# THE UNIVERSITY OF KING'S COLLEGE

(Founded A.D. 1789)

# **CALENDAR 1991/92**

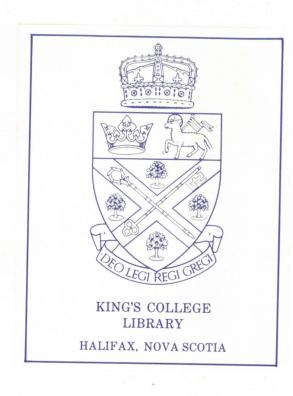
Bachelor of Arts (Ordinary and Honours)
Bachelor of Science (Ordinary and Honours)
These degrees are granted by Dalhousie University.
Also in association with Dalhousie,
King's offers the requisite pre-professional
work for admission to Medicine, Dentistry,
Architecture, Law, Education, Physiotherapy, Theology.

Bachelor of Journalism (Honours) (Four years from Grade 12)

Bachelor of Journalism (One year after a first degree)

These degrees are awarded by the University of King's College.

HALIFAX, NOVA SCOTIA 203rd SESSION



## **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/University of King's College, 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/King's 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, except those specified as required, within that programme. 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/University of King's College 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/University of King's College.

Inquiries regarding Academic Matters should be directed to:

The Registrar
University of King's College
Halifax, Nova Scotia
Canada
B3H 2A1
(902)422-1271

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## Schedule of Academic Dates 1991/92

Classes offered at Dalhousie/King's 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 ("A" and "B" courses carry 1/ 2 credit, "R" classes one full credit or more, "C" classes less than one full credit).

## MAY

Last day for receipt of applications from foreign students (except USA) to programmes in Arts, Social Sciences and Science.

Last day to register, Spring Session.

Spring Session begins in Arts, Social Sciences and

## 16 **ENCAENIA DAY**

-10:30 a.m. Baccalaureate Service -2:30 p.m. King's Convocation

VICTORIA DAY - University closed.

## JUNE

College.

Last day for receipt of applications from all students entering from Canada or U.S.A. to programmes in Arts, Social Sciences and Science at the University of King's

Last day to register, Summer Session.

Spring Session ends.

## JULY

CANADA DAY- University Closed

Summer Session begins in Arts, Social Sciences and Science.

Confirmation fee due for resident student applicants. Last day for resident students who have not paid confirmation fee to withdraw from residence without forfeiture of deposit.

Last day to apply for supplemental examinations in Arts, Social Sciences and Science, to be written in August or September.

## AUGUST

HALIFAX/DARTMOUTHNATALDAY - University closed.

Last day to apply to graduate in October (Dalhousie Convocation).

Last day of classes, Summer Session.

Registration and payment of fees, Bachelor of Journalism (one-year) programme.

Classes begin in Bachelor of Journalism (one-year) programme.

## SEPTEMBER

LABOUR DAY - University Closed. Residence opens for first-year students.

Supplemental examinations begin in Arts, Social Sciences and Science.

Residence opens for returning students.

Classes begin in the Foundation Year Programme. University Church Service - Chapel 5:00 p.m.

Last day to register, Regular Session.

Classes begin, Regular Session.

Last day to add "A," "R" and "C" classes, Arts, Social Sciences and Science and Journalism. Last day to cancel registration, Regular Session. Last day to register with late fee.

## **OCTOBER**

14

THANKSGIVING DAY - University Closed.

Fall Convocation (Dalhousie).

Last day to withdraw from "A" classes without academic penalty.

Last day for changing from Dalhousie to King's or from King's to Dalhousie for 1991/92.

## **NOVEMBER**

REMEMBRANCE DAY - University Closed.

Last day to drop "A" classes.

Last day for receipt of applications for Winter Term, R.A. and B.Sc. (part time and transfer students only).

## DECEMBER

l ast day to apply to graduate in February (Dalhousie).

Last day of classes.

Examinations begin.

Examinations end.

Residence closes for Christmas break.

## IANUARY

NEW YEAR'S DAY - University Closed

Residence re-opens for Winter term.

Last day to register for Winter term. Classes resume in all faculties.

Last day to add "B" classes. Last day to cancel registration in "B" classes. Last day to withdraw from "C" or "R" classes without academic penalty.

Last day to apply for supplemental examinations in "A" classes, Arts, Social Sciences and Science.

FEBRUARY

GEORGE III DAY - University Closed.

Supplemental examinations begin - Arts, Social Sciences and Science.

Last day to apply to graduate in May - King's Encaneia. Last day to drop "B" classes without academic penalty.

17 - 21 Study break.

## MARCH

Last day for receipt of applications to School of Journalism, B.J. (Hons.) and one-year B.J. programmes.

Last day to withdraw from "B", "C", and "R" classes.

## APRIL

Last day of classes.

Examinations begin, Regular session.

GOOD FRIDAY - University closed.

Last day for submitting work in the Foundation Year

Examinations end, Regular session.

Residence closes for all non-graduating students.

## **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 because of unsatisfactory academic performance.

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.

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

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

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 registered for three full classes or more, or the equivalent of three half-credit classes or more in either first or second term.

Grade Point Average (GPA): Weighted sum of the grade points earned, divided by the number of classes enrolled.

Sessional GPA: Classes taken in a single session Cumulative GPA: All classes taken for credit in a faculty

Matriculation Standing: "senior matriculation" designates the level of studies attained by students who have successfully completed Grade XII in public high school in Nova Scotia or its equivalent elsewhere.

Mature Student: a person who is at least 23 years old, does not meet the usual admission requirements and has been absent from full-time high school study for at least four years.

Part-time Student: student registered for fewer than three full-credit classes or the equivalent of three half-credit classes in either first term or second term. A full credit class is equivalent to 6 credit hours.

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

**Probation:** Warning to students that their academic performance is unsatisfactory and that they will be dismissed from their programmes unless their performance improves by the end of the next regular session.

Special Students: students who are not candidates for a degree or diploma but who wish to take classes which may be allowed for credit. This is not the same as auditing a class. Special students must satisfy normal admission requirements.

**Undergraduates:** students who are candidates for an undergraduate degree, diploma or certificate.

University Explorer: students admitted under the "mature students" category who are not candidates for a degree.

Visiting Student: a person permitted to take classes at Dalhousie/King's for transfer of credit to another university.

## Academic sessions:

Regular session: September-April
Fall term: September-December
Winter term: January-April
Spring session: May-June
Summer session: July-August

# Officers of the University:

## patron

The Most Reverend the Lord Archbishop of Canterbury and Primate of All England.

## Visitor

The Right Reverend the Lord Bishop of Nova Scotia.

## Chancellor

Gordon Hamilton Southam, O.C., B.A. (Tor.), LL.D. (Trent), LL.D. (Carleton), D.C.L. (Vind.), D.U. (Ott.).

## president and Vice-Chancellor

Marion G. Fry, B.A. (Vind.), M.A. (Dal.), M.Litt. (Oxon.), D.C.L. (Vind.), D. Litt. (Trent)

## **Board of Governors (1990/91)**

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Wilchael Cobuell, B.A., B.Eu.

Director, School of Journalism (ex officio)

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The Rev. Canon Leonard J. Galey, B.A., L.Th. The Rev. Canon James Irvine, B.A., B.S.T.

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## **Alumni Association**

Peter Bryson, B.A., M.A., LL.B.
Charlotte Cochran, B.A., B.Ed.
J. Mark DeWolf, B.A. (Hons.), M.A., B.Ed.
Colleen McNamara, B.A., B.Comm., M.A.
Louise Reidel, B.A.

## **Faculty Representatives**

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## Students' Union Representatives

Mark Farrell Kevin Gibson Leslie MacLeod

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The Bishop of Fredericton
The President
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Mr. David G. Martin
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## Secretary to the Board of Governors

Susan Harris, B.A. 6058 Pepperell Street, Apt. 24 Halifax, NS B3H 2N7

Registrar

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Director, School of Journalism

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Director, Foundation Year Programme

Gerald G. Smith, B.Sc. (Hons.), C.A.

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Susan Tuck, B.A., B.Ed. Dean of Women

Robert A. Quigley, B.Sc., BPE, M.Sc. Director of Athletics

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Vice-Chancellor The Rev. Robert D. Crouse, B.A., S.T.B., M.Th., Ph.D.,

Clerk of Convocation J. Patrick Atherton, M.A., Ph.D. Public Orator

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The Honourable Mr. Justice R.A. Ritchie, D.C.L., LL.D., 1974-1988 G. Hamilton Southam, O.C., B.A., LL.D., LL.D., D.C.L., D.U. 1988-

## Presidents and Vice-Chancellors of the University

The Rev. Dr. William Cochran, 1789-1804 The Rev. Thomas Cox, 1804-1805 The Rev. Dr. Charles Porter, 1805-1836 The Rev. Dr. George McCawley, 1836-1975 The Rev. Dr. John Dart, 1875-1885 The Rev. Dr. Isaac Brock, 1885-1889 The Rev. Dr. Charles Willets, 1889-1904 Dr. Ian Hannah, 1905 The Rev. Dr. C.J. Boulden, 1905-1909 The Rev. Dr. T.M. Powell, 1909-1914 The Rev. Dr. T.S. Boyle, 1916-1924 The Rev. Dr. A.M. Moore, 1924-1937 The Rev. Dr. A. Stanley Walker, 1937-1953 The Rev. Dr. H.L. Puxley, 1954-1963 Dr. H.D. Smith, 1963-1969

Dr. F. Hilton Page, (Acting), 1969-1970 Dr. J. Graham Morgan, 1970-1977 Dr. John F. Godfrey, 1977-1987 Dr. Marion G. Frv. 1987-

## **Academic Staff**

King's Faculty (1990/91)

J.P. Atherton, M.A. (Oxon.), Ph.D. (Liverpool) Professor of Classics S.J. Brooke, B.A. (Vind.), M.A. (McG.), D.Phil. (Oxon.) Assistant Professor of History M. Cobden. B.A. (S. Africa), B.Ed. (Tor.) Professor of Journalism R.D. Crouse, B.A. (Vind.), S.T.B. (Harv.), M.Th. (Trinity), Ph.D. (Harv.), D.D. (Trinity) Professor of Classics R. MacG. Dawson, B.A. (Trinity), M.A. (Tor.), M.Litt.

(Oxon.) Associate Professor of English M.G. Fry, B.A. (Vind.), M.A. (Dal.), M. Litt. (Oxon.), D.C.L. (Vind.), D.Litt. (Trent) Professor of Humanities and Social Sciences W.J. Hankey, B.A. (Vind.), M.A. (Tor.), D. Phil. (Oxon.)

Associate Professor of Classics K.G. Jaeger, M.A. (U.B.C.), Ph.D. (Dal.) Fellow

A.M. Johnston, B.A., (Mt.A.), M.A., Ph.D. (Dal.) Assistant Professor of Humanities and Social Sciences W.H. Kemp. Mus. Bac. (Tor.), Mus.M. (Tor.), M.A. (Harv.), D.Phil. (Oxon.), F.R.C.C.O. Professor of Music

J.K. Kierans, B.A. (McG.), D.Phil. (Oxon.) Assistant Professor of Humanities and Social Sciences S. Kimber

Assistant Professor of Journalism M. Kussmaul, B.Sc., M.A. (Dal.), Ph.D. (Laval) Fellow

H.E. Meese, B.A. (Ohio State), Dip. Journ. (U.W.O.) Associate Professor of Journalism C.J. Murphy, B.A. (St. F-X), M.A. (Dal.), Ph.D. (Tor.)

Associate Professor of Sociology H. Roper, B.A.(Dal.), M.A., Ph.D. (Cantab.)

Associate Professor of Humanities and Social Sciences C.J. Starnes, B.A. (Bishop's), S.T.B. (Harv.), M.A. (McG.), Ph.D. (Dal.)

Associate Professor of Classics D.H. Steffen, Ph.D. (Gott.)

Professor of Humanities and Social Sciences, Associate Professor of German

J.A. Thompson, B.A. (U.W.O.), M.A., Ph.D. (Tor.)

Assistant Professor of English K.E. von Maltzahn, M.Sc., Ph.D. (Yale)

Professor of Biology I.R. Wiseman, B.A. (M.U.N.)

Associate Professor of Journalism

## Associate Fellows

Alan R. Andrews, B.A., Dip. Ed., M.A. (Leeds), Ph.D. (III.), FRSA

professor of Theatre, Dalhousie University gichard A. Apostle, B.A. (Simon Fraser) M.A., Ph.D. (I. of California)

Professor of Sociology and Social Anthropology Glizabeth Beale, B.A., M.A.

Economist

Michael Bishop, B.A., B.Ed. (Manch.), M.A. (Man.), Ph.D. (Kent, Canterbury)

Professor of French, Chairman of the Department, Dalhousie University

pavid Braybrooke, B.A. (Harv.), M.A., Ph.D.(Corn.) FR.S.C.

Professor of Philosophy and Political Science, Dalhousie University Bruce Cameron, B.A., B.J. (Hons.), M.B.A. Part-time Lecturer in the School of Journalism

D. Alex Colville, C.C., D.Litt., LL.D. Special Lecturer in the Foundation Year Programme Joan Dawson, M.A. (Oxon.), M.L.S. (Dal.) Part-time Lecturer in French in the School of Journal-

Yuri Glazov, Ph.D. (Oriental Institute, Moscow) Professor of Russian, Dalhousie University Nita H. Graham, B.A., B.Ed. (Dal) Leslie G. Jaeger, B.A., M.A., (Cantab), Ph.D. (London), D.Sc. (London)

Research Professor in Civil Engineering and Applied Mathematics, Technical University of Nova Scotia R.C. Kaill, B.A. (Dal.), B.D., M.A. (Tor.), Ph.D. Professor of Sociology, Dalhousie University

## **Historical Sketch**

The history of higher education in Canada began in 1789 with the founding at Windsor, Nova Scotia, of the University of King's College. At the time of its establishment it was, with the exception of the fifteenthcentury King's Colleges in Cambridge and in Aberdeen, the only foundation of that name in existence. Although there had been a King's College, New York, chartered by George II in 1754, it did not survive the end of the colonial period in America, and its reorganization in 1784 under the name of Columbia College was undertaken on an entirely different plan. The Loyalist political and religious principles upon which the New York seminary had been founded migrated—along with the Loyalists themselves—to Eastern Canada, and in 1802 a Royal Charter was granted by George III proclaiming King's College, Windsor, "The Mother of an University for the education and instruction of Youth and Students in Arts and faculties, to continue forever and to be called King's College."

