech Language Pathology Curriculum (above and beyond core)

- HC 5210A Speech-Language Analysis
- HC 5250A Speech Disorders - Children
- HC 5270A Language Disorders - Children
- HC 6350B Language Disorders - Adults
- HC 6370B Fluency Disorders
- HC 6390B Voice/Resonance Disorders
- HC 6450B Speech Disorders - Adults
- HC 6470A Augmentative and Alternative Communication

Audiology Curriculum (above and beyond core)

- HC 5220A Diagnostic Audiology
- HC 5240A Aural (Re)habilitation - Adults
- HC 5280B Audition II

HC 6320B Pediatric Audiology

HC 6360B Amplification

HC 6380B Electrophysiological Audiometric Measures

HC 6420A Advanced Diagnostic Audiology

HC 6440A Noise in Industry and the Community

Additional Classes Available

HC 6500 Tutorial Readings

HC 6700 Research

Interdisciplinary Studies

See Interdisciplinary and Joint Programme listings.

Law

Location: Weldon Law Building, 6061
University Avenue, Halifax,
N.S. B3H 3J5
Telephone: (902) 494-3495
FAX: (902) 494-1318

Acting Dean of Faculty

Philip Vincent Girard

Associate Dean

Susan M. Ashley

Professors Emeritus

Clayton Hutchins, Q.C., BA, LLB (Dal)
Ronald St. John MacDonald, Q.C., BA
(StFX), LLB (Dal), LLM (London), LLM
(Harvard), LL.D (McG)
Arthur J. Meagher, Q.C., BA, LLB (Dal)
R. Graham Murray, Q.C., BA, LLB (Dal), LLM
(Harvard)
John Willis, Q.C., BA (Oxon), LL.D (Ottawa,
Queen's, Dal, York)

Professors

Bruce P. Archibald, BA (King's), MA, LLB
(Dal), LLM (Col), Graduate Coordinator
William H. Charles, Q.C., BA (Sir Geo. Wms),
LLB (Dal), LLM (Harvard), LLM (Mich)
Innis M. Christie, BA, LLB (Dal), LLB
(Cantab), LLM (Yale), (Sabb.Lv.)
Thomas A. Cromwell, B. Mus., LLB (Queen's),
BCL (Oxon)
Peter E. Darby, BA (MtA), LLB (Dal)
Robert G. Elgie, BA (Western), LLB
(Osgoode), MD (Ottawa), FRCS(o), Director,
Health Law Institute
Edgar Gold, BA, LLB (Dal), PhD (Wales),
MCIT, FNI, MRIN, Master Mariner (FG)
Edwin C. Harris, Q.C., BCom, LLB (Dal), LLM
(Harvard), RIA, CA
Hugh M. Kindred, LLB (Bristol), LLM
(London), LLM (Illinois)
A. Wayne MacKay, BA (MtA), MA (Florida),
BEd (MtA), LLB (Dal)
H. Leslie O'Brien, Q.C., BCom, LLB (Dal),
LLM (Chicago)
Paul Thomas, LLB (Wales), LLM (Yale)
D. A. (Rolle) Thompson, BA (McG), LLB (Dal)
Leon E. Trakman, BCom, LLB (Cape Town),
LLM, SJD (Harvard)
Christian L. Wiktor, LLM (U of Wroclaw), MS
in LS (Col) Law Librarian
Bruce H. Wildemith, BSo (Guelph), LLB (Dal),
LLM (Harvard)
G.R. Winham, BA (Bowdoin), Dip. Int'l Law
(Manchester), PhD (North Carolina), major
appointment in Political Science
John A. Yogie, Q.C., BA (SMU), LLB, LLM
(Dal), LLM (Mich)

Associate Professors

Susan Ashley, BA, LLB (Dal), Associate Dean
Davies B.N. Bagambire, LLB (Dar-es-Salaam),
LLM (Dal)

Vaughan Black, BA, MA (Carleton), LLB,
(Tor), LLM (Calif, Berkeley)

Jennifer K. Bankier, BA (Tor), LLB (Osgoode)

W. Brent Cotter, BCom (Sask), LLB, LLM
(Dal), (LOA)

Philip Vincent Girard, BA (Brock), LLB (McG),
LLM (Cal, Berkeley), Acting Dean

H. Arohibald Kaiser, BA, LLB (Dal), LLM (LSE)

Dianne Louise Pothier, BA (Dal), MA
(Carleton), LLB (Dal)

Dawn Ann Russell, BA (St. Thomas), MA,
LLB (Dal), LLM (Cambridge)

David Lee VanderZwaag, BA (Calvin), MDiv
(Princeton), JD (Arkansas), LLM (Dal)

Faye L. Woodman, BA (Dal), LLB (Queen's)

Assistant Professors

Aldo E. Chiroop, BA, LL.D., LLM (Malta), JSD
(Dal)

Elaine C. Gibson, BA, LLB (Sask), LLM (Tor)

Anne W. LaForest, LLB (UNB), LLM (Camb)

Audrey M. Macklin, BSc (Alta), LLB (Tor),
LLM (Yale)

Moirá L. McConnell, BA (Victoria, B.C.), LLB
(Dal), PhD (Sydney)

Phillip M. Saunders, BA, MA, LLB (Dal)

Teresa Scassa, BA (Con), BCL, LLB (McGill),
LLM, JSD (Mich)

Mary Ellen E. Turpel, BA (Carleton), LLB
(Osgoode), Dip. Int'l Law (Camb)

Part-time Faculty

Stephen G. Coughlan, BA (Ottawa), MA
(Tor), LLB (Dal), PhD (Tor)

Diana Ginn, BA (Mt.A), LLB (Queen's), LLM
(Osgoode)

Gordon C. Johnson, BCom, LLB (Dal), MBA
(St. Mary's)

F. Van Penick, AB (Princeton), LLB (Dal)

Fay A. Rozoveky, AB (Providence), JD
(Boston), PH (Harvard)

Lorne E. Rozoveky, Q.C., BA (UNB), LLB (Tor)

Wylie Spicer, LLB (Dal)

Judith 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. These topics may concentrate on any area of law in which faculty supervisors and library resources will support substantial and useful work. In recent years, these supervisors have 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.

In addition to the Dalhousie Scholarships, candidates may be eligible for a special scholarship offered annually by the Nova Scotia Law Foundation.

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 typewritten 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 nominees 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 one full academic year (12 months) 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 500 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, 8225 University Avenue, Halifax, N.S. B3H 4H8
Telephone: (902) 494-3856
Fax: (902) 494-2451

Director of School

M. Dykstra

Professor Emeritus

J.R.T. Ettinger, MA (Oxon), BLS (McG)

Professors

L.J. Arney, BSc, BEd (Acadia), MEd (UNB), MS (Columbia), PhD (Tor)

M. Dykstra, BA (Calvin), MLS (Dal), PhD (Sheffield)

E. Friok, BA (Tor), MSLS (Syracuse)

Associate Professor

R. Klapstein, BSc (Calgary), BA (Alberta), MBA, LLB (Dal), LLM (Osgoode), CGA, Major appointment in School of Business Administration

Assistant Professors

B. MacDonald, BSc (Acadia), MA, MLS, PhD (Western)

L. Qiu, DipElec, MSc (Shanghai), PhD (Western)

E. Tome, BA, BEd (Mem), MLS (Dal)

Associated Instructional Staff

R. MacG. Dawson, MA (Tor), BLitt (Oxon)

J. Dunn, B Math (Waterloo), MLS (Dal)

Graduate Co-ordinator

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:

S. Balogh

Administrative Assistant, 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 - Introductory Module I and LS 051 - 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 MLIS/LLB Programme

This is a four-year programme leading to the degree 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

108 Library & Information Studies

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 550-560. These and classes numbered in the 050 series are required of all students (students have a choice between LS559 and LS560). 600 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 Introductory Module I
- LS 051 Interim Module II
- LS 550 The Information Environment
- LS 551 Organization of Information
- LS 552 Research Methods
- LS 553 Information Sources & Retrieval
- LS 554 Database Management Systems
- LS 555 Classification & Subject Access
- LS 556 Collections Management
- LS 557 Organizational Management & Strategy
- LS 558 Systems Analysis
- LS 559 (LS 659) Information Sources in Science, Technology and Business
- LS 560 (LS 660) Information Sources in Humanities/Social Sciences
- LS 606 International Perspectives

- LS 606 Management Information Systems (Cross-listed with School of Business Administration MBA 6903)
- LS 616 History of the Book
- LS 625 Young Adult Literature and Media Interests
- LS 630 Government Documents
- LS 635 Classification and Indexing Systems
- LS 637 Records Management
- LS 645 Children's Literature and Media Interests
- LS 650 User Services
- LS 655 Bibliography
- LS 665-668 Academic Courses
- LS 670-671 Reading Courses
- LS 675 Health Sciences Literature & Information Sources
- LS 680 Archives
- LS 681 Bibliographic Instruction
- LS 682 Marketing and Public Relations
- LS 707 Library Management and Current Problems in Librarianship
- LS 732 Legal Literature and Librarianship
- LS 735 Information Retrieval
- LS 737 Library Automation and Networking
- LS 739 Quantitative Methods
- LS 8000 Thesis: (4 1/2 credits)
- LS 060 Practical Printing
- LS 064 Hand-Binding
- EDUC 5552 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 Hotlines* (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, 6061
University Avenue, Halifax,
NS B3H 4H9
Telephone: 902-494-3555
Facsimile: 902-494-1316
Telex: 019-21863

Coordinator:

A. Chiroop, LL.D. (Malta), LL.M., J.S.D. (Dal)

Teaching Faculty

A. Bowen, MA (Cantab), PhD (Calif),
Professor, Department of Oceanography
M. Brooks, BOT (McG), MBA (Dal), PhD
(Vtates), 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
L. Mazany, BSFS (Georgetown), PhD (UBC),
Assistant Professor, Department of Economics
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),
Assistant Professor of Law

Marine Affairs is an interdisciplinary subject examining all aspects of the uses of the seas. The master of Marine Management will provide a theoretical and practical interdisciplinary basis for understanding ocean development, planning and regulatory issues affecting the optimal use of the seas and marine industries.

Masters in 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 or its equivalent. Dalhousie sets a minimum acceptable score of 580. Deadlines for applications are January 31st for applicants requesting financial assistance, and May 1st for all other applicants.

Classes Offered

Required

MARA 5001R 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 5002R 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 will participate in internship programs with a local public or private sector agency of relevance to the project topic.

MARA 5003A 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.

Electives

Students will 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-Halifa)
S. Swaminathan, MA, MSc, PhD (Madras)
A. J. Tingley, MA, PhD (Minnesota)

Professors

J. Borwein, MSc, PhD (Oxford)
P. Borwein, MSc, PhD (UBC)
J.C. Clements, MA (UBC), PhD (Tor)
M.A.H. Dempster, MSc, PhD (Carnegie Mellon)
K.A. Dunn, MSc, PhD (Tor)
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 (Dal), PhD (Imp Col)
R. Nowakowski, MSc, PhD (Calgary)
R. Paré, MSc, PhD (McG)
H. Redjavi, 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 (Dal)

Associate Professors

A.A. Coley, PhD (Lond)
K. Dloher, MSc, PhD (Queen's)
A.A. Farrag, MSc (SFU), PhD (Alta)
D. Hamilton, MA, PhD (Queen's)
C.S. Hartzman, MS (Purdue), PhD (Colo)
K.P. Johnson, MSc (Tor), PhD (Brandels)
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. Srinaves, PhD (Inst. of Sci., Bangalore)
D. Teang, MSc (TUNS), PhD (Penn)
C. Watters, PhD (TUNS)

Postdoctoral Fellows

W. Chen, PhD (Alberta)
T. Erdelyi, PhD (South Carolina)
G. MacDonald, PhD (Tor)
D. McManus, PhD (Alberta)
T. Trappenberg, PhD (Aachen)

Visiting Professors (1992/93)

W. Longstaff (W. Australia)
G. Mehta (Queenland)
J. Yu (China)

Adjunct Professors

H.S. Heaps, MA (Tor), LLD (SFX)
H.S.P. Jones, MSc (Southampton)
L. Oliver, PhD (McG)
M. Rahman, PhD (Windsor)
S. Sanielevici, PhD (MoG)

Honourary Research Associates

M.A. Beattie, PhD (Queen's), Mt.A.
F. Bennett, PhD (Man), MSVU
P. Cabilio, PhD (Columbia), Acadia
R. Dawson, St. Mary's
V. Huse-Eastwood, Acadia
R. Rosebrugh, PhD (Dal), Mt.A.