In 1923 King's accepted the terms of a munificent grant from the Carnegie Foundation and moved to Halifax and into its association with Dalhousie University which, with a Royal Charter dating from 1820, is the third of Canada's senior universities. By an agreement reached in 1923, the two universities on the same campus have maintained joint faculties of Arts,

Social Sciences and Science, so that undergraduates of King's read for the B.A. and B.Sc. of Dalhousie, King's having left her own degree-granting powers in abeyance in these faculties. King's students registered in Arts and Science attend classes with Dalhousie students; the students of both institutions follow the same curriculum, take the same examinations, and must attain the same academic standard.

In May 1941, the King's College buildings were taken over by the Royal Canadian Navy as an Officers' Training Establishment, and during the next four years. until May 1945, nearly 3100 officers were trained for sea duty with the R.C.N. The students and academic staff of King's carried on during this period through the kindness of Dalhousie University and Pine Hill Divinity Hall.

In July 1971, King's College entered into a partnership agreement with Pine Hill Divinity Hall (for the United Church of Canada) and the Corporation of the Roman Catholic Archdiocese of Halifax to found the Atlantic School of Theology. This unique institution provides ecumenical as well as denominational theological education for candidates for the ministry and for laypersons. During 1974 the School received incorporation as a degree-granting institution of higher education; thus the work previously done by the Faculty of Divinity of King's College is now conducted by that School. King's holds in abeyance its powers to grant degrees in Divinity in course. King's grants the honorary degree of D.D. and also that of Doctor of Civil Law (D.C.L.), and Doctor of Canon Law (D.Cn.L.).

A significant development in the history of King's began in the 1972/73 academic year with the introduction of the Foundation Year Programme for first year undergraduates. By taking advantage of its independence from the dominant concerns of a large modern North American University, and yet drawing strength from its very close association with Dalhousie, King's established this Programme, which is unique in Canada and aims to provide the solid foundation of modern humanistic education through a comprehensive view of Western Civilization from its beginnings in the Ancient World up to the present day. In 1977 the University took another step forward by establishing the only degree-granting School of Journalism in the Atlantic Provinces. This School now offers two degree programmes (B.J. Honours and B.J.).

King's College is residential on the Oxford and Cambridge pattern, and, in addition to students who live off-campus, men and women can be accommodated in residence. The corporate life in King's is designed to educate "the whole person" and not simply to train him or her for specific examinations.

In addition to athletic activities, the College also runs a Debating Society, known as the "Quinctilian", and a Dramatic Society. Daily Services are held in the Chapel for those who wish to participate. Although the College is an Anglican foundation, there is no denominational bar aimed at the exclusion of non-Anglicans from membership of the College, either as lecturers or as students. Members of Faculty may themselves be resident and function in the traditional manner as "dons" for the staircase (i.e. "bay"). The bays are

Drawing its strength from the older tradition of classical European culture and at the same time offering its students all the opportunities and challenges of a large modern North American University through its association with Dalhousie, King's tries to maintain itself in the Canadian context as a miniature of the Christian ideal of the larger community.

## Constitution

The Board of Governors is the Supreme Governing Body of the University. It consists of the Bishops of the Dioceses of Nova Scotia and Fredericton, The Chancellor, the President of the University, the Vice-President, the Treasurer, the Secretary to the Board, the Director of the Foundation Year Programme, the Director of the School of Journalism, two members elected by the Faculty, together with six members elected by the Alumni Association, three members by the Students' Union, three by each of the Synods of Nova Scotia and Fredericton, and not more than eight co-opted members. The Governors have the management of the funds and property of the College, and the power of appointment of the President, Professors and officials. The Board appoints an Executive Committee.

Convocation consists of the Chancellor and the Vice-Chancellor, together with all Bachelors of Divinity and Masters and Doctors of the University, Members of the Board of Governors and of the Faculty of Arts and Science who hold the degree of Master or Doctor from any recognized University, Fellows of the University and Bachelors of the University of five years' standing who are recognized by the Clerk of Convocation. All degrees are conferred by Convocation.

## The Chapel

An attractive collegiate chapel provides a centre of spiritual life on the campus. All students, regardless of their denominational affiliations, are cordially invited to attend the daily Anglican services conducted in the chapel.

The Offices of Mattins and Evensong are said in the chapel Monday through Friday, and the Holy Eucharist is celebrated daily during term. The chaplain is assisted by other campus clergy in the daily celebrations, and there is a wide variety of liturgies and liturgical styles, ranging from traditional to contemporary forms.

Students take a large responsibility for the operation of the chapel, and normally they conduct the daily offices. An active guild of student acolytes assists at the daily Eucharist, and an active sanctuary guild cares for the altar and its appointments. An excellent choir with an impressive repertoire sings services in the chapel each week in addition to various guest appearances during the year.

The Anglican chaplain is available to all students for pastoral counselling.

## King's College Library

The Library dates from the origins of the College, is the sole usable link with those beginnings, and survives as the College's greatest treasure. It is one of only two collegiate collections in Canada which are continuous from the eighteenth century and one of a handful in all North America. The nineteenth century saw generous gifts and, while government and SPG support lasted, substantial purchases. It was probably for most of the century the best library in English-speaking Canada. The collection included sections in law, medicine, biology, and the physical sciences, as well as in the humanities and theology. Our Rare Books and Special Collections now include most of the original library since it was housed in Convocation Hall during the fire in 1920.

For the first fifty years in Halifax, the Library occupied floors in the King's main building. In 1989, as its Bicentennial project, the College began construction of a 23,000 square foot Library building. The neo-Classical edifice of two storeys completes the King's quadrangle by closing its fourth side. The upper floor contains staff work areas but is dominated by the Alumni Reading Room and displays of the artifacts in the collection. Almost half the lower floor is a closed Treasure Room with a self-contained air conditioning system designed to optimally maintain the rare books and special collections. Facing the Treasure Room is a Gallery exhibiting the bibliographic treasures. The rest of the floor contains open stacks, carrells, mini-studies and communal study areas. There are also facilities for using audio-visual materials.

Two-thirds of the cost of the Library was funded by the Department of Higher Education of the Government of Nova Scotia. The Department of Communications of the Government of Canada provided a grant of \$840,000 to provide for the preservation and display of the bibliographic treasures and artifacts of the University. The Bicentennial Campaign, "A Rare Find," contributed the remaining funds. The building was completed in 1991 and opened during Encaenia week of that year.

The Library has over 85,000 volumes primarily in the humanities, journalism and theology. We purchase books and periodicals in English and Canadian history, English and Canadian literature, philosophy—particularly the philosophy of religion and the history of philosophy—Classics, theology—particularly Anglican and historical divinity—the history of art and ideas, contemporary studies, and journalism. In addition, the School of Journalism maintains a Resource Room where newspapers, periodicals, reference materials and clippings necessary to its teaching are gathered.

The first purpose of the collection is to support the undergraduate teaching of the College. New purchases are oriented to serve students in the Foundation Year Programme, the School of Journalism, and those undertaking work in the humanities. By agreement, King's maintains its substantial theology section for the benefit of its own staff and students, as well as of those at Atlantic School of Theology and for the Dioceses of Nova Scotia and Fredericton. This portion of the collection is supported entirely from the Divinity

Endowment of the College. Another major use of the Library is for graduate research at Dalhousie University. Advanced work in English history and literature, the philosophy and psychology of religion, Classics and the history of philosophy depends in part on materials at King's. Care is taken to eliminate duplication at this level between King's and other Halifax libraries. Finally, King's is a net lender in the Interlibrary Loan system, often supplying from its Special Collections volumes needed for research in the Atlantic region and Leavond.

The Treasures of the Library are varied and of outstanding importance. The Weldon Collection of domestic china brought to Nova Scotia and New Brunswick by the early settlers is one of only two such in North America. It is important both for the intrinsic value of the pieces and because their provenance is known. The Library houses other artifacts connected with the College, its members, founders, and benefactors. The greatest wealth of the College lies, however, in the bibliographic treasures of the Library. These include beautifully illuminated medieval manuscripts, forty-four incunabula, several thousands of sixteenth-, seventeenth- and especially eighteenth-century printings where King's often possesses the only North American copy, and many rare editions from the nineteenth century. The total of Rare Books and Special Collections exceeds twenty-five thousand volumes.

The Special Collections are the Bray Library, Maritime Canadian and Tractarian writings. The Bray Library holdings, now exceeding 400 books, are the remains of libraries sent out to Christ Church, Windsor, Holy Trinity Parish, Liverpool and Trinity Church, Digby in the eighteenth and early nineteenth century. Because of the association of the College with the beginnings of English literature in Canada, the Library has acquired early and autographed editions of the works of such writers and literary figures as Thomas Chandler Haliburton, Joseph Howe, Thomas Beamish Akins (a great Benefactor of the Library), Sir Charles G.D. Roberts, Bliss Carmen, A.S. Bourinot, Robert Norwood and Oliver Wendell Holmes. William Inglis Morse bestowed an endowment on the Library by which additions are made in this area. The Tractarian Movement was part of the nineteenth century revival of the Anglican Church and King's was closely connected with it from the beginning. John Keble and Dr. Pusey themselves started our collection of Tractarian publications. It has been extended by other English gifts and bequests and by the donation of the libraries of G.W. Hodgson of St. Peter's Cathedral, Prince Edward Island and of Hollingworth Tully Kingdon, second Bishop of Fredericton. The Kingdon Library, the best private theological library in Canada at the turn of the century, was given by Trinity Parish, St. John in 1985 and makes the King's collection of Tractarian materials the best in Canada.

The Library has endowment funds associated with Professor Burns Martin, William Morse, John Haskell Laing, William Johnston Almon, Frances Hannah Haskell, James Stuart Martell, Thomas Henry Hunt, G. Hamilton Southam, M. Grace Wamboldt and the Spurr family. About one quarter of the accessions budget and one tenth of the operating funds are supplied by

endowment income.

The loan period for undergraduate students is normally two weeks. Journals circulate for one week. Fines are charged for overdue books and marks or degrees are withheld for outstanding loans. Students are given the privilege of borrowing books for the summer.

## Staff

Librarian

The Rev'd Professor Wayne Hankey, B.A. (Vind.), M.A. (Tor.), D.Phil. (Oxon.)
Assistant Librarian (Collections)
Patricia L. Chalmers, B.A. (Hons.) (Vind.), M.Sc. (Drexel)
Assistant Librarian (Systems)

Elaine Galey, B.A. (Vind.)

Cataloguer

Drake Petersen, B.A. (New York Univ.), M.A. (Dal.) Secretary

Paulette Drisdelle

## Degrees

The degrees of Doctor of Divinity, Doctor of Canon Law and Doctor of Civil Law may be conferred *honoris* causa in recognition of eminent literary, scientific, professional or public service.

The dignity and honour of Fellow may be conferred by the vote of Convocation upon any friend of the University for noteworthy services rendered on its behalf

The University confers the degrees of Bachelor of Journalism (Honours) and Bachelor of Journalism in course.

Convocation confers the Master of Sacred Theology in Pastoral Care on recommendation of the Graduate Studies Committee of the Institute of Pastoral Training.

Students intending to enter one of the Dalhousie professional schools may take pre-professional work in Arts and Sciences as students of King's College.

The Dalhousie Senate confers the degrees of Bachelor of Arts and Bachelor of Science, ordinary and honours, in course, at the King's Encaenia.

# King's Institute for Advanced Study

The purpose of the Institute is to further and to communicate the interests of the College in the investigation of the foundations of Western Culture. The Institute is thus an expression of the College's involvement in interdisciplinary work beyond the current degree programmes. There are a number of themes the Institute wishes to concern itself with, given the interest, ability and the need of the King's faculty to transcend departmental boundaries and disciplines.

All members of King's are encouraged to participate in the activities of the Institute and it is expected that common interests will be shared with members of other institutions in the region and elsewhere.

# King's College Residences

Dean of Residence
Peter Nathanson, B.A., M.A.
Dean of Women
Susan Tuck, B.A., B.Ed.

Dons (1990/91)
Linda Burnett, B.A., B.A. (Hons.), M.A.
Shirley Fuchs, D.C.S.
Sasah Hubbard, B.A. (Hons.)
William Martin, B.A.
Fraser Robb, B.A. (Hons.)
Thomas Stinson, B.A. (Hons.), C.T.C.

The Rev. Prof. W.J. Hankey, B.A., M.A., D.Phil. Professor in Residence

King's College provides residential accommodation for 246 undergraduate students registered at King's in the B.A., B.Sc., B.J. and B.J. (Hons) programmes who have completed an application for residence, subject to the approval of the Dean of Residence or Dean of Women. Students are advised to apply for places in residence as soon as they have been accepted into the University. The College will not accept applications for residence from those who have not yet been accepted into the University. Owing to pressure of numbers, the College cannot guarantee residence accommodation to all applicants. A certain priority for rooms is granted to first-year undergraduate students; returning students and transfer students are readmitted to the residence primarily according to their academic standing. Students in the one-year B.J. programme normally are granted a lower priority for rooms. They may, however, be considered for residence.

All rooms are furnished with bed, dresser, desk, and chairs. Students are required to provide their own bedding (sheets, blankets, pillows) and towels, and to attend to their own laundry arrangements. Coinoperated washers and dryers are provided in both men's and women's residences.

Single and double rooms are available to both men and women, priority for single rooms being given to students in the upper years.

The Men's Residence is divided into Bays in which there are both single and double rooms. A "double" for men is defined as a suite of two rooms shared by two male students.

The Women's Residence (Alexandra Hall) was built in 1962. Traditional double and single rooms are available and in addition the residence provides reception rooms, a receptionist's desk, a music room, a study room, a laundry room, a service elevator and a trunk storage room.

Both residences are designed so that is is not necessary to go outside for meals and extra-curricular activities. Meals are prepared and served to all resident students in Prince Memorial Hall, erected in 1962.

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

A student wishing to terminate his or her occupancy

contract during the academic year will not receive a refund of residence fees unless a replacement, acceptable to the College, is found. An administrative fee of \$100 will be levied.

It should be noted that the University assumes no liability for personal property in the case of theft or damage. No pets of any kind are allowed in residence.

The residence will be open to students from 10:00 a.m., September 3, 1991 until the morning of the last day of examinations in the College of Arts and Science for the Fall Term. The residence will reopen on January 5, 1992, and remain open until the morning of the last day of examinations in the College of Arts and Science for the Regular session.

Students in their graduating year are permitted to remain in residence until the morning after the last day of Encaenia activities. Residence students in faculties whose terms exceed those periods may reside in the College by permission of the Deans on payment of rent. When Prince Hall is open, meals are available.

As the residences will not be open during the Christmas holidays, students are urged to make arrangements for their Christmas vacations as early as possible in the Fall term. Except under unusual circumstances and with the permission of the Deans, no student is permitted to occupy the residences over the Christmas holidays.

Application for accommodation cannot be made until the student has been accepted by the University for the coming session. Residence applications must be accompanied by a \$25 application fee and a \$100 residence deposit. No room will be assigned until this residence deposit has been received. In order to confirm a place in residence for the upcoming term, students are required to pay a confirmation fee of \$50 by July 2. Without payment of this fee, the College may not be able to reserve a previously offered room. The confirmation fee, though not refundable under any circumstances, will be aplied to general residence fees owed by each resident student.