The department offers programmes leading to the degrees of MA, MSc and PhD in the following areas:

Mathematics (MSc, MA, PhD) - algebra, approximation theory, differential equations, functional analysis, numerical analysis, operator theory, optimization, 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 and in any case, before March 31.

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; Math 5230; Math 5450; one of Math 5310; Math 5320; one of Math 5270; Math 5360; Comp 5350; one of Stats 5080; Stats 5370; Stats 5620.

MATH 5010/4010 Introduction to Measure Theory and Integration

MATH 5020/4020 Analytic Function Theory

MATH 5025/4025 Commutative Algebra I

MATH 5035/4035 Commutative Algebra II

MATH 5040 Homological Algebra

MATH 5045/4045 Advanced Algebra I

MATH 5055/4055 Advanced Algebra II

MATH 5065/4065 Algebraic Geometry

MATH 5070/4070 Topics in Number Theory

MATH 5090/4090 Probability

MATH 5120 Topics in Ordinary Differential Equations

MATH 5130/4130 Analysis of Algorithms

MATH 5135/4135 Introduction to Category Theory

MATH 5140/4140 Introduction to Functional Analysis

MATH 5150/4150 Functional Analysis

MATH 5160/4160 Operator Theory

MATH 5170/4170 General Topology

MATH 5180/4180 Introduction to Algebraic Topology

MATH 5185 Topics in Algebraic Topology

MATH 5190/4190 Ordinary Differential Equations

MATH 5195 Topics in Topology and Functional Analysis

MATH 5200/4200 Differential Equations - Qualitative Theory

MATH 5210 Topics in C^* - Algebras

MATH 5220/4220 Introduction to Partial Differential Equations

MATH 5225 Topics in Partial Differential Equations

MATH 5230/4230 Partial Differential Equations

MATH 5235 Topics in Operator Theory

MATH 5240 Topics in Banach Spaces

112 Math, Stats, & Computing Science

MATH 5270/4270 Numerical Software

MATH 5290 Advanced Topics in Operator Theory

MATH 5300/4300 Optimal Control Theory

MATH 5310/4310 Nonlinear Programming

MATH 5315 Convexity and Convex Programming

MATH 5320 Topics in Optimization

MATH 5325 Topics in Optimization II

MATH 5330 Topics in Graph Theory

MATH 5360 Advanced Numerical Analysis

MATH 5380 Approximation of Functions

MATH 5400/4400 Mathematical Modelling III

MATH 5410 Topics in Cosmology

MATH 5450 Applied Mathematics in Science and Industry

MATH 5650/4650 Relativity and Cosmology

MATH 6000-6990 Reading Classes for Advanced Graduate Students

MATH 7030 Algebra Seminar

MATH 7180 Analysis Seminar

MATH 7230 Operator Theory Seminar

MATH 7670 Optimization Seminar

Statistics

STAT 5060/4060 Advanced Statistical Theory

STAT 5070/4070 Multivariate Distributions

STAT 5075 Multivariate Analysis

STAT 5080/4080 Time Series Analysis II

STAT 5090/4090 Probability

STAT 5100/4100 Survival Analysis

STAT 5200/4200 Nonlinear Regression Analysis

STAT 5210/4210 Advanced Topics in Time Series Analysis

STAT 5300 Topics in Statistics and Probability

STAT 5350/4350 Applied Multivariate Analysis

STAT 5360/4360 Robust Statistics

STAT 5370/4370 Stochastic Processes

STAT 5390/4390 Time Series Analysis I

STAT 5400/4400 Topics in Advanced Statistics

STAT 5620/4620 Data Analysis

STAT 7320 Statistics Seminar

Computing Science

COMP 5100/4100 Operating Systems II

COMP 5130/4130 Analysis of Algorithms

COMP 5140/4140 Software Design and Development

COMP 5150/4150 Theory of Programming Languages

COMP 5200/4200 Selected Topics in Computing Science

COMP 5210 Expert Systems

COMP 5250/4250 Information Retrieval

COMP 5270 Numerical Software

COMP 5300 Computational Vision

COMP 5330 Topics in Graph Theory

COMP 5400/4400 Programming Methodology

COMP 5650/4650 Selected Topics in Information Retrieval

COMP 5660/4660 Automata and Computability

COMP 5670/4670 Computer Graphics

COMP 5700/4700 Advanced Topics in Database Design

COMP 5800/4800 Computer Systems Modelling

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

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) (Polydnaviruses)
C. Stuttard, PhD (Dublin) (Microbial Genetics; Streptomyces)

Associate Professors

R.I. Carr, MD (Tor), PhD (Rookefeller),
Medicine (Rheumatology)
T. Ghose, PhD (Calo), Major appointment in Pathology
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. Rejzerman, PhD (Dal), Medicine (Integrins;
Cancer Cell Biology)
H.N. Shah, PhD (Lond), Oral Pathology, Major
appointment in Oral Biology

Assistant Professors

G. Bezanon, PhD (Carleton), Medicine
(Molecular Pathogenesis)
R.A. Bortolucci, 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. Hoalson, 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 Diseases)

W.F. Solech, MD (Cornell), FRCP(C),
Medicine (Listeria; HIV Infection)
A.W. Stadnyk, PhD (MoM) (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 in-depth 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.

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 programmes.

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.

Neuroscience

See Interdisciplinary and Joint Programme, page 45.

MD/PhD Combined Programme

For information on the combined MD/PhD programme see "Interdisciplinary and Joint Programmes" (page 45).

Classes Offered

MICR 5001R Microbiology Seminars

MICR 5002A/5003B Advanced Topics In Microbiology: seminar, P. Hoffman

MICR 5004R Pathobiology of Cancer: lecture 2 hours, T. Ghose

MICR 5022A or B Microbial Ultrastructure Project: lab 5 hours, G. Faulkner, D.B. Stoltz

MICR 5024A Microscopy: G. Faulkner, D. Stoltz, M. Willison

MICR 5026B The Mammalian Cell: lecture 3 hours, lab 3 hours, R. Rajaraman

MICR 5027B The Cancer Cell: lecture 3 hours, R. Rajaraman

MICR 5037A Genetics of Industrial Bacteria: lecture/seminar, 3 hours, C. Stuttard

MICR 5038B Molecular Biology of Yeast: lecture/seminar, 4 hours. C. Barnes, G.C. Johnston

MICR 5114B Topics in Basic and Medical Virology: lecture 2 hours, lab 3 hours, R. Duncan

MICR 5115B Topics in Immunology of Host Resistance: lecture/discussion 3 hours. D.W. Hoekin

MICR 5116A Molecular Pathogenesis: lecture 2 hours, P. Hoffman

MICR 5301A Immunobiology: lecture 3 hours, R.J. Carr

MICR 5302B Molecular Immunology: lecture 3 hours, T. Lee

MICR 5601A Laboratory Techniques in Molecular Biology: lab, 6 hours, G.C. Johnston

MICR 9000 MSc Thesis

MICR 9530 PhD Thesis

Nursing

Location: Forrest Building, 1st Floor,
5869 University Avenue,
Halifax, N.S. B3H 3J5

Telephone: (902) 494-2535

Director
D.L. Tamlyn

Professors
B.A. Keddy, BScN (MCSV), MA, PhD (Dal), RN
J.A. Ritchie, BN (UNB), MN, PhD (Pitts), RN
M. Stewart, BScN (MoM), MN, PhD (Dal), RN

Associate Professors
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
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. Tamlyn, BN (McG), MEd (Ottawa), PhD (Dal), RN

Assistant Professors
M. Arkle, BN (Dal), MS (Boston), PhD (Texas), RN
E.J. Black, EdD (UBC), MEd (Boston), BN (Dal)
G.A. Hart, BN (McG), MSN (UBC), RN
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: N5000A, N5100A/N5120B, N5220B, N5300A/N5320B, and one of N5400R or N5500A/N5520B, N5800A/5820B, N5700R plus N9000. 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 5000A (M209) Intermediate Statistics: Math Dept. (1/2 credit)

NURS 5100A/N5120B Research Methods: B. Keddy, B. Downe-Wamboldt (1 credit)

NURS 5220B Systems & Trends in Health Care Delivery: M.J. Horrocks (1/2 credit)

NURS 5300A/N5320B Theoretical Bases of Nursing I & II: J. Hughes, M. Arkle (1 credit)

NURS 5400R Community Health Nursing: B. Downe-Wamboldt (2 credits), open to independent completion of study

NURS 5500A/N5520B Nursing of Young Families I and II: J.A. Ritchie, D. Sommerfeld (2 credits), open to independent completion of study

NURS 5600A/5620B Psychiatric/Mental Health Nursing: (2 credits). Open to independent completion of study

NURS 5700R Nursing of Adults: F. Gregor (2 credits), open to independent completion of study

NURS 5800R Reading Class: (1 credit)

NURS 5810A/N5820B Reading Class: (1/2 credit)

NURS 5900R Reading Class: (1 credit)

NURS 5910A/N5920B Reading Class: (1/2 credit)

NURS 9000 Thesis: (2 credits)

Nursing Electives

***NURS 5960 Social Support:** M. Stewart (1/2 credit)

***NURS 5860 Grounded Theory:** (1/2 credit)

***NURS 5160 Analysis of Research:** M. Arkie (1/2 credit)

***NURS 6000A/MHSA 6000A 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 Building, 1355 Oxford Street, Halifax, N.S. B3H 4J1

Telephone: (902) 494-3557

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 (Scorippe)

C.M. Boyd, MA (Ind), PhD (Scorippe)

P. Chytek, Diploma (Physice) (Charles, Prague), PhD (Calif), joint appointment in Physice

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

O. Hertzman, BSc (UBC), PhD (Wash)

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

J.A. Elliott, BSc (UofS), MSc, PhD (UBC), Atlantic Oceanographic Laboratory, BIO

R.M. Gershay, BSc (Scranton), MSc (Texas A&M), PhD (Dal), BDR Research, Ltd.

W.G. Harrison, BSc, PhD (North Carolina State), BIO

A.I. Hatcher, BSc, MSc (Dal), PhD (Western Australia), Dal

B. Hatcher, BSc, MSc (Dal), PhD (Sydney)

C.E. Keen, BSc, MSc (Dal), PhD (Cantab), Atlantic Geoscience Centre, Energy, Mines & Resources

S.R. Kerr, BSc (Carleton), MSc (Qu), PhD (Dal), BIO, Fisheries & Oceans

K. Kranok, BSc (McGill), PhD (Uppsala), Atlantic Oceanographic Lab, BIO

D. Lefaivre, BSc (Sherbrooke), MSc, PhD (Laval), Maurice Lamontagne Institute, Fisheries & Oceans, Mont-Joli

J.W. Loder, BSc (Acadia), PhD (Dal), Dept. of Fisheries & Oceans, BIO

R. Mohn, BSc (Rensselaer Poly Tech) MSc, MA, PhD (Dal)

N.S. Oakley, BSc (McG), MSc (Sask), PhD (McM), BIO

T. Platt, BSc (Nottingham), MSc (Toronto), PhD (Dal), BIO

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)

B.J. Topfles, BSc (Durham), MSc, PhD (UCNW, Bangor), Physiol and Chemical Science Branch, BIO

D.G. Wright, BSc (Laurentian), PhD (UBC), Atlantic Oceanographic Laboratory, BIO

Honourary Adjunct Professors

R.G. Aokman, BA (Tor), MSc (Dal), PhD (London), TUNS

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

L. Mayer, BS (Rhode Island), PhD (Scripps), Ocean Mapping Group, UNB

S. Pearce, 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

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 the 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 (5110-5140).