Where a room has been assigned, cancellation of an application received by the Registrar or the Deans prior to July 2 will entitle the student to a refund of the initial deposit of \$100; failure to cancel before July 2 will result in forfeiture of the \$100 deposit.

## FEES

## Financial Offices:

The Bursar's Office University of King's College Halifax, N.S. B3H 2A1 (002)422-1271

Student Accounts
Dalhousie University
Room 29, Arts & Administration Building
Halifax, N.S. B3H 4H6
(902)494-3998

## **Academic Fees**

It is the responsibility of the student to be familiar with University regulations pertaining to financial matters.

This section of the Calendar outlines the University tegulations on academic fees for both full-time and part-time students enrolled in programmes of study juring the Fall and Winter sessions. Students wishing o register for the Spring or Summer session should onsult the Summer School calendar for information on egistration dates and fees. Should you have any juestions regarding these regulations or on the payment of fees generally, please contact the Bursar's Office, University of King's College, or the Student Accounts Office, Dalhousie University.

All fees are subject to change by approval of the Board of Governors of Dalhousie University/University of King's College.

Students should make special note of the registration deadlines contained in the Schedule of Academic Dates contained in this calendar. Students should be aware that additional fees and/or interest will be charged when deadlines for payment of fees as contained herein are not met.

## **General Regulations**

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

- 1. Fees must be paid in Canadian funds by cash or negotiable cheque.
- 2. If payment is by cheque and returned by the bank as non-negotiable, there will be an additional fee of \$15 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 the student is permitted to re-register, a late fee will apply
- 3. Bills for fees will not be issued. The receipt obtained from the Bursar's Office or from Student Accounts each time a payment is made will show the date and amount of the payment. In addition receipts issued by Dalhousie Student Accounts will show the balance outstanding.

## **Foreign Students**

Students registering in programmes at Dalhousie or King's and 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. There is a proportionate charge for part-time foreign students. THE DIFFERENTIAL FEE IS PAYABLE WITH THE PAYMENT OF THE FIRST INSTALLMENT OF FEES EACH YEAR.

## **Academic Fees**

Academic fees are comprised of the University fee for tuition plus an incidental fee comprised of Student Union and College fees (for details of incidental fees, see below). Details regarding the amount of the tuition fee in each academic year may be obtained from the Office of the Bursar at King's College. Fees for 1991/92 are expected to be set in the range of \$2,200.

For the purposes of this section of the Calendar a full-time undergraduate students is one who is registered for the fall and winter terms for more than three full credits, or if registered for only one term, for more than three half credits. Students may be registered full-time in one term and part-time in the other.

## Registration

The final step in registration is the payment of fees. A student is considered registered only after financial arrangements have been made with the Bursar's Office, King's College. Students in Arts, Social Sciences and Science programmes must also report to Student Accounts, Financial Services, Room 29, Arts and Administration Building, Dalhousie University.

All students must submit to the Bursar's Office/
Student Accounts Office on or before the specified
registration dates the first installment of academic fees,
plus the Students' Union, College and other applicable
miscellaneous fees, unless they are receiving a Canada
Student Loan, a fee waiver, or their fees are paid by
external organizations.

- 1. Those whose fees are to be paid by a government or other agency must provide a signed statement from the organization at registration.
- 2. Those holding external scholarships or bursaries paid by or through King's College must provide at registration documentary evidence of the scholarship or award.
- 3. Those whose fees are to be paid by Canada Student Loan must indicate this 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 23. In any event, a reinstatement fee and/or interest may be charged after September 23. Failure to comply or arrange an alternative method of payment may result in deregistration.)
- 4. Those whose fees are paid by a Dalhousie/ King's staff tuition fee waiver must present the approved waiver form and pay Student Union and College fees at registration. Please note: fee waivers do not apply to students in the School of Journalism.

5. Scholarships awarded by King's College will normally be applied to charges at King's. If the student has a larger scholarship than his or her obligation to King's, the balance may be paid by King's to Dalhousie towards any tuition fees owing. The student should enquire at the King's Bursar's Office to ascertain whether Dalhousie Student Accounts has been informed of the arrangement.

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 notification to withdraw is submitted in writing at the Office of the Registrar. Students withdrawing in person must attend the Office of the Registrar, King's College, the Bursar's Office, and—in the case of Arts, Social Sciences and Science students—the Student Accounts office, Dalhousie, before the withdrawal process is official.

## **Payment of Academic Fees**

The payment of ACADEMIC FEES FOR STUDENTS IN ARTS, SOCIAL SCIENCES AND SCIENCE will be received at the Student Accounts office located on the basement level of the Arts and Administration Building, Dalhousie University. Fees paid by mail must be received by Student Accounts on or before the deadlines specified in order to avoid late payment and/or delinquency charges. Cheques post-dated to September 6, 1991 will be accepted. Please note that after August 23 post-dated cheques cannot be retrieved.

The payment of ACADEMIC FEES FOR STU-DENTS IN THE SCHOOL OF JOURNALISM will be received at the Bursar's Office, University of King's College, during the September registration period. Academic fees for the School of Journalism cannot be paid by mail.

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 below.

- 1. Should students prefer to pay in two installments, the first installment is due on or before September 6, 1991 and the second installment is due January 24, 1992. A \$20 carrying charge applies to all accounts paid in two installments:
- 2. Students registering for either the fall or winter terms only must pay fees on or before September 6, 1991 and January 6, 1992, respectively.
- 3. Scholarships or awards paid by or through the University of King's College will be applied to Students' Union, College, tuition and residence fees, in that order.
- When Canada Student Loan or co-payable bursary is presented at the Bursar's Office, any unpaid academic or residence fees will be deducted.
- 5. Fees cannot be deducted from salaries paid to students who are employed by the University of King's College or Dalhousie University.
- After August 23, 1991 we are unable to retrieve post-dated cheques.
- 7. Any payments received will first be applied to overdue accounts.

## **Audit Courses**

Full-time students may audit classes which are related to their programmes without additional fees. In such cases, the student is required to complete the usual registration process.

A student registered to audit a class and who 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. This must be done before the last day for withdrawal without academic penalty, as shown in the Almanac in this Calendar. 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. This fee is payable at the time of registration and will be in addition to the first installment of fees.

## Changes, Refunds and Withdrawals

Please consult the Bursar's Office and/or Student Accounts for all financial charges, and the Office of the Registrar for academic regulations.

NON-ATTENDANCE AT CLASSES DOES NOT CONSTITUTE WITHDRAWAL.

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

- 1. Written notification of withdrawal must be submitted to the Office of the Registrar, University of King's College.
- 2. After the approval of the Registrar has been obtained, application for a refund or adjustment of fees should be requested from the Bursar's Office and/or 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 Bursar's Office and/or Student Accounts Office. Therefore, the calculation of the refundable portion of fees will be based on this date. (Retroactive withdrawals will not be permitted).
- 3. No refunds will be made for 30 days when payment has been made by personal cheque.
- 4. A student who is dismissed from the University for any reason will not be entitled to a refund of fees.
- Refunds may not be made to a student who has paid an admission deposit for a limited enrolment programme.
- 6. In any programme in which the enrolment is limited, the first installment of fees is not refundable except on compassionate grounds.
- 7. Refunds will be made to the Bank for fees paid by Canada Student Loans.
- 8. Refunds will be prorated on fees paid by Scholarships.

 A valid University of King's College I.D. 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 23 will be charged full incidental fees and may receive a refund of the balance on a proportional basis. Consult the Bursar/Student Accounts office for details.

A student withdrawing or changing a class in

January will be charged the full first installment 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 fees for the remainder of the session.

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

## Dates for Refund—Fall Term

A student withdrawing or changing a class after September 23 will be charged full incidental fees and may receive a refund of the balance on a proportional basis. Consult the Bursar/Student Accounts office for details.

No refunds will be made to students withdrawing or changing a class after October 21.

## Dates for Refund—Winter Term

A student withdrawing or changing a class after January 17 and before February 20 willbe charged full incidental fees and may receive a refund of the balance on a proportional basis.

## **Delinquent Accounts**

Accounts are considered delinquent when the balance of fees has not been paid by September 23 (January 31 for students registered for the Winter term only). Where payment in two installments is permitted the remaining balance is due January 31.

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 1.42% (17% 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, Dalplex and the libraries. The student will be reinstated upon payment of the fees outstanding, the arrears interest and a \$50 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 de-registered.

Students whose accounts are delinquent on March 15 may not be eligible, at the sole discretion of the University, for graduation at the May Encaenia ceremony. For October or February graduation the dates are September 1 and January 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 installment of fees from a Canada Student Loan should apply to the 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.

## **Provincial Bursaries**

These cheques are distributed by the Bursar's Office. Any unpaid fees along with charges, if applicable, are deducted and a University cheque will be issued for any balance remaining. A valid University of King's College I.D. must be presented in order to receive these cheques. Inquiries regarding Student Loans, Bursaries or payment of scholarships should be directed to the Bursar's Office, University of King's College.

## **University Scholarships**

University Scholarships are distributed through the Bursar's Office. Scholarships are applied first to required fees (King's Students' Union, College fee and Journalism or Foundation Year fees if applicable), and then to tuition fees. Any balance remaining will be applied to residence fees (if applicable). The remaining balance will be paid to the scholarship winner by cheque in November.

## **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: any Student Union Fees, and Society Fees. Seventeen percent (17%) of the remaining balance constitutes the tax credit.

For all eligible fees, a special income tax certificate will be available from the Student Accounts Office, Dalhousie annually on February 28 (for students in Arts and Science), and from the Accounts Bursar at King's (for students in Journalism). Replacement tax receipts will be provided within 3 weeks of the request, for an additional charge of \$5 per receipt.

## **Application Fee**

An application fee of \$20 is required with the application form submitted by any student for any academic programme except those in which the applicant has been previously enrolled. If the fee is paid for in a given session, and the applicant does not attend, whether accepted or not accepted, and an application is made for a subsequent session, the fee is again payable. Application fees are not refundable and are not applied as a credit to class fees.

## **Identification Cards**

All new, full- and part-time students may obtain an identification card upon registration and payment of proper fees. I.D. Cards are issued by the I.D. office, located in the Registrar's Office on the Main Floor of the Dalhousie Arts and Administration Building. I.D. Cards will only be issued upon presentation of the

appropriate requisition form, authorized by the Registrar's Office, the Bursar's Office and (in the case of Arts and Science students) the Dalhousie Student Accounts Office. Regular academic I.D. cards remain valid until the beginning of the following academic year (including summer session). I.D. Cards issued specifically for Summer or Spring session expire at the conclusion of that session. At the commencement of subsequent consecutive years, validation stickers are affixed to the "expired" I.D. card. Students of the University of King's College cannot receive either an I.D. card or a validation sticker until they register in person in September. If an I.D. card is lost, authorization for a replacement may be obtained from the Office of the King's Bursar. A fee of \$12 is charged for all replacement I.D. cards, except those expressly directed by the University.

## **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.

## **Dalplex Recreational Fee**

Membership at Dalplex for 1990/91 is available for all full-time students and for all part-time students taking three full credit courses for \$45, payable at registration. Membership in Dalplex for ALL other part-time students may be obtained at the office of Dalplex at the prevailing rates.

## King's Students' Union Fee

Students at King's are required to pay the King's Students' Union Fee which, at the request of the King's student body, is collected upon enrolment from each student who takes more than one credit in a regular session. This fee entitles the student to the privilege of the various students' organizations and clubs, a copy of the King's College Record and free prescription drugs.

King's students are not required to pay the Dalhousie Student Union Fee, or the Rink and Athletic Field Fee. However, any King's student who wishes to participate in Dalhousie Student Union Activities must pay both King's and Dalhousie Student Union Fees. Dalhousie students resident at King's College must pay the King's Students' Union Fee.

## King's College Fee

Every registered student of the College pays an annual "College Fee" of \$25 at the time of registration. The funds realized are divided among and administered by the Young Alexandra Society, the Bays' Residence Council, and the Day Student Society. The chief aim of the two Residence bodies in administering their portion of College Fees is to provide lasting improvements to the amenities of the Residences, especially in the common areas. The Day Student Society employs its portion of the fees both towards improving the communication of College activities and events

(academic, social, athletic, etc.) to the non-resident members of King's, and towards the subsidy of occasional meals in Prince Hall.

## Foundation Year Handbook Fee

All students enrolled in the Foundation Year Programme must purchase the Foundation Year handbooks. The Handbook fee for 1991/92 is \$50.

## Journalism Handout Fee

All students enrolled in the School of Journalism must pay a Journalism Handout Fee to cover the cost of materials distributed in the Journalism courses. The fee for 1991/92 is \$25 per Journalism credit.

In addition, there may be a lab fee charged in certain Journalism courses, such as Photojournalism.

## **Transcripts**

Transcripts, official or unofficial, will be issued only on the request of the student concerned. Telephone requests will not be accepted. The charge is \$4.00 for the first copy and \$1.00 for each additional copy ordered at the same time for the same address. Transcripts will no be issued if any account with the University is delinquent. Applications for transcripts by B.A. and B.Sc. students must be made at the Registrar's Office, Dalhousie University. Applications for transcripts by Journalism students must be made at the Registrar's Office, University of King's College.

## **Parking on Campus**

Parking on the King's campus is severely limited; the spots that are available are allotted on a priority basis. Students are advised that they may not be able to obtain parking at King's.

## Residence Fees

All residence rates include three meals per day for the duration of the academic year. Rates for room and board for one academic year for rooms in either Alexandra Hall or one of the Bays are approximately \$4,300. The rate for a single room will be slightly higher.

There are no meal plans which exempt resident students from some meals. In the case of timetable conflicts, students are permitted to obtain a box lunch from the kitchen. Non-residents can pay for individual meals at any time, and they can also obtain a meal plan by arrangement with the Bursar or the Food Services

No student will be assigned a place in the King's College Residence unless he or she has paid the residence application fee of \$25 and his/her room deposit of \$100 (seee below, "caution deposit"). In addition each student accepting an offer of a place in residence must pay a confirmation deposit of \$50 before July 2, 1991. The \$100 room deposit will be refundable only if the student withdraws, in writing, prior to July 2, 1991. The \$50 confirmation fee will be applied against residence fees; it is strictly non-refundable.

Students are expected to remain in residence for the whole of the academic year. Students are not free to

withdraw at will, and every student who withdraws from residence after occupying a room will lose his or her \$100 room deposit. In addition, students wishing to withdraw during the academic year will forfeit the balance of the residence fee unless a replacement is found who is acceptable to the College.

The King's College residence is open from the first day of classes in the regular session to the day of the last regularly scheduled examination in the College of Arts and Science. A graduating resident student may stay in residence without charge after those periods up to and including the last day of Encaenia activities, but will be expected to pay for meals during this time.

In exceptional circumstances a student may seek the permission of the Deans to occupy a room at times other than those specified above. For charges and conditions, students should consult with the Dean of Residence and the Bursar.

Resident students who are not registered at King's College are required to pay the King's College Students' Union Fee. In return for the payment of this fee, resident students not registered at King's become fully active members of the King's College Students' Union.

## Failure to Pay Residence Fee

Residence Fees for the Fall term must be paid by September 30 of each year. Residence Fees for the Winter term must be paid by January 31 of each year. Students who have not paid these fees by the deadline indicated will be charged a penalty of \$40 in addition to 16% interest on the unpaid fees.

- 1. No student may return to residence in the Winter term until first term residence (and interest) charges are
- 2. No student may return to residence after the study break of the Winter term until second term residence (and interest) charges are fully paid.

## Expulsion

Any student expelled from residence loses his or her residence fees and caution deposit of \$100.

## **Caution Deposit**

Upon enrolment each resident student is required to make a deposit of \$100 as caution money to cover damage done to furniture, etc.; this amount also includes the room key deposit and gown deposit. (A charge of \$70 will be made against the account of any student who fails to return his or her gown at the end of the academic year.) The \$100 caution deposit, less deductions, will remain a credit on the books until the student graduates or leaves, when the balance will be returned by cheque, usually during July. No refund in whole or in part will be made until that time. All students in residence are held responsible for the care of furnishings within their respective rooms. Losses or damages incurred during the session will be charged to the caution deposit.

Each year a student, on returning, is expected to make up for the previous year's deductions so that his or her credit may be maintained at \$100.

# UNIVERSITY REGULATIONS

## General

- 1. In relation to the College of Arts and Science, the President 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 the Faculty and Board of Governors of the University of King's College, academic requirements are administered by the College, Faculty or School concerned.
- 2. All students must agree to obey all the regulations of the University already made or to be made; in addition to these University Regulations, students must also comply with the regulations of the Faculty or School 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 students 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 home of the student's parent or guardian 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 University.
- 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.
- In the interests of public health in the University, students are encouraged to have a tuberculin test.
   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. on payment of the required fee.
- Students withdrawing voluntarily from the University should consult the individual Faculty or School regulations and the Fees section of this Calendar.

- 9. When the work of a student becomes unsatisfactory, or a student's attendance is irregular without sufficient reason, the Faculty or School concerned may require withdrawal from one or more classes, or withdrawal from the Faculty or School. If a student is required to withdraw from a Faculty or School such a student may apply to another Faculty or School. However, in the assessment of the application, previous performance will be taken into consideration.
- 10. Any graduating student who is unable to appear at the Convocation or Encaenia is expected to notify the Registrar in writing prior to May 6 (or October 12 for Fall convocations), giving the address to which the diploma is to be mailed. 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 or Encaenia ceremony. For October or February graduation the dates are September 1 and January 1 respectively.
- Students should be aware that certain classes a 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 are required to 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

## 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." Such right will not apply to students in debt to the University.

# 2. Disclosure to Faculty, Administrative Offices 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:
  - i. name;
  - ii. period of registration;
- iii. 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 his or her record (e.g. in financial aid). This restriction applies to requests from parents, spouses, credit bureaus and police.

## Intellectual Honesty

1. A University should epitomize the quest for intellectual honesty. Failure to measure up to the quest for such a standard can involve either academic offences at one end of the spectrum or substandard work warranting lowered or failing 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

The 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 facaulty 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 King's Students' Union are dealt with by the Students' Union. Alleged breaches of discipline relating to life in the residences are dealt with by the Dean of Residence in consultation with the Residence Council. In the case of Arts, Social Sciences and Science students, the Dalhousie Senate is charged with the authority to deal with cases of alleged academic offences (as delegated to the Senate Discipline Committee), as well as with certain other offences that are incompatible with constructive participation in an academic community. In the case of students of the School of Journalism, cases of alleged academic offences are dealt with by the King's Journalism Studies Committee.

## 3. Examples of Academic Offences

## a. Plagiarism

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

## b. Irregularities in Presentation of Data

As defined above, the presentation of falsified 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.

## c. 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 offence and is liable to a penalty (see Senate Discipline Committee/ Journalism Studies Committee).

## d. 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 pro-

gramme, 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/Journalism Studies Committee, the following examples shall be considered irregular procedures:

- (i) arranging for or availing oneself of the results of any personation at any examination or test, or
- (ii) attempting to secure or accepting assistance from any other person at any examination or test, or
- (iii) having in one's possession or using any unauthorized material during the time that one is writing any examination or test, or
- (iv) without authorization procuring a copy of an examination, test or topic for an essay or paper, or
- (v) 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
- (vi) 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 the 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 Faculty of the University of King's College and to the Senate of Dalhousie University, 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 from 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.
- Candidates are required to present their valid King's College I.D. card at all examination periods and to 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.
- Candidates may not leave their seats during an examination except with the consent of the invigilator.

- Answers to questions must be written on the righthand 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 examination booklet is used, the total number of booklets should be marked in the space provided. The other booklets should be properly marked and placed inside the first booklet. All booklet supplied must be returned to the invigilator.
- 9. Candidates found communicating with one another 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, sutdents may hand in their examination booklet(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.

## **Discipline Committees**

## 1. Composition

Academic offences in the College of Arts and Science 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.

Academic offences in the School of Journalism are dealt with by the Journalism Studies Committee.

## 2. Terms of Reference

- (a) The Senate Discipline Committee/Journalism Studies Committee is vested with original jurisdiction to consider all complaints or allegations respecting offences 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/Journalism Studies Committee shall assume jurisdiction when a complaint or allegation respecting offences or irregularities of an academic nature are brought to its attention by the Secretary of Senate/Director of the School of Journalism.
- (c) The Senate Discipline Committee/Journalism
  Studies 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/Journalism Studies Committee shall report its findings and any penalty imposed to the Secretary of the Senate/Director of the School of Journalism. The Secretary of the Senate/Director of the School of Journalism shall forward a copy of the report to any member of the University community whom the Senate Discipline Committee/Journalism Studies 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, he or she may appeal to Senate of Dalhousie/ Faculty of King's College any finding or any penalty imposed by the Senate Discipline Committee/Journalism Studies Committee by advising the Secretary of the Senate/ Director of the School of Journalism 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 less 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 assocated 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;
- 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 programmes 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 privileges.

## **Programmes of Study**

King's offers the following Programmes of Study leading to degrees in Arts, Social Sciences and Science:

B.A. (Ordinary), three years\*
B.A (Honours), four years
B.Sc. (Ordinary), three years\*
B.Sc. (Honours), four years

\*Twenty credit Major Bachelor of Arts and Bachelor of Science programmes are also available in some disciplines.

King's offers two Programmes of Study leading to degrees in Journalism:

B.J. (Honours), four years B.J., one year following B.A. or B.Sc.

The University of King's College and Dalhousie University have a joint College of Arts and Science. King's students can take all the courses offered by that College leading to the Bachelor of Arts or the Bachelor of Science either Ordinary or Honours. Joint majors or joint Honours may be taken in a number of subjects. For a full listing of all major and Honours subjects in the College of Arts and Science, consult the "Regulations" of the College of Arts and Science, below.

King's students can also do the pre-professional work offered by the College of Arts and Science and which sometimes amounts to less than what is required for the B.A. or B.Sc. degrees. Architecture, Medicine, Dentistry, Physiotherapy, Social Work, Law, Education and Theology all accept students after one level or another of work in Arts, Social Sciences and Science. The University of King's College does not, however, admit students to programmes which involve degrees or diplomas other than the B.A. and B.Sc. (except in Journalism). For example, King's students cannot be taking the Diploma in Engineering, the Bachelor of Music Education, a combined B.A./B.Ed. or B.Sc./B.Ed., nor will they be doing Commerce, Education, Health Professions or Graduate Studies.

What King's does offer other than what is available to Dalhousie Arts, Social Sciences and Science students is a unique way of doing an Arts, Social Sciences and Science first year—the Foundation Year Programme.

The King's alternative first year programme, the Foundation Year Programme, is a first year programme for both general and Honours students. Normally, Bachelor of Arts students enrolled in the Foundation Year Programme do one class in addition to the Foundation Year course; normally, Bachelor of Science students in the Programme do two additional classes. Thus for B.A. students the Foundation Year Programme is equivalent to four classes; for B.Sc. students it is equivalent to three classes.

The University of King's College has a School of Journalism offering programmes leading to the B.J. (Hons.) and B.J. degrees. These degrees are awarded by King's. Approximately 120 King's students are enrolled in Journalism degree programmes. The

Foundation Year Programme is taken by all first-year students enrolled in the B.J. (Hons.) degree programma

The University year begins in early September and classes are completed by the end of April. In Arts, Social Sciences and Science, the Ordinary degree is normally completed in three years after admission, and the Honours degree in four years. Five credits constitute a normal class load in an academic year. A total of fifteen credits is required for the Ordinary degree, and twenty for the Honours degree. In some disciplines, twenty-credit/four year Advanced Major Bachelor of Arts and Bachelor of Science programmes are also available.

# COLLEGE OF ARTS AND

## Introduction

The College of Arts and Science, established in 1988, consists of the Faculty of Arts and Social Sciences, the Faculty of Science, and the School of Education. The College of Arts and Science meets to discuss matters of concern common to its units, in particular those relating to academic programmes and regulations. The Dean of Arts and Social Sciences and the Dean of Science alternate, year by year, as Provost of the College. The Provost chairs College meetings and prepares the agenda for those meetings. Administrative responsibility for what is decided in College meetings remains in the two Faculties and the School of Education.

There are thirteen Departments and several interdisciplinary programmes in the Faculty of Arts and Social Sciences, and eleven Departments in the Faculty of Science. The School of Education is dedicated to the professional training of schoolteachers and to the study of education as an academic discipline. There are several interdisciplinary programmes of instruction in the College, the responsibility for which is shared among members from different Departments.

The College of Arts and Science is responsible for the curriculum of Bachelor of Arts, Bachelor of Science, Bachelor of Education, Bachelor of Music and Bachelor of Music Education degree programmes, for diploma programmes in Engineering, Meteorology, and Costume Studies, and for certificate programmes in Costume Studies and Educational Administration. The College is also responsible for the establishment of regulations governing students registered in its programmes.

Please note: students of the University of King's College may not enroll in degree programmes in Education, Music or Music Education; in combined B.A./B.Ed. or B.Sc./B.Ed. programmes; in diploma programmes in Engineering, Meteorology, and Costume Studies; or in certificate programmes in Costume Studies and Educational Administration.

The College of Arts and Science consist of several groups: some 5,500 undergraduate students who typically spend three or four years in the College, nearly four hundred full-time teaching and research faculty and staff as well as a number of part-time teachers and teaching assistants, and a support staff of secretaries and technicians. The student's academic role is to learn—from teachers, from laboratory experience, from books, from other students, and from solitary contemplation. Students learn not only facts but concepts and—what is most important—they learn how to learn.

Through intellectual interaction with other members of the academic community, undergraduate students should gain the background knowledge, the ability and the appetite for independent discovery. Their acquisition of these components of liberal education is marked formally by the award of a Bachelor's degree. The academic faculty has two equally important roles: to

teach the facts, concepts and methods that the student must learn; and to contribute to the advancement of human knowledge through research and through scholarly or artistic activity.

B.A. and B.Sc. degree programmes in the College are of three types: the three year or fifteen-credit degree with a Major, the four year or twenty-credit degree with an Advanced Major, and the four year or twenty-credit degree with Honours.

Unlike the degrees granted by professional schools, the Bachelor's degrees of B.A. and B.Sc. are not intended to signify that the student is qualified for a particular job. The goal of such programmes is to produce educated persons with competence in one or more subjects. Such competence includes not only factual knowledge but, more importantly, the ability to think critically, to interpret evidence, to raise significant questions, and to solve problems. A B.A. or a B.Sc. degree often plays a second role as a prerequisite to a professional programme of study.

The College is particularly proud of the Honours programmes that it offers in most subjects to able and ambitious students. The B.A. or B.Sc. with Honours is distinguished from the B.A. with Major or Advanced Major in that a higher standard of performance is expected, a greater degree of concentration of credits in one or two subjects is required, and at the conclusion of the programme each student must show a grade which is additional to those for the required twenty classes. Frequently Honours students obtain this grade by successfully completing an original research project under the supervision of a faculty member. Completion of a B.A. or B.Sc. with Honours is an excellent preparation for graduate study at major universities throughout the world. Dalhousie/King's is distinguished among Canadian universities in offering B.A. programmes with Honours in most subjects in which it also provides B.Sc. Honours programmes, and in providing B.A. and B.Sc. degree programmes with Combined Honours in an Arts and a Science subject.

# Provost of the College W.C. Kimmins, PhD (London)

Dean of the Faculty of Science

NOTE: It has long been the policy of the College of Arts and Science that a student is governed by the regulations in place at the time of initial enrolment, and that subsequent changes in regulation shall apply only if the student so elects. Major changes were introduced for the 1988/89 session. Students who wish to apply the old regulations should consult the calendar of the appropriate year.

Students entering a new degree programme in the Spring of 1991 or later will be evaluated using the 4.3 Grade Point Average (GPA) scale. The regulations that apply to these students are identified as "New in 1991." All other students will continue to be evaluated using the merit point scale until April 1995. The regulations that affect them are identified as "Prior Regulations." Beginning in May 1995, all students' work will be assessed using the 4.3 GPA system.

## College of Arts and Science Regulations

## 1. Definitions

For definitions of some commonly used terms, see page 7 of this Calendar.

Within these regulations, reference to the Committee on Studies should be interpreted as the Student Affairs Committee in the Faculty of Arts and Social Sciences, as the Committee on Studies and Appeals in the Faculty of Science, and as the Bachelor of Education Committee in the School of Education.

## 2. Departments of the College of **Arts and Science**

Biochemistry (also in the Faculty of Medicine)

Biology

Chemistry

Classics

Comparative Religion

**Economics** 

School of Education

Engineering

English

French

Geology

German

Mathematics, Statistics and Computing Science Microbiology (also in the Faculty of Medicine)

Music

Oceanography

Philosophy

**Physics** 

Political Science

Psychology

Russian

Sociology and Social Anthropology

Spanish

Theatre

## 3. Subject Groupings

The various subjects in which instruction is offered are grouped as follows:

## A. Languages and Humanities:

Classics, Comparative Literature, Comparative Religion, English, French, German, Greek, History, Latin, Music, Philosophy, Russian, Spanish, Theatre and Women's Studies.

## B. Social Sciences:

Canadian Studies, Economics, Education, History, International Development Studies, Political Science. Psychology, Sociology and Social Anthropology, and Women's Studies.