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 the four introductory half-classes (5110-5140), 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 5110B Introduction to Geological Oceanography: P. Hill

OCEA 5120A Introduction to Physical Oceanography: B. Ruddick

OCEA 5130A Introduction to Chemical Oceanography: R.M. Moore

OCEA 5140B Introduction to Biological Oceanography: E. Mills

OCEA 5150A Introduction to Biological Oceanography: C. Boyd

*OCEA 5160B Fisheries Oceanography: TBA

*OCEA 5210B Time Series Analysis: K. Thompson

OCEA 5221A Ocean Dynamics: staff

OCEA 5222B Estuary, Coast and Shelf Dynamics: A.J. Bowen

*OCEA 5223B Ocean Waves: staff

*OCEA 5230B Biology of Phytoplankton: staff

*OCEA 5260B Biology of Zooplankton: C.M. Boyd

OCEA 5270R Special Topics In Biological Oceanography: staff

*OCEA 5280A Chemical Sedimentology & Early Diagenesis: B. Boudreau

*OCEA 5291A Organic Materials In Seawater: staff

*OCEA 5292B Chemical Methods: R. Moore

*OCEA 5293A Advanced Marine Particles: staff

*OCEA 5294A Geochemical Cycles: R. Moore

*OCEA 5295A Solution Chemistry for Oceanographers: B. Boudreau

OCEA 5311A Fluid Dynamics I: Staff

OCEA 5312B Fluid Dynamics II: Staff

*OCEA 5330B Benthic Ecology: J. Grant

OCEA 5331B History of Oceanography: E.L. Mills

OCEA 5340B Marine Geology: TBA

OCEA 5350B Marine Geophysics: K.E. Loudon

*OCEA 5380B Marine Modelling: staff

OCEA 5411A Dynamic Meteorology I: O. Hertzman, G. Lesins. Cross listed with Physics 5441A

OCEA 5412B Dynamic Meteorology II: O. Hertzman, G. Lesins. Cross listed with Physics 5412B

OCEA 5440A Advanced Topics In Geophysics: Beaumont, Loudon

*OCEA 5450A Geodynamics: C. Beaumont

OCEA 5500A Atmospheric Physics I: Staff. Cross listed with Physics 5500A

OCEA 5510B Atmospheric Physics II: Staff. Cross listed with Physics 5510B

OCEA 5520A Introduction to Meteorology: Staff, Cross listed with Physics 5520A

OCEA 5530B Introduction to Radiation and Climate: P. Chylek. Cross listed with Physics 5530B

OCEA 5541A or B Synoptic Meteorology: Staff

OCEA 5545A Boundary Layer Meteorology: G. Lesins

OCEA 5555A or B Radar and Satellite Meteorology: O. Hertzman

OCEA 5560A Mesoscale Dynamics: O. Hertzman

OCEA 5570A Light Scattering and Radiative Transfer: P. Chylek

OCEA 5575A Topics In Atmospheric Radiation: P. Chylek

OCEA 5580B Cloud Physics: G. Lesins

OCEA 5590 Paleoclimatology: W. Hyde

OCEA 5600B Invertebrate Fisheries and Aquaculture: J. Grant

OCEA 9000 MSc Thesis

OCEA 9530 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

C.E. Hope, MBChB (Edin), FFARCS (Eng),
FRCP(C), Head Department of Anaesthesia
F.W. Lovely, DDS (Dal), MS (Mich), FRCD(C)
FICD
M.M. Cohen Jr., AB (Mich), DMD (Tufts),
MSD, PhD (Minn), FCCMG
D.S. Precious, DDS, MSc (Dal), FRCD(C),
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)
S.A. Wright, BDS (Lond), LDS, RCS (Eng),
DDS (Dal), MS (Indiana), MD (Dal), FRCP(C)
R.H. Yabeley, 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 Licence 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 Anatomy 1 credit
501 Surg Anatomy 1 credit
502 Physical Diagn Audit
503 Clinical Lab Medicine Audit
504 Pharmacology Audit
506 Oral Pathology 1 credit
507 Seminar Audit
508 Clinical Oral Surgery 1 credit
509 Microbiology 1 credit
511 Pathobiology Audit

Year 2

600 Anaesthesia 1 credit
601 Medicine Audit
602 Clinical Physiology Audit
603 Oral Pathology 1 credit
604 Seminar Audit
605 Clinical Oral Surgery 1 credit
606 Orthopedics Audit
607 Infectious Diseases Audit
608 Emergency Medicine Audit
609 Neurosurgery Audit

Year 3

700 Oral Pathology 1 credit
701 Seminar 1 credit
702 Clinical Oral Surgery 1 credit
703 Research 1 1 credit

Year 4

800 Clinical Oral Surgery 1 credit
801 Seminar 1 credit
9000 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 (MoG)
 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 Mexco), PhD (Western)

Assistant Professors

S.C. Boas, BSc/MD (MtA), MSc, PhD (Windsor)
 D.E.C. Cole, BSc/MD(Tor), PhD (MoG), FCCMG
 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 (Beirut), PhD (Newcastle), MB, BCh (Cairo), FRCP(C)
 L. Resoh, MD (Dal), FRCP
 D.C. Riddell, BSc, PhD (Queen's) (Graduate Studies Co-ordinator)
 G.T. Roberts, BSc (Durham), MB (Newcastle), FRCP(C)
 B.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.

General Pathology 500 and two other credits in a subject related to the thesis research, or the laboratory field chosen are required. In addition, all students are required to enrol in and participate in the seminar programme (Pathology 509). 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.

Research and a thesis are required. The thesis must be defended by oral examination which covers the candidate's area of study and research.

Classes Offered

Classes marked with an asterisk are normally offered in alternate years. Pathology 504 was taught in the 1992-93 academic year.

PATH 500A General Pathology: This is the class given to the first year medical class and is described in the Faculty of Medicine Calendar. G. Rowden.

***PATH 501R Clinical Medical Biochemistry:** Sessions: Two lectures and one problem solving session weekly throughout the academic year. L.C. Dymond and D.E.C. Cole.

***PATH 502R Pathobiology:** Sessions: 50 lecture-seminar sessions will be given throughout the year. D.T. Janigan and T. Ghose.

***PATH 503R Principles of Instrumentation:** Sessions: Three one hour lectures including problem session weekly, plus assigned laboratory sessions throughout the academic year. R.F. McCurdy.

***PATH 504R Pathobiology of Cancer:**

Sessions: Two sessions weekly throughout the academic year. T. Ghose

***PATH 505R Special Topics: General**

PATH 506R Special Topics in Morphometrics and Stereology: M.A. MacAulay

PATH 507R Special Topics in Electron Microscopy

PATH 508R Special Topics in Immunocytochemistry and Histochemistry

PATH 509R Pathology Graduate Students Research Seminar

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

- Immunopathology of lung, kidney, and skin diseases; Application of immunological markers; Production of monoclonal antibodies; Cancer diagnosis and treatment with antibody-linked radionuclides and cytotoxic agents: T. Ghose
- Lung injury mechanisms induced by inhalation of combustion products from plastics and synthetics and occupational lung disease: D.T. Janigan.
- 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.
- Hemoglobin structure and synthesis disorders. Leukaemia and lymphoma cell lineage: G.T. Roberts.
- 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, hypouricaemic states: L.C. Dymond.
- Environmental pathology, trace metals and diseases, biochemical aspects of forensic medicine, investigation of porphyria: M.A. Moss.
- Coagulation and platelet disorders: E.Z.M.A. Zayed.
- Biochemical genetics and inherited metabolic disease; metabolism of inorganic macronutrients -calcium, phosphorus, sulfur: D.E.C. Cole.
- Molecular mechanisms of oncogenesis and thyroid hormone action: D.L. Guernsey
- Pathological Effects of Electromagnetic Radiation: L. Resch
- Immunodiagnosis and Enzymology: S. Bose
- Essential fatty acids and prostaglandins. Molecular diagnosis of hyperlipidemia: B. Nasser
- 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. Downie, BSc, PhD (Man)
G.R. Ferrier, 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),
Anaesthesia
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.

MSc Degree Programme

For minimum time required to complete this programme, see Section 8. Candidates must complete satisfactorily the following classes or their equivalents: 5403, 5405B, and a minimum of two half credit courses in the 5800 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, 5502). Students are expected to attend research seminars within the department. Laboratory teaching experience is included in the programme (5506). 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 5800 series. An additional short research project (5503) 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). 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 a PhD 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 45)

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 5501-5503 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 5402R Systematic Pharmacology

PHAC 5403R Systematic Pharmacology:
(includes laboratory)

PHAC 5404A or B Experimental Design and Interpretation

PHAC 5405B Advanced Pharmacology

PHAC 5406A Introduction to Pharmacology I

PHAC 5407B Introduction to Pharmacology II

PHAC 5408B Experimental Pharmacology:
(Prerequisite: PHAC 5501)

PHAC 5501C Introduction to Research in Pharmacology I

PHAC 5502C Introduction to Research in Pharmacology II: Same as 5501C

PHAC 5503C Introduction to Research in Pharmacology III: Same as 5501 and 5502.
Available only to students in the PhD programme.

PHAC 5506 MSc Practice Teaching

PHAC 5507 PhD Practice Teaching

Offered in 1993-94*

PHAC 5602A Cardiac Excitation and Contraction; Physiology and Pharmacology:
G.R. Ferrier

PHAC 5610A Anaesthesia: R. Hall

PHAC 5612A Clinical Trial Design: J. Gray

PHAC 5613A Pharmacology of Autocoids:
M.M. Vohra

PHAC 5623C Clinical Pharmacology: J. Gray

PHAC 5615B Pharmacological and Biophysical Approaches to Understanding Membrane Function: M.E. Kelly

PHAC 5621B Pharmacology of Drug Abuse:
(Pharmacy Elective) G. McKenzie

Offered in 1994/95*

PHAC 5605A Functions of Extracellular purines in the central and peripheral nervous System: T.D. White

PHAC 5607A Pharmacology of Calcium Handling in the Heart: S.E. Howlett

PHAC 5611A Drug Metabolism: K.W. Renton

PHAC 5619A Topics in Autonomic Pharmacology: J. Downie

PHAC 5623C Clinical Pharmacology: J. Gray

PHAC 5603B Neuropharmacology of Pain: J. Sawynok

PHAC 5616B Molecular neuropharmacology:
H. Robertson

PHAC 5617B Pharmacology of Cell Growth:
J. Blay

PHAC 5618B Pharmacology of Selected Cytokines in Disease: T. Peterson

*Classes offered are subject to change.
Please contact the department.

PHAC 9000 MSc Thesis

PHAC 9530 PhD Thesis

Pharmacy

Location: Burbidge 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)

D.W. Jones, BSc, PhD (Blrm), FICeram, CChem, FRSC (UK), FADM, Major appointment in Dentistry

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 Kel), 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

A.M. Whelan, BSc(Pharm) (Dal), PharmD (MUSC)

Honourary Adjunct Professor

P.T. Pollak, MD, PhD (Western), FRCP(C)

M.A. Quilliam, BSc(Hons), PhD (Man)

The College of Pharmacy offers MSc and PhD programmes in the areas of pharmacokinetics, biopharmaceutics, drug disposition and metabolism, medicinal chemistry, pharmacogenosy, 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 advanced classes, the actual programme of classes required to be determined by each student's Graduate Advisory Committee. Additionally candidates must participate in the weekly graduate seminars (Pharmacy 5000C) 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) 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 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 the weekly graduate seminars (Pharmacy 6000C) during each year in the programme. Reading comprehension of a foreign language and/or proficiency in an ancillary research skill such as computer programming is 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 conceptualize, 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) 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 in the order of three lectures per year 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 4130A/5130A

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 2120B, 2130R, 3250A, CHEM 2400R, STAT 1060A or consent of the instructor. Offered every other year.

PHAR 4230A Dermopharmacy: M. Mezel, lecture 2 hours. **Prerequisite:** Consent of the instructor

PHAR 4330B Herbal Remedies: R.F. Chandler, lecture 3 hours second term

PHAR 4340C/5340C Drug Design: P.S. Farmer, lecture 2 hours first term, term paper second term. **Prerequisite:** Consent of the instructor

PHAR 4930B/5930B Introductory Drug Metabolism and Toxicology: P.K.F. Young, lecture 2 hours plus a special project for graduate students. **Prerequisites:** Pharmacology 3470 or 3480, Biochemistry 3100, Therapeutics 3500

PHAR 4910/5910A or B Advances in Drug Metabolism and Disposition: P.K.F. Young, G.A. Klaassen, P.T. Pollak, and M.A. Quilliam, lecture 2 hours. **Prerequisite:** Pharmacy 4930B/5930B or instructor's consent. Offered every other year

PHAR 5000C/6000C Pharmacy Seminar

PHAR 5250B/4250B Advanced Pharmacokinetics: I. Abraham. Every other year; consult Department. **Prerequisite:** Pharmacy 4100C, Pharmacy 3250A

PHAR 5290 Topics in Biopharmaceutics: M. Mezel, lecture 2 hours. **Prerequisite:** Consent of the instructor

PHAR 5320A or B Topics in Medicinal Chemistry: P.S. Farmer, lecture 2 hours. **Prerequisite:** instructor's consent

PHAR 5980A (M2090A) Intermediate Statistics: C.A. Field (Math Dept.)