## C. Life Sciences and Physical Sciences:

Biochemistry, Biology, Chemistry, Computing Science, Economics, Engineering, Geology, Mathematics,

Microbiology, Neuroscience, Oceanography, Physics Psychology and Statistics.

In cases where a subject is listed in more than one of the groupings A, B and C, any class taken in that subject can only be used to satisfy one of the grouping requirements. (See Regulation 11.1 below). A second class in the same subject cannot be used to satisfy another subject grouping requirement.

## 4. Programmes Offered

Programmes leading to the following qualifications an required. offered through the College of Arts and Science to students registered at the University of King's College Bachelor of Arts and Bachelor of Science.

## 5. Admission Requirements

Application forms are available from the Registrar, University of King's College, Halifax, Nova Scotia B3H2A1. For application deadlines, see the Schedul of Academic Dates, pages 6 and 7 of this Calendar.

# 5.1 Students from Nova Scotia High

At least five senior level university preparatory classes should be taken in grade XII year as follows:

(a) English;

(b) At least two of Biology, Chemistry, French, German, History, Latin, Mathematics and

(c) The remaining classes may be from those listed above or from Economics, Geography, Geology, Law, Modern World Problems, Music Political Science, Sociology, Spanish.

For certain programmes there are additional require-

## Bachelor of Science

- -English with a grade of at least 65%
- -Mathematics 441 or equivalent with a minimum grade of 65%

A minimum average of seventy per cent is normally required of all students entering the Bachelor of Arts and Bachelor of Science programmes. Special consideration is given to English and Mathematics marks for all programmes. Since admission to many programmes is limited, possession of minimum requirements does not guarantee admission.

Any special or experimental classes must have been previously approved by Dalhousie/King's if acceptance 5.5 Mature Students for credit for admission is to be assured.

The University does not apply criteria rigidly. Students who do not meet the above requirements, particularly those with high standing, are invited to apply and will be given consideration as special cases.

## 5.2 Admission from Outside Nova Scotia

Students are accepted from other provinces and countries at levels as shown below, which are considered equivalent for the purpose of admission to Nova Scotia Grade XII:

New Brunswick, Newfoundland and Labrador, Prince Edward Island, Manitoba, Saskatchewan, Alberta, British Columbia: Grade XII, with subject distribution and minimum average as for Nova Scotia

Québec: One year at CEGEP.

Ontario: O.A.C. credit or Grade XIII.

ILS.A.: U.S.A. Grade XII; SAT or CEEB scores are

The United Kingdom, West Indies, West Africa: General Certificate of Education (GCE) with pass standing in at least five subjects, of which one must be English and at least two must be at the Advanced Level.

Hong Kong: GCE as for Great Britain, or University of Hong Kong Matriculation Certificate under same conditions as for GCE.

Bangladesh, India, Pakistan: Bachelor's degree with first- or second-class standing from a recognized university; or in certain circumstances, first-class standing in the Intermediate examinations in Arts and Science, provided the candidate has passes at the university level in English, Mathematics and a language other than English. Note: This standing is not sufficient for admission to the sequential B.Ed. programme at

Countries not mentioned above: Write to The Registrar, University of King's College, Halifax, Nova Scotia, B3H2A1, for further information.

## 5.3 Transfers from Colleges and other Universities

Students who have begun their post-secondary studies elsewhere, and who are in good standing, may be considered for admission. Credit for work completed may be granted, subject to the conditions given in Section 13 below.

## 5.4 Transfer Credits from Dental Hygiene

Students who hold a diploma in Dental Hygiene under the present two-year programme at Dalhousie may be admitted to a B.Sc. or B.A. programme with advanced standing of five full credits for this programme. Students should consult the appropriate department for

Students who do not meet the usual admission requirements may be considered under the mature student category provided that:

- 1. they are at least 23 years old, and
- 2. they have been absent from full-time high school study for at least four years.

Prospective students should submit to the appropriate Admissions Committee via the Registrar's Office an application form together with a letter outlining their work experience and other activities. High school

transcripts are required; interviews may be required.

In exceptional circumstances, the Admissions Committee may agree to admit the student directly to a degree programme if the student's background is deemed sufficient preparation for such admission. Otherwise, the appropriate Admissions Committee may admit mature students initially to the University Exploration category until they have achieved grades of C- or better in at least three full-year classes (or equivalent). At that time, they are eligible to apply for admission as regular undergraduate students.

Mature students are advised to contact The Registrar, University of King's College (422-1271), or Henson College, Dalhousie University (494-2526).

## 5.6 Proficiency in English

Applicants for admission whose native language is not English must provide evidence that they are proficient in spoken and written English (i.e. arrange that results of the English Language Test of the University of Michigan, or the Test of English as a Foreign Language (TOEFL) be sent to the Registrar, normally we require a score of at least 550). Both of these tests are administered in various centres throughout the world. Information may be obtained by writing to the English Language Institute, Testing and Certification Service, Ann Arbour, Michigan 48104, U.S.A. or TOEFL Box 899, Princeton, New Jersey 08540, U.S.A.

Certified copies of original documents, or relevant sections of documents (e.g. calendar pages) are acceptable in lieu of originals. Certificates in languages other than English or French must be accompanied by certified translation into English or French.

## 5.7 January Admissions

Admission to Dalhousie/King's is normally for classes beginning in September, and the University does not admit full-time, first-year students in January. Part-time students and transfer students, however, may be admitted for classes beginning in January. The deadline for application for January admission is November 15.

## 6. Student Aid, Scholarships and Other Awards

See the "Awards" section of this Calendar.

## 7. Admission to Classes 7.1 Numbering of Classes

Classes are numbered to indicate their general level. Those in the 1000 series are introductory classes at Dalhousie/King's, while classes in the 2000, 3000 and 4000 series are usually first available to students in the second, third and fourth years, respectively. Often these classes have prerequisites. Some departments have minimum grade requirements for entry into classes above the 1000 level. Such requirements are listed in the calendar entries for the departments concerned.

The letter following a class number indicates the session in which the class is offered. The letters A and B denote classes given in the first and second terms respectively. The symbol A/B indicates a class may be given in the first term or in the second term. Students

should consult timetables to verify whether a particular class will be offered in the A or B term in a given academic year.

The letters C and R denote classes spread over both terms (i.e., given for the full academic year). An R class carries one full credit or more, and a C class less than one full credit. For the spring and summer sessions, A denotes a class given in the first three and one half weeks. B a class given in the second three and one half weeks, and R and C classes continuing for seven weeks.

Classes with numbers below 1000 normally do not

## 7.2 Academic Advice

At Dalhousie/King's all students are offered academic advice prior to registration. First-year students, particularly those in B.A. and B.Sc. programmes, may wish to consult with the Office of the Registrar, or with a faculty advisor in an academic department of particular interest. After the first year, students plan their programmes in consultation with faculty advisors in their major departments. Each student must complete a Class Selection Form, obtainable from the Registrar.

Students must complete and submit the Class Selection form as part of the registration process.

## NOTE THAT THE COMPLETION AND SUBMIS-SION OF A CLASS SELECTION FORM DOES **NOTCONSTITUTE REGISTRATION**

## 8. Workload

## 8.1 Regular Year

Five full credits per academic year shall be regarded as constituting a normal workload for a student. Written permission from the Student Appeals Committee of the appropriate Faculty or School is required if this workload is to be exceeded, or if the planned workloard in any term would amount to more than the equivalent of six half-classes. In no case may the workload exceed this. Applications from students who give good reasons for wishing to take an overload, and who in the preceding year completed a full programme in good standing, will be considered. Such permission will not normally be granted to any student in the first year of study, or to any student who, in the preceding academic year, earned a sessional GPA of less than 3.0.

## 8.2 Spring and Summer Session

Students may normally take one full credit in a spring or summer session. Exceptions will normally be granted by the Student Appeals Committee of the appropriate Faculty or School with respect to attendance at a uiniversity which operates a trimester system or its equivalent. Students may apply in advance to increase the workload to a maximum of 2.5 credits by summer school in any one year with a maximum of 1.5 credits in any one summer session. Spring and summer credits are included in the calculation of the cumulative GPA. A sessional GPA is not calculated.

## 9. Registration

Registration material and detailed information will be sent to all eligible students. Students admitted late must register in person. After the Class Selection Form has been completed (see above) students may register, either in person or by mail.

A STUDENT IS REGISTERED ONLY AFTER FINANCIAL ARRANGEMENTS HAVE BEEN MADE AT THE BURSAR'S OFFICE AND AT THE STUDENT ACCOUNTS OFFICE.

The final step in registration is obtaining an I.D. or validating an existing I.D. from the Office of the Registrar. An I.D. Card gives students access to many campus services and activities.

Upon registration in person at King's, students will be issued a requisition form, authorized by the Bursar University of King's College. An I.D. card may then be obtained at the I.D. Unit, which is located in the Registrar's Office, Arts and Administration Building Dalhousie University. Students of King's College require the requisition form issued by the King's Bursar in order to be issued an I.D. card. See also under "Other Charges" in the Fees section of this

It is University policy that every student writing an officially scheduled examination must present a current valid I.D. card. Students requesting the release of funds from the Awards Office must also present their I.D.

## 10. Withdrawal and Change of Registration

Students who withdraw from the University may be entitled to refunds of fees. Withdrawals are not effective until notification is received at the Office of the Registrar.

# **CONSTITUTE WITHDRAWAL**

## 10.2 Class Changes

It is recognized that some students may wish to make changes in programmes already arranged. Class changes will normally be completed during the first two weeks of classes. (For Spring and Summer session information see the Summer School Schedule). No change is effective until a change form, available at the Office of the Registrar, is received by that Office.

See the Schedule of Academic dates (pages 8 and 9) for deadlines for adding and dropping classes.

# 11. Degree, Certificate and **Diploma Requirements**

## 11.1 Bachelor of Arts, Bachelor of Science—All Programmes

In the first year full-time students normally take five full-credit classes or equivalents. (The King's Foundation Year Programme may be taken as the equivalent of three or four credits. This programme is only available to King's students.)

Students are required to include, in their first ten credits, one full-credit class or two half-credit classes from each of the subject groupings in section 3., above. Note: Students enrolled in Honours programmes in Biochemistry, Computing Science and Microbiology need not include these credits among their first ten credits, but must include them among the 20 earned to qualify for the degree.)

Students in the first year may not take for credit more than the equivalent of three full-credit classes in a single subject from the subject groups given in section 3., above.

One of the five classes chosen must be selected from a list of classes in which written work is considered frequently and in detail. These writing classes are approved by the Writing Across the Curriculum Committee and are listed below:

Chemistry 1000R, Classics 1000R, 1010R, 1100R, Comparative Religion 1301R, English 1000R, German 1000R, 1050R, History 1400R, 1990R, Philosophy 1010R, Political Science 1103R, Russian 2050R, Sociology and Social Anthropology 1001R, 1050R. (The King's Foundation Year Programme also satisfies this requirement.)

In order to qualify for a B.Sc. degree candidates are required to complete successfully at least one full University credit in Mathematics other than Mathematics 1001A/1002B, and 1110A/B. A class taken to satisfy this requirement cannot also satisfy the requirement of a class from Subject Grouping C.

Students may satisfy this requirement by passing the 10.1 Responsibility of Registered Students test which is administered by the Department of Mathematics, Statistics & Computing Science. Such students must nevertheless complete 15 or 20 credits in order to graduate.

Students should seriously consider choosing a class from a list of classes which deal with a formal subject. NON-ATTENDANCE DOES NOT, IN ITSELF, Classes which are recognized as formal are:

> Chemistry 1100R, 1000R, 1010R, 1020R, 1030R; Computing Science (all classes); Economics 1106A/ B, 2222A, 2223B, 2228R; Mathematics (all classes): Philosophy 2110R, 2130A, 2140B, 2190A/B, 2660R; Physics 1000R, 1100R, 1300R; Political Science 2494R, 3495A/B.

Students should consider becoming fluent in French. B.A. students are required to obtain one credit from the following language classes:

Classics 1700R, 1800R; French 1000R, 1001A/ 2001B, 1020R, 1040R; German 1000R, 1010R, 1050R, 1060R; Russian 1000R, 1050R; Spanish 1020R, 2000A, 2010B.

For students with advanced language skills, upper-level language classes may be substituted. Consult the Office of the Registrar if you require further information. A class taken to satisfy this requirement cannot also salisfy the requirement of a class from Subject Grouping A.

Students may satisfy this requirement by passing one of the tests administered by the language departments. Such students must nevertheless complete 15 or 20 credits in order to graduate.

B.A. students who choose to major in Economics, International Development Studies, Philosophy, Political Science, Psychology or Sociology and Social Anthropology may substitute for a language class at least one full class in Mathematics or Statistics, other than Mathematics 1001 A/1002B or Mathematics 1100A/1120B, to meet this requirement; or they may meet it by passing the test administered by the department of Mathematics, Statistics & Computing Science. A class taken to satisfy this requirement cannot also satisfy the requirement of a class from Subject Grouping C.

The King's Foundation Year Programme is deemed to meet the distribution requirements for the Humanities/Languages and the Social Sciences groupings, but students in the Programme must take a class in the Life/ Physical Sciences grouping to complete the distribution requirements.

Students who have not completed their first year but wish to enrol for further study must first complete the first year requirements.

## 11.2 Arts and Science Electives

Students may choose electives from any of the classes listed by departments offering major or honours programmes in the College of Arts and Science. In addition up to three credits may be obtained from the following:

- (a) Architecture 1000R.
- (b) Education Foundation Offerings (classes with numbers below 4400); Education classes numbered 4400 and above are not available as Arts and Science electives.
- (c) Classes in Engineering and Oceanography. The restriction on Engineering electives does not apply to students in the Diploma in Engineering Programme who combine their studies with a programme leading to a B.A. or B.Sc. in the College of Arts and Sciences.

PLEASE NOTE: Students registered at King's are not eligible to take the Diploma in Engineering programme.

(d) Classes in Music. Note: Music classes 1000R, 1001A, 1002B, 2007R, 2008R, 2010R, 2011R, 2012R, 2013R, and 2021R are available as normal electives, but other classes in Music may be taken by special permission of the Department of Music.

PLEASE NOTE: Students registered at King's are not eligible to take Music Major or Advanced Major programmes.

(e) The following approved classes from other faculties and institutions: Commerce 1101A/B. 1102A/B, 2201A/B, 2301A/B, 2401A/B, 2601A/B, 3203 A/B, 3302B, 3304 A/B, 3306 A/B, 3308B, 3501 A/B, 4120 A/B and Health Education 4412 A/B.

## 11.3 Bachelor of Arts and Bachelor of Science—Honours Programmes

Second, Third and Fourth Years. Able and ambitious students are urged to enter Honours Programmes. These programmes require a higher quality of work than is required by the other undergraduate programmes of the College (15-credit Major and 20-credit Advanced Major). There are three types of Honours programmes: concentrated, combined, and unconcentrated.