PHAR 9000 MSc Thesis

PHAR 9530 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 dispersed systems. Interfacial phenomena and application to pharmaceutical systems. Design and evaluation of controlled release drug delivery systems. Encapsulation efficiency, drug release rate. Study of bioadhesion and bioadhesive materials. (E. Butler)
- Phytochemical and pharmacological investigation of the medicinal aspects of maritime flora, and evaluation of the safety and effectiveness of herbal remedies. (R.F. Chandler)
- Design and synthesis of drugs, prodrugs, drug metabolites and rotationally restricted analogs. (P.S. Farmer)
- Design and evaluation of selective drug delivery systems. (M. Mezel)
- 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. Braybrooke, 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)
 R.M. Campbell, BA (Harvard), PhD (Cornell), Graduate Co-ordinator
 W.F. Hare, BA (London), MA (Leic), PhD (Tor), major appointment in Education Dept.
 R.M. Martin, BA (Columbia), MA, PhD (Mich)
 P.K. Schotoh, 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. Vinol, BA (Tor), PhD (Pitts)

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 Coordinator, 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 and 2140 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 **Logic: Deduction:** R. Campbell, P.K. Schotch

PHIL 2140 **Logic: Logical Theory I:** P.K. Schotch

PHIL 2160 **Philosophical Issues of Feminism:** S. Sherwin, S. Campbell

PHIL 2260 **Philosophy and Art:** S.A.M. Burne

PHIL 2350 **History of Philosophy: Ancient Philosophy I:** T. Vinci and S.A.M. Burne

PHIL 2370 **History of Philosophy: Ancient Philosophy II:** S.A.M. Burne

PHIL 2410 **Philosophy of Psychology:** T. Tomkow

PHIL 2550 **Marxist Theory:** Staff

PHIL 2610 **History of Philosophy: The Rationalists:** S. Campbell, S.A.M. Burne

PHIL 2620 **History of Philosophy: The Empiricists:** S.A.M. Burne, T. Vinci, D. MacIntosh

PHIL 2700 **Philosophy in Literature (full-year):** R. Martin

PHIL 2705 **Philosophy in Literature (half year):** R. Martin

PHIL 2820 **Philosophy and Educational Administration:** W. Hare

General Classes

PHIL 5051 **Theory of Knowledge:** T. Vinci, D. MacIntosh

PHIL 5060 **Logic: Logical Theory II:** P.K. Schotch

PHIL 5100 **Ethics (full-year):** R. Campbell, K. Vihvelin

PHIL 5101 **Advanced Studies in Philosophy of Education (half year):** W. Hare

PHIL 5105 **Ethics (half year):** N. Brett, K. Vihvelin

PHIL 5170 **Theories of Feminism:** S. Sherwin

PHIL 5211 **Philosophy of Law:** N. Brett

PHIL 5255A or B **Aesthetics:** S.A.M. Burne

PHIL 5280 **Ethics and Education:** W. Hare

128 Philosophy

PHIL 5300 Philosophy of Language: T. Tomkow, R. Martin, D. MacIntosh

PHIL 5420B Philosophy of Biology: R. Campbell

PHIL 5440 Philosophy of Mind: T. Tomkow

PHIL 5460 Mind and Brain: T. Tomkow

PHIL 5530 Freedom, Action and Responsibility: P.K. Schotch

PHIL 5630 History of Philosophy: Kant: T. Vinci

PHIL 5640 History of Philosophy: 20th Century Philosophy: D. MacIntosh

PHIL 5670 Philosophy of Science: D. MacIntosh, T. Vinci

PHIL 5720 Phenomenology of Literature: M. Fry

PHIL 5801A or B Ethics and Health Care: S. Sherwin

PHIL 5810 Open-Mindedness and Education: W. Hare

PHIL 5851 Metaphysics: T. Tomkow, K. Vihvelin

PHIL 5900 Logic: Logic and Philosophical Analysis: T. Tomkow

Seminar Classes

PHIL 5055 Topics in Epistemology

PHIL 5070 Topics in Philosophical Psychology

PHIL 5080 Topics in Logical Theory

PHIL 5115 Topics in Ethics I

PHIL 5120 Theory of Rational Decision

PHIL 5125 Topics in Ethics II

PHIL 5190 Topics in the History of Philosophy I

PHIL 5191 Topics in the History of Philosophy II

PHIL 5192 Topics in the History of Philosophy III

PHIL 5200 Topics in Normative Theory

PHIL 5215 Topics in Philosophy of Law

PHIL 5220 Contemporary Philosophical Issues

PHIL 5430 Game Theory as a Foundation for Ethics & Politics

PHIL 5470 Utilitarianism, Liberalism, & Democracy

PHIL 5480 Social Choice Theory

PHIL 5500A or B Topics in Feminist Philosophy: S. Sherwin

PHIL 5510 Topics in Philosophy of Language

PHIL 5600 Philosophy of Religion Seminar

PHIL 5680 Topics in Philosophy of Science

PHIL 5855 Topics in Metaphysics

Directed Reading Classes

PHIL 5960/5980 (half year); 5970/5990 (full year)

PHIL 9000 MA Thesis

PHIL 9530 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

R.A. Dunlap

Professor Emeritus

W.J. Archibald, MA (Dal), PhD (Virg), DSc (UNB), DSc (Dal), FRSC

Professors

D.D. Betts, BSc, MSc (Dal), PhD (McG), FRSC
 E.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)

G.F.O. Langstroth, BSc (Alta), MSc (Dal), PhD (Lond), Assistant Dean, Faculty of Science

R.H. Marsh, BSc, MSc (Dal), DPhil (Oxon)

B.E. Peton, 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), BE (Dal)

D.A. Tindall, BA, PhD (Cantab)

Assistant Professors

W.T. Hyde, BSc (Tor), MSc (Waterloo), PhD (Tor), joint appointment with Oceanography

D. Labrie, BSc (Montreal), MSc, PhD (McM)

Research Associates

A.K. Das, DPhil (Oxon)

V. Gelfandbein, PhD (Tech. Inst., Israel)

I. Golub, PhD (Ben Gurion, Israel)

P. Mulhern, PhD (UBC)

S.H. Payne, PhD (Cantab)

R.L. Wang, PhD (Dal)

Z. Wang, PhD (Man)

A. Wierzbicki, PhD (A. Mickiewicz, Poland)

Postdoctoral Fellows

N. Kalyaniwalla, PhD (Rensselaer)

S. Meul, PhD (Tor)

G. Videen, PhD (Arizona)

Z. Yang, PhD (Oslo), Killam Postdoctoral Fellow

X. Zhang, PhD (Nagoya Inst Tech)

MacGregor Teaching Fellows

T. Craig

S. Dobbie

S. Goese

D. Mercer

W. Xu

M. Yewondwoosen

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

5000-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. 6000-level classes are full graduate classes.

All graduate students will normally take a Problems Class (6320C or 6330C) once in each degree programme.

All graduate students are required to attend and participate in regular departmental seminars.

PHYC 5100A or B Electrodynamics: lecture, 3 hours, Prerequisite: Physics 2110, 2120 prior to 1990, or Physics 2000A/2010B, and Math 3110A/3120B, or the permission of the instructor

PHYC 5151A Quantum Mechanics: lecture 2 hours, Prerequisite: Physics 3140A or permission of instructor

PHYC 5152B Quantum Mechanics: lecture 2 hours, Prerequisite: Physics 5151A

PHYC 5160A Mathematical Methods of Physics: lecture 3 hours, Prerequisite: Mathematics 3110A/3120B or permission of instructor

PHYC 5170B Topics in Mathematical Physics: lecture 3 hours, Prerequisite: Physics 5160A

PHYC 5180A or B Nuclear and Particle Physics: lecture 3 hours, Prerequisite: Physics 3140A or permission of instructor

PHYC 5220A Microcomputer Based Instrumentation: lecture 2 hours, lab 3 hours, Prerequisite: Physics 3810B or permission of instructor, this class is not given every year

PHYC 5230A or B Introduction to Solid State Physics: lecture 3 hours, Prerequisite: Physics 3140A or permission of instructor

PHYC 5311A/5312B Fluid Dynamics I/II: lecture 3 hours, Cross listed with Oceanography 5311A/5312B

PHYC 5411A/5412B Dynamic Meteorology I/II: lecture 3 hours, Prerequisite: permission of instructor, Cross listed with Oceanography 5411A/5412B

PHYC 5460A or B Optics: lecture 3 hours, Prerequisite: Physics 3440A or B or permission of instructor

PHYC 5490A or B Applied Group Theory: lecture 3 hours, Offered when there is sufficient demand

PHYC 5500A/5510B Atmospheric Physics I/II: lecture 3 hours, Prerequisite: permission of instructor, Cross listed with Oceanography 5500A/5510B

PHYC 5520A Introduction to Meteorology: lecture 3 hours, Prerequisite: permission of instructor, Cross listed with Oceanography 5520A.

PHYC 5530B Introduction to Radiation and Climate: lecture 3 hours, Prerequisite: permission of instructor, Cross listed with Oceanography 5530B

PHYC 5540A/5550B Synoptic Meteorology I/II: lecture 3 hours, Prerequisite: at least 1 third year level physics

PHYC 5650A/5660B Relativity and Cosmology: lecture 3 hours, Prerequisite: Physics 2110 and 2120 prior to 1990, or Physics 2000A/2010B, Mathematics 3050R, or permission of instructor

PHYC 6120R Quantum Theory: lecture 3 hours, Prerequisite: Physics 4150A or its equivalent

PHYC 6141A/6142B Advanced Quantum Theory I/II: lecture 3 hours, Prerequisite: Physics 6120, which may be taken concurrently

PHYC 6201A/6202B Solid State Physics I/II: lecture 2 hours, Prerequisite: Physics 5230B, 4150A

PHYC 6241A/6242B Advanced Solid State Physics I/II

PHYC 6261A/6262B Statistical Mechanics I/II: lecture 3 hours, Prerequisite: Physics 3210B, 4150A or their equivalent

PHYC 6300R Electromagnetism: lecture 3 hours

PHYC 6320C Advanced Problems (MSc students)

PHYC 6330C Advanced Problems (PhD students)

The following 6000 level classes are more specialized than the above and consequently are not offered as frequently.

PHYC 6270A Order-Disorder Phenomena and Phase Transitions: Prerequisite: A basic knowledge of quantum statistical mechanics is assumed

PHYC 6271B Field Theoretical Methods in Critical Phenomena

PHYC 6280A or B Superconductivity: lecture 2 hours

PHYC 6291A Surface Science I

PHYC 6292B Surface Science II

PHYC 6350B Selected Topics in Physical Metallurgy: lecture 2 hours

PHYC 6421A Radiological Physics

PHYC 6422B Radiation Therapy Physics

PHYC 6500C Magnetism: lecture 1½ hours

PHYC 6545A or B Boundary Layer Meteorology: cross-listed with Oceanography 5545A or B

PHYC 6550A or B Radar and Satellite Meteorology: cross-listed with Oceanography 5555A or B

PHYC 6570A Light Scattering and Radiative Transfer: cross-listed with Oceanography 5570A

PHYC 6575A or B Topics in Atmospheric Radiation: cross-listed with Oceanography 5575A or B

PHYC 6580B Cloud Physics. Cross-listed with Oceanography 5580B

PHYC 6600A or B Topics in Physics

PHYC 6710A or B Introduction to Disordered Materials

PHYC 6970R Selected Topics in Particle Physics: lecture 2 hours

PHYC 9000 MSc Thesis

PHYC 9530 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), Dr Med (Bud)
Enid MacLeod, MD (Dal)

Professors

J.A. Armour, BSc (McG), MD (Western), PhD (Loyola)

B.M. Haraok, MSc(Eng) (Prague), PhD (Dal)

M. Haraokova, 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)

W.H. Moger, BS (Cornell), PhD (Calif)

M.R. Oulton, BA (Acadia), PhD (Dal), major appointment, Obstetrics/Gynecology

D. Rasmussen, BA (Colo C), 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 Eng (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, PhD (McG)

J.D. Duder, MSc (Alta), PhD (Dal)

A. Fine, BA (Harvard), DVM, PhD (Penn)

D. Guernsey, PhD (Hawaii), Major appointment in Pathology

N. Morgunov, BSc, MSc, PhD (Tor)

D. Peizer, MD (Heidelberg)

G. Stroink, PhD (McG), Major appointment, Dept. of Physics

Assistant Professors

D. Hirsch, MD (Dal), Major appointment, Department of Medicine

D.E. Johnston, B.Sc., MDCM (McG), FRCP(C), major appointment Department of Medicine

A. Kholopov, MSc (Moscow State) PhD (USSR Acad of Sci)

K. Landymore, BSc, MD, PhD (Dal), major appointment Obstetrics/Gynecology

M.G. Murphy, MSc, PhD (Dal)
P.R. Murphy, MSc, PhD (Dal), Graduate
Studies Coordinator
S. Pelzer, BSc, MSc, PhD (Freiburg)
R. Rittmaster, MD (Tufts Med Sch), major
appointment Dept of Medicine
A.M. Taylor, BSc (Aoadla), DVM (Ont Vet Col)

Lecturer

S.P. Handa, MD (Punjab), FRCP(C), FACP

Instructor

C. Couture, BA (Dal)

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 1000/1010 (differential and integral calculus)
 - Physics 1100 (using differential calculus)
 - Chemistry 110 (general chemistry)
 - Statistics 1080/1070 (basic statistics for scientists)
 - Biology 1000 (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 4403R Human Physiology. Students are also required to take Cellular and Molecular Physiology 5502R, Graduate Seminar 5517C 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 (p. 45)

Classes Offered

Physiology

PHYL 4403R Human Physiology: N. Morgunov (Cross-listed with Biomedical Engineering at TUNS, BME6250)

PHYL 5459B Activity of Excitable Cells and Tissue: A. Wong (offered every second year, next offered in 1994/95. Cross-listed with Biomedical Engineering at TUNS)

PHYL 5494B Synaptic Transmitters: M. Wilkinson (offered every second year, next offered in 1993/94)

PHYL 5502R Cellular and Molecular Physiology: M. Wilkinson (offered every year)

PHYL 5505A Lab Animal Medicine: Comparative Physiology: A.M. Taylor (offered every second year, next offered in 1992/93)

PHYL 5508C/5509C/5510C Directed Reading in Physiology and Biophysics: Staff

PHYL 5511B Neurophysiology: J. Duder, D. Rasmussen, J.C. Szerb, A. Fine (offered every second year, next offered in 1993/94)

PHYL 5512B Physiology and Biophysics of the Heart and Circulation: D. Armour (offered every second year, or on demand)

PHYL 5513A Endocrine Physiology: W. Moger (offered every second year, next offered in 1994/95)

PHYL 5514B Reproductive Physiology: M. Wilkinson (offered every second year, next offered in 1993/94)

PHYL 5517C Physiology and Biophysics Graduate Seminar: Graduate Co-ordinator

PHYL 5608R/5609R/5610R Directed Reading Graduate Seminar: Staff

PHYL 9000 MSc Thesis

PHYL 9530 PhD Thesis

Biophysics

The following classes are given by the Biomedical Engineering Institute at the Technical University of Nova Scotia.

BIOP 5900A Biomedical Engineering I

BIOP 5910B Biomedical Engineering II

BIOP 5930A Digital Signal Processing I

BIOP 5940B Digital Signal Processing II

BIOP 5950A Biomechanics I

BIOP 5960B Biomechanics II

BIOP 5970A or B Directed Studies in Electrical Engineering

Neuroscience

The following classes are offered through the interdisciplinary neuroscience programme.

NEBC 6000C 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) 494-2398

Chairperson of Department

P. Aucoin

Graduate Co-ordinator

David M. Cameron

Professors Emeritus

J.H. Aitchison, BA, BEd (Seak), 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, PhilM, PhD (Tor)

A.P. Cross, BA, MA (Queen's), PhD (Tor), major appointment in School of Public Administration

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 (Vice-President, Academic and Research)

G.R. Winham, BA (Bowdoin), Dip Int Law (Manchester), PhD (N Car), Eric Dennis Memorial Professor of Government and Political Science

Associate Professors

D.W. Middlemiss, BA, MA, PhD (Tor)

J. Smith, BA (McM), MA, PhD (Dal)

Assistant Professors

B.L. Crowley, BA (McG), MSc, PhD (London)

K. Fierbeck, BA (Alta), MA (York), PhD (Cantab)

R.G. Finbow, BA (Dal), MA (York), PhD (London)

Admission Requirements

Successful applicants will have first-class, or high second-class (B+) standing in their previous academic programme. In addition to official transcripts

and two academic letters of reference, all applicants must provide the Departmental Admissions Committee with (1) a brief statement of their intended programme of studies and their thesis/dissertation interests; (2) a sample of their written work (for applicants to the PhD programme, their MA thesis or parts thereof would be desirable); and (3) a TOEFL or equivalent test score (800 or above) when the applicant's native language is other than English. The Admissions Committee will consider an application incomplete until these requirements are met.

For admission to the one year MA degree programme, candidates must possess an Honours degree in Political Science, or the equivalent. Candidates with an undergraduate major in Political Science or the equivalent (at least four full year credits in Political Science), or an Honours degree in a discipline other than Political Science, and with at least four full year credits in Political Science, may apply for a two year MA degree programme.

For admission to the PhD degree programme, candidates must possess an MA in Political Science, or, in exceptional cases, a Masters degree in a related discipline with a significant component of Political Science (e.g., a Masters in Public Administration or International Affairs). The Department does not admit candidates to the PhD degree programme directly from an undergraduate Honours degree.

MA Degree Programme

The one year MA degree consists of three full credits including the core course in the student's area of specialization, and a thesis. The two year MA consists of the above plus five additional full-year credits. Students may specialize in Political Theory and Philosophy, Canadian Government, Comparative Government, International Relations and Foreign Policy, or Public Administration. 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. The first year consists of three full credit courses including two core courses in a student's field of specialization for comprehensive examinations, and one course in Political Philosophy if this is not a field selected for comprehensive examination. The second year consists of comprehensive papers or examinations in three of the following fields: Political Theory, Philosophy and Methods; Canadian Government; Comparative Government (in selected areas); International Relations and Foreign Policy;

Public Administration; or Special Alternate Field (where faculty interests and resources permit). An original thesis must be prepared and defended in one of the above areas. Candidates will be admitted to the PhD degree programme only where the topic of the dissertation can be adequately supervised by Departmental faculty. Proficiency in a language other than English, usually French, must be demonstrated.

Classes Offered

Classes offered by the Department have, for the purposes of this calendar, been grouped into the following classifications:

- Canadian Government and Politics and Public Administration
- Comparative Politics
- Political Theory and Methodology
- International Relations and Foreign Policy

Note: Classes are not necessarily offered each year. Consult timetable for final listing of course offerings.

Canadian Government and Politics

POL 5204R Advanced Seminar in Canadian Politics: P. Aucoin and D. Cameron

POL 5205A or B Canadian Political Thought: J. Smith

POL 5206A or B Constitutional Issues in Canadian Politics: J. Smith

POL 5212A or B The Politics and Government of Nova Scotia: P. Aucoin

POL 5214A or B Quebec Politics

POL 5216A or B Local and Regional Government: D. Cameron

POL 5220A or B Intergovernmental Relations in Canada: H. Bakvis

POL 5224A or B Canadian Political Parties: H. Bakvis

POL 5228A or B Interest Groups: Representation, Management and Function: H. Bakvis

POL 5233A or B Canadian Political Economy: R. Finbow

POL 5235A or B Regional Political Economy in Canada: R. Finbow

POL 5240A Policy Formation in Canada: P. Brown

POL 5241B Introduction to Policy Analysis: P. Pross

POL 5250A or B Canadian Public Administration: P. Aucoin

Comparative Politics

- POL 5301A or B Comparative Theory: R. Finbow
- POL 5302A or B Comparative Development Administration: TBA
- POL 5303A or B Human Rights and Politics: TBA
- POL 5304A or B Comparative Federalism: H. Bakvis
- POL 5315A or B African Politics: TBA
- POL 5340A or B Approaches to Development: T. Shaw
- POL 5360A or B Politics in Latin America: staff
- POL 5379R U.S. Constitution, Government, and Politics: J. Smith

Political Theory and Methodology

- POL 5430A or B The Political Philosophy of Plato: B. Crowley
- POL 5431A or B The Political Imagination in Literature: B. Crowley
- POL 5445A or B Entitlement and Property: K. Ferlieck
- POL 5475A or B Democratic Theory: K. Ferlieck
- POL 5479A or B Classical Liberalism and Democracy: B. Crowley
- 5496A or B Philosophy of the Social Science: TBA

International Relations & Foreign Policy

- POL 5520R Theories of International Relations: G. Winham
- POL 5531A or B The United Nations in World Politics: R. Boardman
- POL 5535A or B The New International Division of Labour: T. Shaw
- POL 5537R Management and Conservation of Marine Resources: E.M. Borgese. Offered as a summer class only; consult instructor.
- POL 5540A or B Foreign Policies in the Third World: T. Shaw
- POL 5544A or B Conflict and Cooperation in Southern Africa: T. Shaw
- POL 5570R Canadian Foreign Policy: D. Stairs
- POL 5571R Strategy and Canadian Defence Policy: D. Middlemiss
- POL 5574A or B American Foreign Policy: G. Winham

- POL 5575A or B Nuclear Weapons and Arms Control in World Politics: D. Middlemiss
- POL 5581A or B Diplomacy and Negotiation: G. Winham
- POL 5585A or B Politics of the Environment: R. Boardman
- POL 5590R The Politics of the Sea: E.M. Borgese
- POL 5596R Theories of War and Peace: F. Harvey
- POL 5601R Readings in Political Science
- POL 5602A Readings in Political Science
- POL 5603B Readings in Political Science
- POL 9000 MA Thesis
- POL 9530 PhD Thesis

Psychology

Location: Life Sciences Centre, 1355
Oxford Street, Halifax, N.S.
B3H 4J1
Telephone: (902) 494-3417
Fax: (902) 494-8585

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, MAppSo (Melb), PhD
(Berkeley)
S. Nakajima, BA (Chiba), MA (Wash.), PhD
(McG)
H. Robertson, MSc (Western), PhD (Cantab),
Major appointment in Pharmacology
B. Rueck, 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
(Wisn)
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)
G. Pretty, BSc, MSc (Acadia), PhD (Western),
Psych/SMU
K. Semba, BEd, MA (Tokyo), PhD (Rutgers),
major appointment in Anatomy

Assistant Professors

K. Davidson, BA (Queen's), MASc, PhD
(Waterloo)
G. Eskes, BA, PhD (Berkeley)
P. McMullen, MSc (Tor), PhD (Waterloo)
M. Sullivan, MA, PhD (Concordia)

Honourary Adjunct Professors

J. Baokman, MA, PhD (Carleton),
Education/Prov. of NS
C. Billabury, 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/Acadia
C. Eleworth, MA, PhD (Queen's), Psych/IWK
J. Fiek, BSc, MA, PhD (Western),
Psych/Camp Hill
J. Howes, BA (Dal), MA, PhD (Western),
Psych/Camp Hill
M. Leiter, BA (Duke), MA (Vanderbilt), PhD
(Oregon), Psych/Acadia @BILL JR. = G.W.
MacDonald, BA (StFX), MA, PhD (Windsor),
Psych/IWK
C.C. Mate-Kole, BSc (Bruner), PhD
(Leicester), Psych/Rehab Centre
P. O'Neill, MSc, PhD (Yale), Psych/Acadia
S. Pigott, BA (Western), PhD (McG),
Psych/Rehab. Inst. of Pittsburgh
K.E. Renner, BS (Penn), MA, PhD (Northwest)
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. Valle, 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

H. Piggins, PhD (Ottawa)
M. Tihova-Petrova, PhD (Moscow)
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), which is the major requirement of this programme, the Masters student must complete the following classes:

- Psychology 7500R: Methods of Psychological Inquiry
- Psychology 8001A: 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 8000R) 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), 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 7500R: Proseminar in Methods of Psychological Inquiry
- Psychology 8001A: Fundamentals of Statistics and Experimental Design, and at least one other 1/2 credit class in the quantitative/analytic area
- Psychology 7100A: 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) 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) 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), which is the major requirement of this programme, the Masters student must complete the following classes:

- Psychology 7500R: 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 8000R) 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 (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), 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 7500R: Proseminar in Methods of Psychological Inquiry
- Psychology 7100A: Seminar in Teaching Effectiveness

During each year in the Ph.D. programme students are required to register for Dissertation Research (Psychology 9530) 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) and do some teaching in the undergraduate programme (see Masters programme description). The Neuroscience and Psychology Graduate Programme Committee, 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 600 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 7500R: Proseminar: Methods of Psychological Inquiry
- Psychology 8201 A/B: Introduction to Psychological Assessment.
- Psychology 8202 A/B: Introduction to Clinical Intervention
- Psychology 8210 A/B: Introductory Clinical Seminar
- Psychology 6001 A: Fundamentals of Statistics and Experimental Design. At least one other 1/2 credit class in the quantitative/analytic area.
- Psychology 8201 A/B: Ethics and Professional Decision-making
- Psychology 8220 R: Seminar: Assessment and Intervention
- at least three credits of elective seminars must also be completed.