For the B.A., the Honours subject may be chosen from Classics, Economics, English, French, German, History, International Development Studies, Philosophy, Political Science, Russian, Social Anthropology, Sociology, Spanish and Theatre or any of the B.Sc. Honours subjects.

For the B.Sc., the Honours subject may be chosen from Biochemistry, Biology, Chemistry, Computing Science, Economics, Geology, Marine Biology, Mathematics, Microbiology, Neuroscience, Physics, Psychology and Statistics.

Applications for admission to Honours programmes must be made to the departments concerned on forms available in departments and at the Office of the Registrar. The Registrar may be consulted by those considering Unconcentrated Honours.

Students should apply for admission to Honours before registering for the second year. If application is made later, it may be necessary to make up some work not previously taken.

For each individual student the entire Honours programme, including elective credits, is subject to supervision and approval by the department or departments concerned, or in the case of unconcentrated Honours, by an interdisciplinary committee.

Honours in a concentrated programme is based on the general requirement that the 15 credits beyond the first year of study comprise:

- (a) A normal requirement of nine credits beyond the 1000 level in one subject (the major subject). Students may, with the approval of the department concerned, elect a maximum of eleven credits in this area. In this case (c) below will be reduced to two or
- (b) Two credits in a minor subject satisfactory to the major department.
  - (c) Four elective credits not in the major field.
- (d) An additional grade (see Honours Qualifying Examination, below).

Honours in a combined programme is based on the general requirement that the 15 credits beyond the first year of study comprise:

(a) A normal requirement of eleven credits beyond the 1000 level in two allied subjects, not more than seven credits being in either of them. Students may, with the approval of the departments concerned, elect a maximum of thirteen credits in two allied subjects, not more than nine credits being in either of them. In this case the requirement in (b)

below is reduced to two or three credits.

(b) Four elective credits in subjects other than the two offered to satisfy the requirement of the preceding clause.

(c) An additional grade (see Honours Qualifying Examination, below).

Details of specific departmental honours programmes are given under the departmental listings of Programmes of Study.

Unconcentrated Honours programmes are based on the general requirement that the 15 credits beyond the first year of study comprise:

(a) Twelve credits beyond the 1000 level in three or more subjects. No more than five of these may be in a single subject: no less than six nor more than nine may be in two subjects.

(b) Three elective credits.

(c) For an Unconcentrated B.A. (Honours), at least ten credits of the twenty selected must be selected from subject groups A. B and C listed in section 3, above.

(d) For an Unconcentrated B.Sc. (Honours), at least eight credits of the twenty required must be selected from Biochemistry, Biology, Chemistry, Computing Science, Economics, Geology, Mathematics, Microbiology, Neuroscience, Physics, Psychology, and Statistics, and at least six additional credits must be selected from subject groups B and listed in section 3, above.

(e) An additional grade (see Honours Qualifying Examination, below).

Honours Qualifying Examination. At the conclusion of an Honours programme a student's record must show a grade which is additional to the grades for the classes taken to obtain the required twenty credits. This grade may be obtained through a comprehensive examination the presentation of a research paper (which may be an extension of one of the classes), or such other method as may be determined by the committee or department supervising the student's programme. The method by which this additional grade is obtained is referred to as the Honours Qualifying Examination. Departments may elect to use a pass-fail grading system for grading this examination.

For the standing required for Honours see section 27.2.1 below.

## 11.4 Bachelor of Arts, Bachelor of Science—Advanced Major Programmes (20 credits)

Students who do not wish to attempt an Honours programme are encouraged to enter an Advanced Major Individual Programmes programme, which also requires 20 credits but with a lesser degree of concentration in a single subject. Such students are advised to seek detailed information from the department in which they wish to concentrate.

Major degree, at least 12 of the 20 credits must be beyond the 1000 level. A minimum of six and a maximum of nine credits beyond the 1000 level are to be in the Major, and three of them must be beyond the

For the B.A., the Advanced Major may be chosen from Classics, Comparative Religion, Economics, English, French, German, History, International nevelopment Studies, Philosophy, Political Science. psychology, Russian, Sociology and Social Anthropology, or Spanish, or from any of the B.Sc. major

For the B.Sc., the Advanced Major may be chosen from Biochemistry, Biology, Chemistry, Computing science, Economics, Geology, Marine Biology, Mathematics, Microbiology, Physics, Psychology or Statistics.

## 11.5 Bachelor of Arts, Bachelor of Science—Major Programmes (15 credits)

Second and Third Years. Before registering for the second year, each student must declare an area of concentration, and obtain programme advice from a faculty advisor in the appropriate department.

Ten full credits, or the equivalent in half-credit classes, make up the course for the second and third years. These must meet the following requirements:

(a) at least seven credits shall be beyond the 1000

(b) at least one credit or two half-credits shall be in each of at least two subjects other than the area of concentration.

(c) at least four and no more than eight credits beyond the 1000 level shall be in a single area of concentration (the major), and at least two of these must be beyond the 2000 level.

(d) up to four of the credits in the major subject must be selected in accordance with departmental or interdepartmental requirements.

For the B.A., the Major subject may be chosen from Classics, Comparative Religion, Economics, English, French, German, Greek, History, International Developmental Studies, Latin, Philosophy, Political Science, Russian, Sociology and Social Anthropology, Spanish, Theatre, Women's Studies or from any of the B.Sc. major subjects. Note: King's students may not enrol in a B.A., Music Major or Advanced Major

For the B.Sc. the area of concentration may be chosen from Biology, Chemistry, Computing Science, Economics, Geology, Mathematics, Physics or

For the standing required for a B.Sc. or B.A. see section 27 below.

In cases where students feel that their academic needs are not satisfied under the above requirements, individual programmes may be submitted to the Student Affairs Committee of the Faculty of Arts and Social In order to satisfy the requirements for the Advanced Sciences or to the Curriculum Committee of the Faculty of Science. The Dean shall act as advisor for such

## 11.6 Upgrading of a B.A. or B.Sc. to an Honours or Advanced Major Degree

A person who holds a Dalhousie/King's B.A. or B.Sc. (15-credit) degree may apply through his or her department advisor, or, for multidisciplinary programmes, the Coordinator, for admission to an Advanced Major or Honours programme. On completion of the required work with proper standing, a certificate will be awarded which has the effect of upgrading the degree to Advanced Major or Honours status, as appropriate.

## 11.7 Programmes in Co-operative Education (20 credits)

The aim of Co-op degree programmes is to enable students to combine their studies with work experience. The programmes are thus year-round, including Spring and Summer School, and will normally require from forty-eight to fifty-two months for completion.

Co-op degree programmes conform to the requirements for either the Advanced Major or the Honours

The following departments currently offer Co-op programmes: Biology, Chemistry, Mathematics, Statistics and Computing Science, and Physics. For details of these programmes, consult the Calendar entries for the departments.

## 11.8 Joint Honours: Dalhousie-Mount Saint Vincent

Special arrangements exist under which students may be permitted to pursue an Honours programme jointly at Dalhousie/King's and Mount Saint Vincent Universities. Interested applicants should consult the appropriate department of their own university at the beginning of the second year. Prospective joint honours students must be accepted by the honours departments concerned at both institutions. These departments supervise the entire programme of study of accepted applicants. Students should be aware that not all classes available for credit at Mount Saint Vincent can be given credit at Dalhousie/King's and vice versa. In order for students to obtain a joint Honours degree, they must satisfy all requirements of both institutions.

## 12. Counting of Classes for Two **Undergraduate Degrees**

Students who hold one undergraduate degree from Dalhousie/King's and who wish to gain a second undergraduate degree must fulfil the requirements of the second degree and meet the following stipulations:

(a) Only classes that are applicable to the course for the second degree may be counted for credit.

(b) Each class carried forward must have a grade of C or higher.

(c) For the Honours degree, a minimum of eleven new classes are to be taken, in accordance with Regulation 11.3(a) and (b) above.

For the Advanced Major (20-credit) degree, a

minimum of eleven new full-credit classes, or the equivalent, must be taken. At least six of these are to be beyond the 1000 level in a new major subject, and at least three of the six must be beyond the 2000 level.

For the Major degree (15 credits), a minimum of six new full-credit classes or the equivalent, must be taken. At least four of these are to be beyond the 1000 level in a new major subject, and at least two of the four must be beyond the 2000 level. Normally, two of these classes will be in a subject other than the new major.

(d) Grade points must be earned in the new classes as required by Regulation 24, below.

# 13. Transfer Students 13.1 Transfer Credits

At Dalhousie/King's, transfer credits may be granted for classes which are offered by a recognized university of equivalent institution of higher learning and which are judged to be comparable to classes offered at Dalhousie/King's and to be appropriate to a student's academic programme at Dalhousie/King's.

Transfer credits are subject to approval of departments. Transfer credits are not normally granted for classes that are not within the scope of any Dalhousie department. Students may, however, appeal to the appropriate Assistant Dean or to the applicable Academic Studies Committee for transfer credit where they can justify the inclusion of such classes in their proposed programme. Photocopies of calendar descriptions are particularly suitable for this purpose. Such descriptions are not normally included with university transcripts and it is the student's responsibility to provide them.

To obtain a first degree or diploma, at least half of the classes, including at least half in the field of concentration, must normally be taken at Dalhousie/ King's.

## 13.2 No Transfer Credits

No credit will be given for any work used as the basis for admission. No transfer credit will be granted for any class in which a final mark of less than C (or the equivalent in Dalhousie/King's terms) was obtained.

Credits that are more than ten (10) years old may not be used to fulfill degree requirements unless a waiver is granted.

No classes taken at another institution will be counted towards fulfillment of the concentration requirement of the Bachelor's degree or the principal subject requirement of an Honours programme without specific advance approval from the department concerned at Dalhousie/King's.

No credit will be given for any classes taken at another university while a student is inadmissable at Dalhousie/King's.

## 13.3 Procedures

As soon as the student's record has been assessed the Office of the Registrar will write to the student informing him or her which credits have been awarded.

The number of credits which have been approved, and which Dalhousie/King's classes may not be taken, will be included in the letter. If more credits have been approved than can be applied to the student's programme, the student will be asked to choose the credit to be used. When transfer credits awarded on admission appear on a Dalhousie/King's transcript, they appear a credits only; no marks are shown.

If by registration the student has not received written confirmation of transfer credits, the student should check with the Office of the Registrar. Information, although incomplete, may be available and may be helpful in choosing Dalhousie/King's classes.

Before selecting classes the student should consult with the appropriate department(s) to determine how the transfer credits will fit into the student's specific academic programme at Dalhousie/King's.

## 14. Advanced Placement

Students possessing advanced knowledge of a subject will be encouraged to begin their studies in that subject at a level appropriate to their knowledge, as determined by the department concerned. However, such students must substitute for the exempted classes an equal number of other classes, not necessarily in the same subjects (i.e. they must complete at Dalhousie/King's the full number of credits required for the particular credential being sought).

## 15. Part-Time Students

Part-time students are admitted to most of the programmes offered in the College. Admission requirements and regulations generally are the same for all students. Part-time students are encouraged to consult with Henson College, Dalhousie University, or with Registrar, University of King's College, for advice on their academic programmes and other matters.

## 16. Audit of Classes

Students who have been admitted to a Faculty are permitted to audit many of the classes offered. For those who are not full-time students, fees are payable. A class may not be changed from credit to audit or for audit to credit status after the last date for dropping classes without penalty (see the Schedule of Adademic Dates, pages 8-9 above). In order to change from audit to credit prior to the deadline an additional fee is required. It is essential that the procedures given in section 10.2, above, be followed.

## 17. Experimental Classes

Experimental classes, on any subject or combination<sup>d</sup> subjects to which arts or sciences are relevant, and differing in conception from any of the classes regular listed in departmental offerings, may be formed on the initiative of students or faculty members.

If formed on the initiative of students, the students concerned shall seek out faculty members to take part in the classes.

Whether formed on the initiative of students or on the initiative of faculty members, the faculty members who wish to take part must obtain the consent of their imartment.

The class may be of one-year length or half-year

A class shall be held to be formed when at least one faculty member and at least eight students have committed themselves to taking part in it for its full

Classes may be formed any time before the end of the second week of classes in the fall term to run the year or first half year, or any time before the end of the second week of classes in the spring term. If they are formed long enough in advance to be announced in the Calendar, they shall be so announced, in a section describing the Experimental Programme: if they are formed later, they shall be announced (a) in the Dalhousie Gazette, (b) in the Dal News, (c) on a central bulletin board set aside for this purpose.

One faculty member taking part in each experimental class shall be designated the rapporteur of the class with responsibility for (a) advising the Curriculum Committee of the appropriate Faculty or School of the formation and content of the class; (b) obtaining from the appropriate Curriculum Committee a ruling as to what requirement or requirements of distribution, concentration and credit the class may be accepted as satisfying; (c) reporting to the Registrar on the performance of students in the class; (d) reporting to the appropriate Curriculum Committee, after the class has finished its work, on the subjects treated, the techniques of instruction, and the success of the class as an experiment in pedagogy (judged so far as possible on the basis of objective comparison with more familiar types of classes).

Students may have five one-year length experimental classes (or some equivalent combination of these with half-year length classes) counted as satisfying class for class any of the requirements for the degree, subject to the ruling of the relevant Curriculum Committee (above) and (where relevant) to the approval of the departments.

## 18. Coordinated Programmes

Students may in their second and third years follow a two-year integrated programme, or two one-year integrated programmes, of study. If two one-year programmes are chosen, they may be in different departments. All such coordinated programmes have been explicitly approved by the Curriculum Committee of the relevant Faculty or School. A department or group of departments offering coordinated programmes may structure them as it wishes, consistent with sound academic practice and subject to the following guidelines:

- (a) that the equivalent of five class units constitute a normal year,
- (b) that the function of each programme form part of the Calendar description of each programme,
- (c) that each two-year programme permits students at least one class of their own choice in each of the second and third years,
- (d) that two-year programmes normally not be exclusively in a single discipline,
- (e) that the normal prerequisite for entry into a

departmental one-year or two-year programme be the introductory class of the department in question, or an equivalent that the department considers acceptable, and not more than one introductory class in a related subject.

A student considering a Coordinated Programme should consult as early as possible with the departments concerned.

## 19. Off-Campus, Summer School, Correspondence, and Classes Taken at Other Universities 19.1 Off-Campus Classes

A maximum of three credits may be taken by offcampus classes, whether offered by Dalhousie/King's or taken from another university under concurrent registration.

## 19.2 Spring and Summer Session

Dalhousie/King's currently offers a Spring and a Summer session of approximately seven weeks each, in May-June and in July-August. See Regulation 8 above for permitted workload. Those interested in the Spring and Summer sessions may request a Summer School schedule from the Office of Continuing Education, Henson College, Dalhousie University.