Students in year one of the programme are required to register for Psychology 5000R Supervised Research. During each subsequent year in the Ph.D. programme students are required to register for Dissertation Research (Psychology 9530). During each residency year students must register for and attend the weekly colloquium series (Psychology 8000) 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 5000R Research Assignment: Staff
- PSY 5001A Independent Study: Staff
- PSY 5002B Independent Study: Staff
- PSY 6001A or B Fundamentals of Statistics and Experimental Design: J. Barrei
- PSY 6003A or B Multivariate Methods: M. Sullivan
- PSY 6040R Animal Learning: W.K. Honig
- PSY 6050R Perception: D.E. Mitchell
- PSY 6051A or B Neural Basis of Perception: D. Phillips
- PSY 6060A or B Biological Basis of Mental Illness: J. Connolly, B. Rusak
- PSY 6071A or B Physiological Psychology: S. Nakajima
- PSY 6081A or B Topics in Personality and Social Psychology: J. Barrei
- PSY 6090R Biosocial Issues in Development: P. Dunham
- PSY 6091A or B Topics in Child Development: P. Dunham, C. Moore
- PSY 6100A or B Instrumentation and Computers in Psychology: D. Conrad, R. Hoffman
- PSY 6130R Cognitive Psychology: R. Klein
- PSY 6160A or B Comparative Psychology: R. Brown, J. Fentress
- PSY 6201A or B Introduction to Psychological Assessment: P. Ritvo
- PSY 6202A or B Introduction to Psychological Intervention: J. Connolly
- PSY 6210A or B Introductory Clinical Seminar: P. McGrath
- PSY 6211A or B Topics in Assessments: J. Connolly
- PSY 6220R Seminar in Assessment and Intervention: P. McGrath
- PSY 6230A or B Psychology of Reading: R. Klein
- PSY 6240A or B Topics in Animal Learning: W. Honig
- PSY 6270A or B Comparative Neurobiology: I.A. Meinertzhagen, S.R. Shaw
- PSY 6300R Cognitive Neuropsychology: R. Klein

- PSY 6313A or B Topics in Cognitive Psychology: R. Klein
- PSY 6370A or B Neuroscience Laboratory: M.G. Yoon
- PSY 6410A or B Topics in Therapeutic Intervention: Staff
- PSY 6420A or B Topics in Health Psychology: Staff
- PSY 6470A or B Developmental Neuroscience: I.A. Meinertzhagen, S.R. Shaw
- PSY 6580R History of Psychology: J.W. Clark
- PSY 6601A or B Dissociative Disorders: R. Klein
- PSY 6602A or B Topics in Schizophrenia: J. Connolly
- PSY 6603A or B Topics in Psychopathology: M. Sullivan
- PSY 6604A or B Topics in Neuropsychology: J. McGlone
- PSY 6610A or B Topics in Clinical Research Methods: P. McGrath
- PSY 6620A or B Topics in Community Psychology: E. Renner
- PSY 7100A or B Teaching Methods Seminar: P. Dunham
- PSY 7500R Proseminar: Methods of Psychological Enquiry: R. Klein
- PSY 8000R Psychology Colloquium: Staff
- PSY 8040R Learning: W.K. Honig, V.M. LoLordo
- PSY 8050A or B Selected Topics in Perception: D. Mitchell
- PSY 8071A or B Selected Topics in Physiological Psychology: S. Nakajima
- PSY 8081A or B Topics in Personality and Social Psychology: J. Barrei
- PSY 8090A or B Biosocial Processes in Development: P. Dunham
- PSY 8091A or B Topics in Child Development: P. Dunham, C. Moore
- PSY 8100A or B Methodology in Psychology: Staff
- PSY 8120A or B Clinical Methods and Issues: K.E. Renner
- PSY 8130R Human Learning/Information Processing: B. Earhard, R. Klein, J. Barrei
- PSY 8160A or B Ethology: R. Brown, J. Fentress
- PSY 8201A or B Ethical and Professional Issues: Staff

PSY 8211A or B Topics in Assessments: J. Connolly

PSY 8240A or B Topics in Animal Learning: V. LoLordo

PSY 8313A or B Topics in Cognitive Psychology: R. Klein

PSY 8333A Field Placements

PSY 8410A or B Topics in Therapeutic Intervention: Staff

PSY 8420A or B Topics in Health Psychology: Staff

PSY 8801A or B Topics in Clinical Research Methods: P. McGrath

PSY 8802A or B Topics in Schizophrenia: J. Connolly

PSY 8803A or B Topics in Psychopathology: M. Sullivan

PSY 8804A or B Topics in Neuropsychology: J. McGlone

PSY 8820A or B Topics in Community Psychology: K.E. Ranner

PSY 9000R MA Thesis

PSY 9530R 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. Almon, BSc (Dal), MEd (Slippery Rock), MPA (Dal)
S. Amirkhalkhali, BA (Shiraz, Iran), MA, PhD (Dal), St. Mary's University
K. Chaytor, BA (MSVU), MA, PhD (Dal)
M. Knox, BSc (Queen's Belfast), BEd (Dal), MBA (SMU), MSc (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 Masters programme require students to complete courses in these basic fields. The second year of the Masters 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.

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 966
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 5100A Government Structure and Organization
PA 5110B Public Sector Management
PA 5120A Policy Formulation
PA 5121B Introduction to Policy Analysis
PA 5130A Applied Micro Economics
PA 5131B Applied Macro Economics
PA 5140A Quantitative Methods I
PA 5141B Quantitative Methods II
PA 5150A Public Sector Accounting
PA 5151B 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 MPA will require the successful completion of 10 classes, which must include: PA 5100A, 5110B, 5120A, 5121B, 5130A, 5131B, 5140A, 5141B, 5150A, 5151B and 6000B. The remaining credits will be electives.

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 MPA/LLB Programme

The combined MPA/LLB 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 MPA/LLB 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.

Classes Offered

PADM 5100A Government Structure and Organization: P. Aucoin

PADM 5110B Public Sector Management: M. Cassin

PADM 5120A Policy Formulation: P. Brown

PADM 5121B Introduction to Policy Analysis: P. Pross

PADM 5130A Applied Micro Economics: F. Siddiq

PADM 5131B Applied Macro Economics: S. Amirkhakhali

PADM 5140A Quantitative Methods I: M. Knox

PADM 5141B Quantitative Methods II: F. Siddiq

PADM 5150A Public Sector Accounting: T. Vey

PADM 5151B Public Sector Financial Management: Staff

PADM 6000B Senior Seminar in Public Administration: P. Brown

PADM 6100A Financial Administration & Budgeting: Staff

PADM 6110A Public Sector Auditing: Staff

PADM 6230A Intermediate Applied Economics I: F. Siddiq

PADM 6231B Intermediate Applied Economics II: staff

PADM 6235B Issues in Applied Economics: F. Siddiq

PADM 6240B Social Cost Benefit Analysis: T. Pinfold

PADM 6400A Local Government: D. Cameron

PADM 6410B Municipal Management: A. O'Brien

PADM 6420B Municipal Financial Administration: J. Novak

PADM 6500A Business & Government: P. Pross

PADM 6505B Interest Groups: P. Pross

PADM 6510A Policy Analysis: P. Pross

PADM 6520A Programme Evaluation Seminar: K. Chaytor

PADM 6521B Programme Evaluation Practicum: D. Pool

PADM 6530A Natural Resource Administration: P. Pross

PADM 6535B Politics & Administration of Fisheries Management: P. Pross

PADM 6537A Environmental Policy: P. Brown

PADM 6540B Canadian Regional Development Policy: F. Siddiq

PADM 6600A Personnel Administration: M. Cassin

PADM 6610B Compensation & Collective Bargaining: M. Cassin

PADM 6620A Women and Men and Management: M. Cassin

PADM 6625B Special Topics in Human Resource Management: M. Cassin

PADM 6750A Intergovernmental Relations: H. Bakvis

PADM 6755B Comparative Federalism: H. Bakvis

PADM 6775B Management of Sustainable Development: B. Clarke

PADM 6780B International Development Administration: Staff

PADM 6785B Advanced Quantitative Methods: F. Siddiq

PADM 6800R Project: staff

PADM 6850R Internship: P. Brown

PADM 6900R Directed Reading: staff

PADM 6910A Directed Reading: staff

PADM 6920B Directed Reading: staff

PADM 6925A 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

Director of School

A.J. Young

Professors

R.P. Beazley, BA, BEd (Acadia), BPE (McM),
MPE (Dal), EdD (Tennessee)
E.G. Belzer, Jr., BS (West Chester), MS
(Maryland), PhD (Illinois)
L.E. Holt, BS, MS (Springfield), PhD (S Illinois)
A. Richards, Dip PE (Carnegie Sohl PE,
England), Teach Cert (Trent Park Col), MSc
(Dal), EdD (Colorado)
A.J. Young, BS (West Chester State Col);
MS, PhD (Maryland)

Associate Professors

H.C. Ballern, BPE (UNB), MSc (Dal)
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)
R.L. Kirby, MD (Dal), FRCP(C), major
appointment in Medicine
R.F. Lyons, BA (Dal), MEd (Xavier), PhD
(Oregon), Graduate Co-ordinator of the
Leisure Studies Division
L. Makrides, MCSP, BPT (Saek), 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)
C.A. Putnam, BPE (Man), MS (Wash), PhD
(Iowa), Graduate Co-ordinator of the
Kinesiology Division
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)
J.F. Singleton, BA (Waterloo), MS (Penn
State), PhD (Maryland) Head of the Leisure
Studies Division
L.J. Verabloff, BA, BPHE (Queen's), MS
(Mich), PhD (Ohio State)

Assistant Professors

L.J. Barnes, BPE, MSc (Dal)
S.L. Curwin, DipPt, BSoPT, MSc (Dal), PhD
(UCLA), major appointment in School of
Physiotherapy

C.D. Hood, BPE (Calgary), MS, PhD (Illinois)
N.M. Ipson, BA, MS, PhD (Brigham Young)
C.R. Mangham, BEd, MA (UBC), PhD (Oregon)
L.L. McIntyre, MD, MHS (Tor), FRCP(C),
Dean of Faculty of Health Professions
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. This 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 degree 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

Required Classes: 24 credit hours

HEED 9000R Thesis: 12 credit hours

EDUC 5811A Quantitative Research Methods
or

LST 5501B Advanced Social Research Methods

HEED 5503A Intermediate Statistics for the Health Sciences

OR

EDUC 625B Intermediate Statistics & Research Design (Mount St. Vincent University) Prerequisite: Before entering either LST 5501 or EDUC 625 students must have completed an introductory course in statistics with at least a "B" grade.

HEED 5595B Measurement & Evaluation in Health Education and Health Promotion

HEED 5514A Trends in Health Education

OR

HEED 5516B Theoretical & Scientific Bases of Health Education

Elective classes: 6 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 Research Methods for Natural Sciences: L.E. Holt, 3 credit hours

KIN 9000R 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.

KIN 5503 Interdisciplinary Statistics for Health Sciences: staff

KIN 5510 Cardiorespiratory Dynamics in Exercise: P.D. Campagna

KIN 5511 Regulation of Substrate Metabolism in Muscle: Staff

KIN 5516 Neuromuscular Physiology: G.C.B. Elder

KIN 5520 Advanced Anatomy and Kinesiology: L.E. Holt

KIN 5523 Biomechanics of Human Motion: C.A. Putnam

KIN 5524 Research Techniques in Biomechanics: C.A. Putnam

KIN 5530 Motor Learning and Performance: J.F. McCabe

KIN 5572 Topics in Human Performance: J.F. McCabe

KIN 5580 Principles of Skill Acquisition: L.J. Verabloff

KIN 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

LST 5501 Advanced Social Research Methods: Staff, 3 credit hours

LST 5503 Interdisciplinary Statistics for Health Sciences: staff, 3 credit hours

OR

another intermediate statistics class approved by the Leisure Studies Graduate Co-ordinator.

LST 5592 Interdisciplinary Basis of Leisure Science: Staff, 3 credit hours

LST 9000R Thesis: 12 credit hours

Total: 21 credit hours

Elective Classes

LST 5512 Lifestyles of Ill and Disabled Persons: R.F. Lyons

LST 5550 Historical Analysis of Sport and Culture: A.J. Young

LST 5560 Sociological and Cross Cultural Perspectives on Sport: Staff

LST 5561 Gender, Leisure and the Family: Staff

LST 5562 New Perspectives on Youth: A. Richards

LST 5563 Leisure Behaviour In Older Adults: J.F. Singleton

LST 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
Telephone: (902) 494-3760

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 (Innebruk), DRS (Strasbourg)

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)

D. Moore, DipSocStud (Lond.), BA, MA (Dal), PhD (Boston)

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. Duplessé, BA, MSW (MtA)

J. Harbison, BA, BSS (Dublin), Grad Dip SW (Edinburgh), PhD (Tor), Graduate Studies

Co-ordinator

R. Neal, BSW (MoM), MSW (Tor)

B.K. Richard, BA (MtA), MSW (Dal)

A. Sexton, BA (St. Thomas), MSW (Dal)

W. Thomas-Bernard, BA (MSVU), MSW (Dal)

Field Instructors 1993-93

Jackie Barley

Nancy Beck

Tom Brown

Jeanne Faye

Sandra Felderhoff

Pat Forrestal

Carolyn Fowler

Sharon Gibson

Joy Goudge

Donna Hepditch

Carolyn Humphreys

Ann Keith

Gordon King with Christine Gibson

Shirley MacFayden

Verle Marchand

Carole McCready

Laura McPherson

Joan Mendes

Jeff Moore

Gary Neufeld

Tom Osborne
 Doreen Parsons
 Mary Stewart Petty
 Anne Sexton
 Corinne Steele
 Karen Thomas Holroyd

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

Candidates must hold a Bachelor of Social Work degree from a university of recognized standing, or an equivalent degree in Social Work. Relevant work experience is an important prerequisite for admission to either specialization. Applicants should show evidence of personal maturity and suitability for social work.

Candidates with a baccalaureate degree may apply for a qualifying year programme, provided that they have several years of significant social work or 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 can be taken in the form of one full-time academic year or three part-time academic years. Applicants must demonstrate a sound plan of study. The Proposal for Study indicates the specialization (and concentration) chosen and describes related areas of particular interest to the applicant, including their relevance to her/his background experience. (Further details are contained in the MSW Programme Brochure.)

The Maritime School offers affirmative treatment of applications for admission from indigenous minorities - Aboriginal, Acadian and Black - of the Atlantic Region.

Further information may be obtained from the Admissions Co-ordinator, Maritime School of Social Work. MSW Programme brochures and application packages are available throughout the year from the Registrar's Office, Dalhousie University. 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 required 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.

Field Experience

Students should note that the required practice class (1 1/2 credits) of the MSW programme includes a field experience component of 400 hours in an appropriate agency.

Individual and Family Practice Specialization

Required Courses

MSW 6335R Theory and Methods of Intervention: 1 credit

and

MSW 6340R Social Work in Family and Child Welfare: 1 1/2 credits, for students of this concentration

OR

MSW 6345R Social Work in Physical and Mental Health: 1 1/2 credits, for students in this concentration

and

MSW 6020R Master's Project in Individual and Family Practice: 1 credit, open to independent completion of study

OR

MSW 6030R Thesis in Individual and Family Practice: 1 1/2 credits, open to independent completion of study

Community Practice

Required Courses

MSW 6380A or B The Social Policy Context of Community Work: 1/2 credit

MSW 6385A or B Community and Social Change Analysis: 1/2 credit

MSW 6380 and 6385 constitute the one-credit theory class.

and

MSW 6390R The Theory and Practice of Community Work: 1 1/2 credits

MSW 6240R Master's Project in Community Practice: 1 credit, open to independent completion of study

OR

MSW 6230R Thesis in Community Practice: 1 1/2 credits, open to independent completion of study

Electives

At least one half-credit elective must be taken outside the Maritime School, although all the electives may be taken in graduate disciplines other than Social Work.

The following Social Work electives are offered:

MSW 6365A or B Community Socio-Economic Development: (not offered 1993-94)

MSW 6370A or B Advanced Practice Skills

MSW 6375A 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:

MSW 5990 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) 494-8593
Fax: (902) 494-2897

Chairperson of Department

Richard Apostle

Professors

R. Apostle, BA (Simon Fraser), MA, PhD (Calif, Berkeley)
J.H. Berkow, AB (Brooklyn), AM, PhD (Chicago)
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. Gamberg, BA (Brandeis), AM, PhD (Princeton)
B. Kaddy, BScN (MSVU), MA, PhD (Dal), major appointment in Nursing
V. Thiesen, BA (Man), MA, PhD (Wis)

Associate Professors

J. Benoit, BA, MA (Guelph), PhD (Johns Hopkins), major appointment in Henson College
M. Binkley, BA, MA, PhD (Tor), Associate Dean, Faculty of Arts and Social Sciences
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)

Honourary Adjunct Professors

R.C. Kail, BA (Dal), BD, MA (Tor), PhD (McG)
L. Kasdan, MA, PhD (Chlo)
D. Looker, BA (Carleton), MA (Waterloo), PhD (McM), Acadia University

Honourary 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.

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 with at least an upper second class (B+) standing. It is expected that a candidate's undergraduate work will have included classes in sociological theory, 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 this programme, see Section 5.1. The 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-year credits. A thesis, worth two credits, is required as are the following classes: Sociology 5050A (1/2 credit); Sociology 5060B (1/2 credit); and Sociology 5200 (one credit). An elective class 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 other than those listed may be offered. Please consult Department for further information.

SSA 5050A or B Advanced Theory

SSA 5060A or B Advanced Methods

SSA 5200 Graduate Seminar

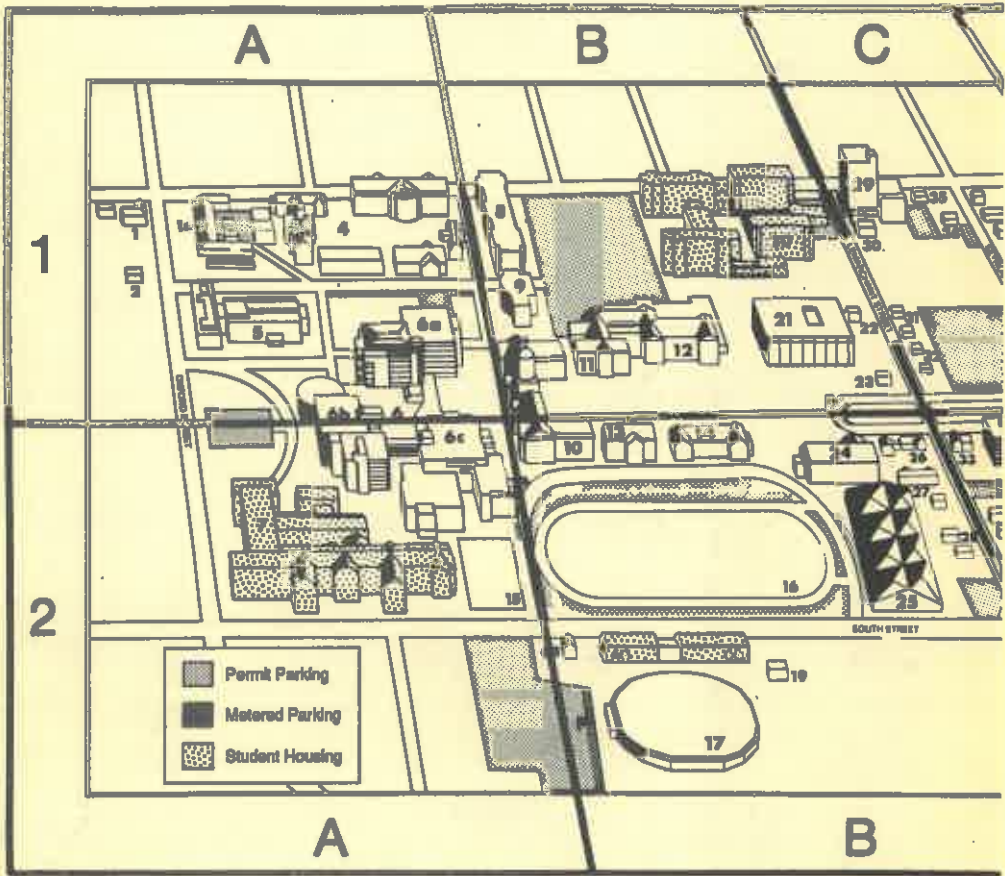
150 **Sociology and Social Anthropology**

**SSA 5510A or B Graduate Readings in
Sociology**

**SSA 5520A or B Graduate Readings in
Sociology**

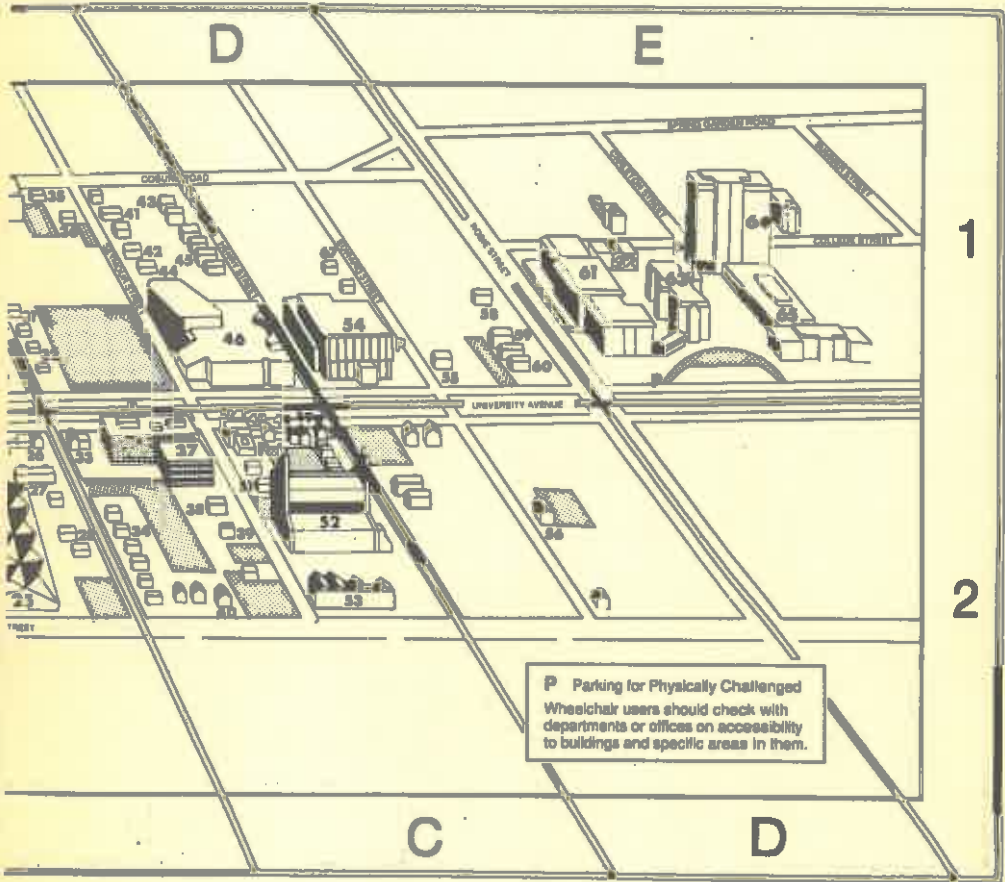
SSA 9000 MA Thesis

152 Campus Map



- Admissions — 10 (B1, B2)
- Alumni Office — 11 (B1)
- Arts and Administration Building — 10 (B1, B2)
- Arts Centre — 46 (C1)
- Biology — 6a (A1)
- Bookstore — 37 (C2)
- Burbridge Building — 62 (E1)
- Business Administration, School of — 29 (C1)
- Canadian Studies — 36 (C1)
- Central Services Building — 52 (C2)
- Chase Building — 9 (B1)
- Chemistry — 11, 12 (B1)
- Classics — 27 (B2)
- Comparative Religion — 23 (B1)
- Computer Centre — 21 (B1)
- Counselling and Psychological Services — 37 (C2)
- Dalplex — 17 (B2)
- Day Care — 1a (A1), 6c (A2)
- Dentistry and Dental Hygiene — 61 (E1)
- Development Office — 11 (B1)
- Dunn Building — 8 (B1)
- Earth Sciences — 6a (A1)
- Economics — 26 (B2)
- Education — 14 (B2)
- Engineering — 8 (B1)
- Eliza Ritchie Hall — 66 (B2)