## 19.3 Correspondence Classes

At present no correspondence classes are offered by the College of Arts and Science. Students who wish to take correspondence classes from other Faculties or institutions may apply as in 19.4 below. See the limitation referred to in 19.2 above.

# 19.4 Classes Taken at Other Universities On Letter of Permission

A student who wishes to take classes at other institutions while registered at Dalhousie/King's, must obtain approval in advance on a form available in the Office of the Registrar. A letter of permission will be provided if approval for the classes is given. The workload at the other institution must conform to Dalhousie/King's limitations. (For details, see Regulation 24.1.3, below).

The departments of French, German, Russian, and Spanish have special arrangements whereby up to a total of 5 full-credit classes taken at other universities may be considered as part of a student's programme at Dalhousie/King's. (See Regulation 20).

The class fee will be paid by Dalhousie/King's if:

- (a) the student is registered and has paid fees as a full-time student at Dalhousie/King's;
- (b) the classes are approved as part of the student's programme; and
- (c) the class is not part of a spring/summer school programme.

## 31. International Programmes

The College of Arts and Science offers a number of programmes which enable students to pursue part of their studies in a foreign-language environment. These include:

(a) One term of study at the Pushkin Institute, Moscow Pedagogical Institute, or Leningrad State University, U.S.S.R. (for details see the entry of the Russian Studies Programme.)

(b) One term of study at Colegio de España, Salamanca, Spain ( see the entry for the Spanish Department).

(c) Up to one full year of study in a foreignlanguage environment. In recent years students have studied at the Université de Provence (Aix-Marseilles) in France. (Consult the appropriate language department).

(d) Up to one full year of study at a francophone university in Québec (consult the Department of French).

For details regarding classes taken at other universities, see Regulation 19.4, above.

# 21. Preparation for Other Programmes

Work in the College of Arts and Science is prerequisite for various programmes in other Faculties and other institutions. A brief summary of the academic work required for admission to certain programmes is given here. Further information may be found in the separate Faculty calendars, or in the calendars of other institutions.

Graduate Studies: Able and ambitious students are encouraged to consider seriously entering a graduate programme. The normal requirement for admission to a graduate programme is an Honours degree or the equivalent.

Architecture: Two years of work, including at least one class in Mathematics, are required for entry to a programme in Architecture at the Technical University of Nova Scotia. For details, apply to the Faculty of Architecture at TUNS.

Dental Hygiene: Completion of full credit university level classes of one academic year's duration in the following: Biology, Psychology, Sociology, a writing class, and one elective. For details, see the calendar of the School of Dental Hygiene, Dalhousie.

**Dentistry:** See the Dentistry, Law and Medicine Calendar.

Design: Students completing one year in the College of Arts and Science at Dalhousie/King's may be admitted into the second year of the four-year programme leading to the Bachelor of Design degree in Communication Design or Environmental Design at the Nova Scotia College of Art and Design.

Education: The normal requirement for admission to the Bachelor of Education programme at Dalhousie is a

B.A. or B.Sc. degree with Honours.

Engineering: The Diploma in Engineering qualifies a student for entry to the Technical University of Nova Scotia to study Engineering. Students of the University of King's College may not enroll in the Diploma in Engineering programme.

Law: At least two years of work leading to one of the degrees of B.A., B.Sc., B.Comm. For details, please set the Dentistry, Law and Medicine Calendar.

Medicine: A B.A., B.Sc. or B.Comm. degree. For details, please see the Dentistry, Law and Medicine Calendar.

Occupational Therapy or Physiotherapy: One year of work in the College of Arts and Science, or the equivalent elsewhere, is required for admission to the two programmes. For details, see the entries in the calendars of the School of Occupational Therapy and the School of Physiotherapy.

Veterinary Medicine: Normally three years of work a Dalhousie/King's are required for admission to the Atlantic Veterinary College of the University of Prince Edward Island. Dalhousie/King's classes should normally include Computing Science 1400A; Mathematics 1000A/B/C and 1060A/B; one of Chemistry 1100R, 1110R or 1200R; Chemistry 2400R; Biochemistry 2200B; one of Physics 1000R, 1100R or 1300R; English 1000R; Biology 1000R, 2030A/B, 2100A/B and 3323R; and an additional two and a half classes from the humanities and social sciences.

# 22. Duration of Undergraduate Studies

Students are normally required to complete their undergraduate studies within ten years of their first registration, and to comply with the regulations in force at the time of that registration. This is also the normal limit for transfer credits. However, the appeals committee of the appropriate Faculty or School may grant permission to continue studies for a reasonable further period, subject to such conditions as the Committee deems appropriate and with the stipulation that the student must meet the degree requirements in force when the extension is granted.

## 23. Assessment

## 23.1 Method

Examinations may be oral, written (closed- or openbook), under supervision or take-home. To gain credit toward a degree or diploma, students must appear at all examinations, prepare such essays, exercises, reports, etc. as may be prescribed, attend the classes of their prescribed course to the satisfaction of the instructors, and, in classes involving field or laboratory work, complete such work satisfactorily.

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 the class

23. 2 Examinations and Tests

within four weeks after the beginning of each term, the department chairperson or programme coordinator must report to the Dean the method of evaluation to be used by each instructor in each class. Periods of approximately three weeks in the spring and one and one-half weeks in December are set aside for the scheduling of formal written examinations by the Registrar. Instructors wishing to have examinations scheduled by the Registrar for their classes must so inform the Registrar at the beginning of the third week of classes in the fall and spring terms. Instructors may also arrange their own examinations at times and places of their choosing during the formal examination periods, with the understanding that in cases of conflict of examinations for an individual student, the Registrar's examination schedule takes priority. No test or examinations covering the work of a whole term shall be held during the last two weeks of classes in the term. No tests may be held between the end of classes and the beginning of the official examination period. Students may contact the Office of the Dean of the appropriate Faculty for assistance if they are scheduled for more than two examinations on the same day.

## 23.3 Grades

A letter grade system is used to evaluate performance. Grades in the A range represent excellent performance, grades in the B range represent very good performance, and those in the C range represent satisfactory performance. A grade of D represents marginally acceptable performance except in programmes where a minimum grade of C is specified. See calendar entries for specific programmes in which a minimum grade of C is specified. F indicates failure. Grades in the ranges of A, B, C, D and P are passing grades (see regulation 24, below). ILL (assigned for compassionate reasons or illness) is neutral. Appropriate documentation is needed for this grade (see regulation 23.8, below).

## 23.4 Submission of Grades

On completion of a class, the instructor is required to submit grades to the Registrar, such grades to be based on the instructor's evaluation of the academic performance of the students in the class in question. Christmas grades must be submitted to the Registrar in all 1000-level classes in which enrolment on October 1 exceeded 25; Christmas grades are normally submitted in other full-year classes.

## 23.5 Incomplete

Students are expected to complete class work by the prescribed deadlines. Only in special circumstances may an instructor extend such deadlines. Incomplete work in a class must be completed within four weeks of the required date for submission of grades in that class to the Office of the Registrar.

Exceptions to this rule will normally be extended only to classes which require field work during the summer months. At present the list of these classes consists of Biology 4800 A/B/C and 4900R; Music 3470C and 4470C; and Education 8490R. Students taking any of these classes in their final year should

note that they will not be able to graduate at the spring Convocation/Encaenia ceremony.

# 23.6 Corrections of Errors in Recorded Grades

Correction of errors in the recording of a grade may be made at any time. Otherwise changes will only be made as in Regulation 23.7 below. Students are not entitled to appeal for any grade change more than six months after the grades are sent from the Office of the Registrar.

## 23.7 Reassessment of a Grade

On payment of a fee, a student may appeal to the Registrar for reassessment of a grade in a class. The Registrar will direct the request to the head of the academic unit concerned, who will ensure that the reassessment is carried out and reported to the Registrar. Written applications for reassessment must be made to the Registrar within two months of the date the grade is sent from the Office of the Registrar. Students have a right to view their marked examination papers by appointment for a period of two months from the date the grades are sent to students from the Office of the Registrar.

# 23.8 Special Arrangements for Examinations, Tests and Assignments

At the discretion of the instructor, alternate arrangments for examinations, tests or the completion of assignments may be made for students who are ill, or in other exceptional circumstances.

Where illness is involved, a certificate from the student's physician will be required. This certificate should indicate the dates and duration of the illness, when possible should describe the impact it had on the student's ability to fulfil academic requirements, and should include any other information the physician considers relevant and appropriate. To obtain a medical certificate, students who miss examinations, tests or the completion of other assignments should contact the University Health Services or their physician at the time they are ill and should submit a medical certificate to their instructor as soon thereafter as possible. Such certificates will not normally be accepted after a lapse of more than one week from the examination or assignment completion date.

For exceptional circumstances other than illness, appropriate documentation, depending on the situation, will be required.

Requests for alternate arrangments should be made to the instructor in all cases. The deadline for changing a grade of ILL is February 1 for "A" classes and June 1 for "B", "C", or "R" classes. Requests to change grades after these dealines must be submitted in writing to the appeals committee of the appropriate school or faculty.

## 24 Academic Standing 24.1 Grade Point Average (GPA)--New in 1991

The Grade Point Average is the weighted sum of the grade points earned, divided by the number of classes in

which grade points were earned, in accordance with the grade scale in 24.1.1. Classes with fewer than six credit hours earn proportional grade points (e.g., in a half-credit class, a C would yield one point).

24.1.1 Scale		
Grade	The state of the s	Grade Points
A+		4.3
A		4.0
A-		3.7
B+		3.3
В		3.0
B-		2.7
C+		2.3
C		2.0
C-		1.7
D		1.0
F		0.0
INC	(incomplete)	0.0
W	(withdrew after deadline)	0.0
ILL	(compassionate reasons/illness)	Neutral
P T	(pass for credit classes) (transfer credit on	Neutral

## 24.1.2 Grade Points on Admission

admissions)

Transfer credits on admission count as credits without grade points, i.e., they are neutral in the calculation of the GPA.

Neutral

## 24.1.3 Grade Points on Letter of Permission

The grade earned in a class taken at another institution on a letter of permission is recorded and the appropriate Dalhousie/King's grade points are assigned. For institution which do not use letter grades, the Registrar's Office translates the grade into a Dalhousie./King's grade and assigns the corresponding grade points.

# 24.1.4. Repeating Classes for which a Passing Grade has been Awarded

With the permission of the department concerned, a student may repeat any class for which a passing grade has previously been awarded. The original passing grade will nevertheless remain on the transcript and a second entry will be recorded with the new grade and the notation "repeated class". No additional credit will be given for such a repeated class, but both grades will be included in the calculation of the sessional and cumulative GPA.

# **24.2 Merit Points -- Prior Regulation 24.2.1. Scale**

Merit points are awarded for each class as follows:

Grade	Points
A+, A, A-	3
B+, B, B-	2
C+, C, C-	1
D	0

Note that although D is a passing grade, no merit points are awarded. For fractional credit classes, corresponding fractional merit points are awarded (e.g. in a half-credit class, a B would yield one point).

## 25. Probation - New in 1991

25.1 Students with a cumulative GPA of less than 1.7 and greater than or equal to 1.0 who have completed at least four full classes will be placed on academic probation.

25.2 Students on probation are allowed to continue to register on probation provided that their sessional GPA is at least 1.7. Students on probation who do not achieve a sessional GPA of 1.7 will be academically dismissed.

25.3 Students who are returning from a 12-month period of academic dismissal are allowed to register on probation. They are allowed to continue to register on probation provided that their sessional GPA is at least 1.7. Students who do not achieve a sessional GPA of alleast 1.7 will be dismissed academically for the second time.

25.4 Students require a cumulative GPA of 1.7 to graduate. Therefore, no one will be allowed to graduate while on probation.

## 26. Required Withdrawal

## 26.1 Academic Dismissal - New in 1991

26.1.1 Students with a cumulative GPA of less than 1.0 who have completed at least four full classes will be academically dismissed.

**26.1.2** Students on probation who do not achieve a sessional GPA of 1.0 or greater will be academically dismissed.

26.1.3 Students who have been academically dismissed for the first time are allowed to register on probation after a 12-month period without having to reapply.

26.1.4 Students who have been academically dismissed for the second time will not be allowed to reapply for at least three calendar years.

# 26.2 Required Withdrawal - Prior Regulations

26.2.1 Any student who has accumulated more nonpassing grades than the number of merit points earned (see regulation 24.2) is required to withdraw from the Faculty or School. Merit points granted for transfer credits awarded at the time of admission to Dalhousie/ King's will not be used in this accumulation. This regulation applies once students have enrolled for four full credits after admission or readmission.

26.2.2 Students who have been required to withdraw from the College of Arts and Science may apply to the Admissions Committee of the appropriate Faculty or School to be considered for readmission.

26.2.3 A student who has been required to withdraw from the College of Arts and Science for the first time will be ineligible for readmission for a period of one academic year.

26.2.4 A student who has been required to withdraw twice will be ineligible for readmission to the College as either a full-time or a part-time student. Ordinarily appeal is allowed only if illness has seriously interrupted the student's studies and this is established by submission to the Registrar of a medical certificate from the physician attending the student at the time of the illness.

# 27. Required Standing 27.1 Required Standing - New in 1991

# 27.1.1 For a B.A. or B.Sc. with Honours and First Class Honours

Students in the Faculty of Arts and Social Sciences who have obtained a grade of B- or better in five advanced classes, that is, classes other than electives, will be admitted to the fourth year Honours, Concentrated, Combined or Unconcentrated Honours programme.

Students in the Faculty of Science who have obtained a grade of B or better in five advanced classes, that is, classes other than electives, will be admitted to the fourth year Honours, Concentrated, Combined or Unconcentrated Honours programme. In Special Honours programmes, such as Biochemistry and Microbiology, see departmental entry.

To count towards an Honours degree, each advanced class (i.e., each class of the second, third, and fourth years, except electives) must be passed with a grade of at least C. Should a D or a C- be received, it must be made good by repeating the class (preferably in the same subject). Otherwise the student must transfer out of the Honours programme. To continue in an Honours programme and to graduate, students registered in the Faculty of Arts and Social Sciences must achieve a cumulative GPA of 2.7 or better in their advanced classes. Students registered in the Faculty of Science must achieve a cumulative GPA of 3.0 or better in their advanced classes. For first class Honours, students in both Faculties must achieve a cumulative GPA of 3.7 or better in their advanced classes.

The Honours Qualifying Examinmation as prescribed by the department(s) concerned must be passed. This is the additional grade referred to in regulation 11. Unless Pass-Fail grading is employed, the grade must be B- or better and for first class Honours, A- or better. 27.1.2 For a B.A. or B.Sc. with Distinction

A cumulative GPA of at least 3.7 is required for a B.A. or B.Sc. with Distinction. For the purpose of determining whether a student will receive a B.A. or B.Sc. with Distinction, all classes taken while at Dalhousie/King's, including repeated classes, and classes for which non-passing grades were obtained, are included. At least half of the classes must be completed at Dalhousie/King's.