- English — 42, 43 (C1)
- Forrest Building — 63 (E1)
- French — 23 (B1), 32 (C1)
- German — 31 (C1)
- Graduate House — 33 (C2)
- Henson College — 47, 48, 49, 50, 51 (C2)
- History — 41 (C1)
- Housing Office — 37 (C2)
- Howe Hall — 20 (B1)
- International Development Studies — 36 (C1)
- International Student Centre — 67 (D1)
- Killam Library — 21 (B1)
- King's College — 4 (A1)
- Law Building — 54 (D1)
- Life Sciences Centre — 6a,b,c (A1, A2)
- Macdonald Building — 11 (B1)
- Mathematics, Statistics, Computing Science — 9 (B1)
- Medicine — 64 (E1)
- Multidisciplinary Centre — 36 (C1)
- Nursing, School of — 63 (E1)
- Occupational Therapy, School of — 63 (E1)
- Oceanography — 6b (A1, A2)
- Part-time Studies (Centre for Community Education — 48, 49, 50 (C2)
- Pharmacy, College of — 62 (E1)



- Philosophy — 45 (C1)
- Physics — 8 (B1)
- Physiotherapy, School of — 63 (E1)
- Political Science — 10 (B1, B2)
- President's Leadership Class — 68 (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 1993

A

Academic Costume 46
Accounts, Delinquent 23
Accounts, see Student Accounts
Administrative Officers 36
Admission Requirements 37
 Advanced Standing 37
 Application 37
 Application Deadlines 34
 English Language Competency 37
 GMAT 37
 GRE 37
 Interdisciplinary Neuroscience 48
 Interdisciplinary PhD 47
Admissions, Deposit 20
Advanced Standing 37
African Studies, Centre for 7
Alumni Association 9
Anatomy and Neurobiology 51
Anthropology 149
Appeals 47
Application 37
Application Deadlines 34
Arts Centre 10
Athletics 9
Athletics Fees 23
Atlantic Research Centre 7
Audit Classes, Fees 22
Awards
 Bennet, C.L., Memorial
 Scholarship 44
 Bursaries 46
 Business Administration 44
 Dalhousie Graduate Scholarships ... 43
 Department of External Affairs
 Fellowships in International
 Business 44
 English 44
 Environmental Studies 44
 Godsoe, Gerald and Margaret,
 Scholarship 44
 Goldberg-Schulich Award for
 Entrepreneurship 44
 Goudge, Dr. Mabel E., Scholarship
 in Psychology 45
 Graham, John and Lina,
 Commonwealth Bursary 46
 Hayes, Professor F. Ronald,
 International Scholarship 45
 Hebb, D.O., Post-Graduate Prize ... 46
 Kavanaugh Scholarship 48
 Killam, Izaak Walton, Memorial
 Scholarships 43
 Killam, Izaak Walton, Postdoctoral
 Fellowships 44
 Laba, John P., Memorial Research
 Award 45
 Leiper, William, Memorial
 Scholarship 45
 Library and Information Studies 45
 MacGregor, James Gordon,
 Memorial Teaching Fellowship
 in Physics 45

MacKenzie, Dr. A. Stanley,
 Teaching Fellowship in Physics ... 45
**Natural Sciences and Engineering
 Research Council of Canada
 Postgraduate Scholarships in
 Science Librarianship and
 Documentation** 45
**Novopharm Pharmacy Research
 Fellowship** 45
Oceanography 45
Oral and Maxillofacial Surgery 45
**Parke, Davis Pharmacy Research
 Fellowship** 45
Pharmacy 45
Physics 45
Psychology 45
Research and Travel Grants 46
**Ritchie, Eliza, Doctoral Scholarship
 for Women** 46
Teaching Assistantships 48
**Tupper, James W., Graduate
 Fellowship in English** 44
Wilson, H.W., Foundation Award ... 45
Women 46

B

Biochemistry 53
Biology 55
Biophysics 131
Biotechnology, Atlantic Institute of 7
Black Student Advisor 10
Board of Governors 4
Bookstore 16
Bursaries, Dalhousie 19, 46
Business Administration 60

C

Canada Student Loans 18
Chaplaincy 10
Chemistry 67
Class Change, Fees 22
Classes 40
Classics 70
Clubs and Organizations 16
Committees 35
Computing, Guide to Responsible 32
Computing and Information Services 16
Computing Science 110
Convocation 46
Counselling and Psychological Services.. 10
Criminology, Atlantic Institute of 7

D

Dalhousie University 3
 Board of Governors 4
 Executive Officers 4
 Senate 5
Dalplex, Fee 23
Defence of a Doctoral Thesis 41
Definitions 2
Degree Programmes 36
Degree Requirements 39
Departmental Listings 50
Disabilities, Services for Students with .. 15

156 Index

Discipline.....	31
Plagiarism.....	31
Senate Discipline Committee.....	32

E

Earth Sciences.....	72
Economics.....	74
Education.....	79
English.....	83
English Language Competency.....	37
Environmental Studies.....	86
Ethical Review.....	41
Examination Regulations.....	32
Examinations.....	40
Pass Standard.....	40
Preliminary Examinations.....	41

F

Faculty Council.....	35
Fees.....	20, 39
Academic Fees.....	20
Admission Deposit.....	20
Athletic.....	23
Audit Classes.....	22
Canada Student Loans.....	23
Changes.....	22
Delinquent Accounts.....	23
Foreign Students.....	20
ID Cards.....	23
Laboratory Deposits.....	23
Mail Registration.....	20
Payment.....	21
Provincial Bursaries.....	23
Refund Dates - First Term.....	22
Refund Dates - Regular Session.....	22
Refund Dates - Second Term.....	22
Refunds.....	22
Registration.....	21
Regulations.....	20
Residence, see Residence	
Scholarships.....	23
Senior Citizens.....	21
Student Accounts Office.....	20
Student Union Fee Distribution.....	24
Tax Credit.....	23
Withdrawals.....	22
Fellowships.....	43
Financial Aid.....	18
Foreign Policy Studies, Centre for.....	7
Foreign Students, Fees.....	20
French.....	89

G

German.....	92
GMAT.....	37
Graduate Studies, Faculty of.....	35
GRE.....	37

H

Health Education.....	144
Health Law Institute.....	8
Health Services.....	16
Health Services Administration.....	93

History.....	96
Housing and Residence Services.....	11
Human Communication Disorders.....	99

I

ID Cards.....	39
ID Card, Fees.....	23
Institutes.....	7
Atlantic Institute of Biotechnology.....	7
Atlantic Institute of Criminology.....	7
Atlantic Region Magnetic Resonance Centre.....	7
Atlantic Research Centre.....	7
Centre for African Studies.....	7
Centre for Foreign Policy.....	7
Centre for International Business Studies.....	8
Centre for Marine Geology.....	8
Dalhousie Health Law Institute.....	8
Lester Pearson Institute for International Development.....	8
Neuroscience Institute.....	8
Oceans Institute of Canada/ Institut canadien des océans.....	9
Trace Analysis Research Centre.....	9
Instructional Development and Technology.....	13
Intellectual Honesty.....	30
Interdisciplinary and Joint Programme Listings.....	47
MBA/LLB.....	48
MD/PhD.....	49
MLIS/LLB.....	49
MPA/LLB.....	49
Interdisciplinary PhD.....	47
Interdisciplinary PhD, Neuroscience.....	48
International Business Studies, Centre for.....	8
International Development, Lester Pearson Institute for.....	8
International Student Centre.....	14

L

Laboratory Deposits.....	23
Law.....	102
Leave of Absence.....	38
Length of Programme.....	39
Libraries.....	14
Library and Information Studies.....	106
Loans, Canada Student.....	23

M

Magnetic Resonance Centre, Atlantic Region.....	7
Manuscript Preparation.....	41
Marine Affairs Programme.....	109
Marine Geology, Centre for.....	8
Math, Stats, & Computing Science.....	110
Microbiology and Immunology.....	113

N

Neuroscience Institute.....	8
Nursing.....	115

O
Oceanography116
**Oceane Institute of Canada/
 Institut canadien des océans** 9
Ombud's Office 14
Oral and Maxillofacial Surgery 119
Oral Examination..... 42

P
Pass Standard 40
Pathology120
Pharmacology.....122
Pharmacy124
Philosophy128
Physical Education144
Physics.....129
Physiology and Biophysics131
Plagiarism 30
 Discipline 31
Political Science.....133
Preliminary Examinations 41
Psychology136
Public Administration.....140

R
Readmission..... 39
**Recreation Physical &
 Health Education**144
Refunds..... 22
 First Term Dates 22
 Regular Session Dates 22
 Second Term Dates 22
Registrar's Office..... 15
Registration..... 38
 Categories..... 38
 Fees 21
 Late Registration Fees 22
 by mail 20
Regulations 36
 Computing 32
 Defence of a Doctoral Thesis..... 41
 Discipline 31
 Examinations 32
 Fees 20
 Intellectual Honesty..... 30
 Oral Examination..... 42
 Plagiarism 30
 Release of Information 30
 Residence Fees 27
 University 29
Release of Information..... 30
Requirements 39
Research and Travel Grants..... 48
Residence Fees
 Payment 27
 Regulations and Additional
 Charges 27
Resources and Services 9
 Advisory Committee on Sexual
 Harassment..... 9
 Alumni Association 9
 Athletics 9

 Black Student Advisor 10
 Chaplaincy at Dalhousie 10
 Counselling and Psychological
 Services..... 10
 Dalhousie Arts Centre..... 10
 Dalhousie Student Union..... 11
 Housing and Residence Services 11
 Instructional Development and
 Technology 13
 International Student Centre 14
 Libraries..... 14
 Ombud's Office 14
 Registrar's Office 15
 Services for Students with
 Disabilities..... 15
 Student Advocacy Service 15
 Student Clubs and Organizations.... 15
 Student Employment Centre 15
 Student Services..... 15
 University Bookstore 16
 University Computing and
 Information Services..... 16
 University Health Services..... 16
 Writing Workshop 17

S
Scholarships..... 43
Senate..... 6
 Discipline Committee 32
Senior Citizens, Fees 21
**Sexual Harassment, Advisory
 Committee on**..... 9
Social Work 146
Sociology and Social Anthropology 149
Statistics 110
Student Accounts Office..... 20
Student Advocacy Service 15
Student Services..... 15
Student Union 11
 Fee Distribution 24

T
Tax Credit, Fees 23
Teaching Assistantships 48
Thesis Regulations 41
 Ethical Review 41
 Manuscript Preparation 41
Trace Analysis Research Centre 9

U
University Regulations 29

W
Writing Workshop 17

Notes

Notes

Notes



For further information

The Registrar's Office

Dalhousie University

Halifax, N.S. Canada B3H 4H6

Fax: 902-494-1630 or call: 902-494-2450