## 27.1.3 For a B.A. or B.Sc. Degree

A minimum cumulative GPA of 1.7 is required for the awarding of a B.A. or B.Sc. degree.

# 27.2 Required Standing - Prior Regulations

# 27.2.1 For a B.A. or B.Sc. with Honours and First Class Honours

Students who have obtained a grade of B- or better in five advanced classes, that is, classes other than electives, will be admitted to the fourth Honours year.

To count towards an Honours degree, each advanced class (i.e., each class of the second, third and fourth years, except electives) must be passed with a grade of at least C. Should D or a C- be received, it must be made good by repeating the class and achieving a C or

better grade or by taking an additional advanced class (preferably in the same subject). Otherwise the student must transfer out of the Honours programme.

In five of the advanced classes in a student's Honours programme, a grade of B or better must be achieved, and in three additional advanced classes, a grade of B- or better is required. For first class Honours, students must achieve either:

(a) grades of A or better in four advanced classes and of A- or better in four additional advanced classes, or

(b) grades of A or better in six advanced classes and of B or better in all advanced classes.

The Honours Qualifying Examination as prescribed by the department(s) concerned must be passed. This is the additional grade referred to in regulation 11 above. Unless Pass-Fail grading is employed, the grade must be B- or better and, for first class Honours, A- or better.

## 27.2.2 For a B.A. or B.Sc. Degree

A minimum of twelve merit points on the fifteen credits offered is required for the awarding of a B.A. or B.Sc. (Major). A minimum of sixteen merit points on the twenty credits offered is required for the awarding of a B.A. or B.Sc. (Advanced Major).

## 27.2.3 For a B.A. or B.Sc. with Distinction

At least 40 merit points are required for a B.A. or B.Sc. (Major) with Distinction. This number is prorated upward if more than fifteen credits appear on the student's record. Thus, at least 53.5 merit points are required for a B.A. or B.Sc. (Advanced Major) with Distinction, Again, the number is prorated upward if more than twenty credits appear on the student's record. For the purpose of determining a B.A. or B.Sc. with distinction, all Dalhousie/King's classes, including repeated classes, and classes for which non-passing grades were obtained, are included. At least 10 Dalhousie/King's classes must be included for the B.A. or B.Sc. (Major) with Distinction; at least 15 Dalhousie/ King's classes must be included for the B.A. or B.Sc. (Advanced Major) with Distinction. The Committee on Studies of the appropriate Faculty will monitor the records of graduating students having transfer credits and will bring to the College appropriate recommendations for a degree with distinction in any case where the regulations regarding transfer credits appear to create injustice.

## 28. Graduation

In order to graduate, students must submit a Request to Graduate to the Office of the Registrar by the deadlines indicated below:

Graduation Month	Application
	Deadline
February	December 1
May	February 15
October	August 15

In cases where requests can be accommodated after the deadline, a \$50 fee will be charged.

# 29. Change from B.A. to B.Sc. Programme and Vice Versa

All students who have completed all the requirements for a B.Sc. degree have automatically completed all the requirements for a B.A. degree, provided they have included a language class. Similarly, most students who have completed all requirements for a B.A. degree in a science subject will have automatically completed all requirements for a B.Sc. degree, provided they have completed the mathematics requirement. However, students who are registered for a B.Sc. degree and wish to be awarded a B.A. degree or vice versa must do so by changing their registration at the Office of the Registrar.

## 30. President's List of Distinction

Students who have completed first, second, third or fouth year (where year is defined as the number of classes or credit hours deemed by the Faculty or School to be the normal yearly workload in the student's degree programme) and have achieved a first-class average in the last five classes or equivalent credit hours will be placed on the President's List of Distinction. The notation "President's List" will appear on the students' transcript.

## 31. Appeals

Any students who believe they will suffer undue hardship from the application of any of the regulations of the College may appeal for relief to the academic appeals committee of the appropriate Faculty or School. Students wishing to appeal a decision based on College regulations may obtain copies of the document "How to appeal a College of Arts and Science Regulation." Such appeals must be addressed in writing to the Chair of the appropriate appeals committee, c/o Office of the Registrar, and must clearly state the arguments and expectations of the petitioners. An appeal from a student registered prior to 1991, arising from a required withdrawal from the College of Arts and Science for academic reasons should be addressed to the Admissions Committee of the appropriate Faculty or School.

Students who wish to appeal on matters other than those dealt with by College or Faculty regulations can obtain copies of the document "A Procedure for Special Academic Appeals in the College of Arts and Science."

Both documents can be obtained from the Office of the Registrar, Dalhousie University, or any departmental office.

## 32. Changes in Regulations

In general, any change which affects a currently registered student adversely will not apply to that student. Any student suffering undue hardship from application of any of the regulations may appeal for relief to the appropriate academic appeals committee as in Section 31 above.

# School of Journalism

## Introduction

Today's journalists need to be well educated. They need to be well informed and they need to know how to think. We expect students of the School of Journalism to gain a sound basic education in the arts and social sciences through the 11 elective credits they take in the Bachelor of Journalism (Honours) degree or in the undergraduate degree they take before enrolling in the Bachelor of Journalism degree. We encourage students to take courses in the natural sciences, and we welcome applications for the B.J. programme from students with science degrees. We will also consider applications from students with degrees in commerce, applied science, and other disciplines.

In its Journalism course offerings, the School aims to enable students to attain and demonstrate the following qualifications before graduating from the University of King's College, in either the B.J. (Hons.) or the B.J.

- They should know the history of Canada to the present, and have a general knowledge of the history of other countries.
- They should be familar with the news of the day and of the recent past. They should be interested enough in the news to follow it daily.
- They should write correct English.
- They should have a sense of story, and be able to tell a story. Students who specialize in broadcast journalism should be able to perform effectively.
- They should have the foundations of good news judgment.
- They should know how to interview.
- They should be able to take accurate notes in an interview or at a meeting, and be able to quote an interview subject accurately.
- They should be skilled at finding information.
- They should know the basics of newswriting for print and broadcast, and be competent newswriters in print or broadcast.
- They should be able to type, and they should know the basics of at least one word-processing programme.
- They should have a basic knowledge of production in print or broadcast.
- · They should know the elements of media law.
- They should have developed some basic principles of journalism ethics.
- They should know in outline the history of journalism and the way in which the news media are organized in Canada. They should be familiar with some of the major news media issues of the day.
- They should have been introduced to examples of the best journalism in all news media.

We encourage students to acquire the ability to function as journalists in both official languages. Without the ability to comprehend spoken and written French, they will not be able to work in Ottawa or in Quebec, and they will have less chance of being hired by a news organization that may want to be able to assign them to

Ottawa or Quebec. Many opportunities to develop French language skills are available in Halifax, ranging from university credit courses and intensive immersion programs to weekly conversational classes. The School of Journalism does not offer French instruction.

## A. Admissions

# 1. Admission to the four year B.J. (Hons.) programme

For applicants from high school, and for undergraduates wishing to transfer into Journalism. (See section 2 below for application procedure for admission to the one-year B.J. degree programme, for applicants who hold a Bachelor's degree.)

## 1.1 General

The normal minimum requirement which applicants must possess to be considered for admission to the B.J. (Hons.) programme is that for admission to degree programmes of the Dalhousie/King's College of Arts and Science (see "College of Arts and Science" above, Regulation 5).

As the number of places in the B.J.(Hons.) programme is limited, it is expected that only a proportion of qualified applicants will be admitted; selection will be made on a competitive basis. Mature students are welcome to apply.

## 1.2 Application Procedure

Candidates for admission to the School of Journalism must apply using the Dalhousie/King's common application form (available from the Registrar's Office, or from most high schools). Completed application forms should be received by the Registrar as soon as possible after January 1, and not later than March 1. Late applicants will be considered only if space is available. Candidates must indicate on their application form that they are applying for admission to the B.J. (Hons.) degree. Along with the completed application form and the application fee, the following supporting evidence must also be provided by the candidate:

- (a) an official record of high school work, sent directly from the high school;
  - (b) recommendations from high school officials;
- (c) an official transcript of the record of any work done at previous post-secondary institutions;
- (d) other supporting material indicating interest in journalism.

These documents must be received by March 1. Applicants who meet the minimun requirements for admission to the B.J.(Honours) programme will be required to submit a piece of prose writing by March 31. They will be advised of the subject, length and other details of this piece of writing. The written work is intended to tell us something about the applicants, and also to let us see how well they express themselves on paper. This constitutes a regular part of the application and influences the decision on admission.

The Journalism Admissions Committee normally meets during April and the first part of May.

# 2. Admission to the one-year B.J. programme

For applicants who hold a Bachelor's degree.

## 2.1 General

The intention of the B.J. programme is to foster the professional development of students so that they may fill editorial positions in news organizations with not only a high degree of technical competence but also responsibility, dedication and a sense of purpose.

Although other academic qualifications may be considered, normally only those students may be admitted to this programme who have successfully completed a Bachelor's degree at a recognized university with a minimum average of B.

## 2.2 Application Procedure

Candidates applying for admission to the one-year B.J. programme must apply using the Dalhousie/King's common application form (available from the Registrar). Completed application forms should be received by the Registrar, University of King's College, no later than March 1. Candidates must indicate on the application form that they are applying for the B.J. degree. Late applications will be considered only if space is available.

Applications should be accompanied by the application fee, an official transcript of credits in undergraduate and any graduate work, and any supporting references or other material that will demonstrate the candidate's commitment to journalism. The School takes into account the student's academic records, contributions to school, university and other publications, extracurricular activities, and other evidence of keen interest in journalism. Previous professional journalism experience, though frequently a good test of motivation, is not essential.

Candidates who meet the minimum requirements for admission to the B.J. programme will be sent information asking them to submit a piece of prose writing.

The Journalism Admissions Committee normally will complete its deliberations and inform candidates of its decisions by the end of May. Students offered a place in the programme will be asked to confirm acceptance of the offer and tender a deposit. A waiting list of qualified students will be maintained.

## 2.3 Academic Year—B.J. Programme

Prospective students should note that the B.J. programme begins before the regular session of the College of Arts and Science. For the academic year 1991/92, registration is on August 19 and classes begin on August 20.

The School has no regular Summer Session, offers no correspondence classes, and accepts no part-time students in the one-year B.J. programme.

## B. General Academic Regulations—School of Journalism

Students registered at the University of King's College as candidates for the B.J. (Hons.) and B.J. degrees are subject to the General Regulations, School of Journalism, and not to the General Regulations of the College of Arts and Science. Students taking classes in the College of Arts and Science must, however, conform to the General Regulations of the College of Arts and Science with regard to those classes.

Changes of Regulations usually become effective upon publication in the Calendar. Journalism students are subject to changes in regulations and classes made after their first registration unless specifically excused by the School of Journalism. All enquiries about the Regulations hereunder should be made to the Registrar Any students suffering undue hardship as a result of the application of any of the regulations may appeal for relief through the Registrar to the Journalism Studies Committee, University of King's College.

## 1. General Regulations

## 1.1 Admission to Classes

No student shall be admitted to a class until he or she has satisfied the regulations regarding entrance and complied with the General University Regulations. Students who wish to add classes after two weeks from the commencement of the term in which the class begins must have the approval of the Director of the School of Journalism as well as the approval of the class instructor.

## 1.2 Duration of Studies

Students in the Bachelor of Journalism (Honours) programme normally will complete their studies within four years of first registration. All requirements for the degree must be completed within ten years of first registration. Students in the Bachelor of Journalism programme normally complete their studies within one calendar year of first registration.

## 1.3 Advanced Placement

Students possessing advanced knowledge of a subject will be encouraged to begin their studies in that subject at a level appropriate to their knowledge, as determined by the School of Journalism. However, such students must substitute for the exempted classes an equal number of other classes, not necessarily in the same subjects (i.e., they must complete at the University the full number of credits required for a B.J. (Hons.) or B.J. degree).

# 1.4 Concurrent Registration at University of King's College and Another Educational Institution other than Dalhousie

Ordinarily no student may register at the University of King's College in the School of Journalism if concurrently taking work in another educational institution.

Regulation 7 below outlines procedures to be followed to secure waiver of this general regulation. Regular exceptions are made with respect to registration at affiliated institutions other than Dalhousie.

# 1.5 Requirements for Continuing in the B.J. (Hons.) degree programme and the B.J. degree programme

In order to proceed from first year to second year of the B.J. (Hons.) programme, students must achieve a grade of B- or better in the Foundation Year Programme and B- or better in the Introduction to Journalism course. In order to be assured of maintaining their places in the B.J. (Hons.) programme, students must achieve at least a B- average in Journalism classes and a minimum average overall of B-.

In order to be assured of maintaining their places for the second term, students in the one-year B.J. programme must achieve a B- average in the first term.

## 1.6 Forced Withdrawal Consequent on Unsatisfactory Performance

When the work of a student becomes unsatisfactory his or her case will be discussed by the Journalism Studies Committee which may require him or her to withdraw from the class or classes concerned, and to be excluded from the relevant examinations, or may advise him or her to withdraw temporarily from the University, or to reduce his or her class load.

# 1.7 Transfer from Other Degree Programmes to B.J.(Hons.)

The School of Journalism welcomes applications for transfers into the B.J. (Hons.) programme. Provided that a student has successfully completed the Foundation Year Programme (or programme at another university judged by the Journalism Admissions Committee to be equivalent to the Foundation Year Programme), and with a sufficiently high standing, he or she may apply to transfer into the B.J. (Hons.) programme. All such transfers are to be made only as space is available, as determined by the limited enrolment policy of the University.

Students transferring into the second year (or in exceptional cases, into the third year) of the programme will generally have had some journalism education or experience equivalent to journalism instruction and experience provided in the first year (or, in exceptional cases, in the first and second years) of the programme.

Applications for such transfers into the B.J.(Hons.) programme are made to the Registrar, and applicants must write a letter of application and meet other admission requirements as specified by the School of Journalism.

## 2. Credit and Assessment

A credit towards a degree is earned in a full-credit class, a class in which typically there is a minimum of two to three lecture hours weekly during the regular (September to April) academic year. Credits may be obtained for university-level studies:

(a) normally during the regular academic year in classes offered by the School of Journalism at King's or in the College of Arts and Science at Dalhousie/King's; or, exceptionally

(b) during a summer session or by correspondence; or

(c) by transfer from other universities attended prior to entrance to the University of King's College;

(d) in Faculties of Dalhousie other than the Faculty of Arts and Social Sciences or the Faculty of Science:

(e) at institutions other than King's or Dalhousie while registered at King's.

## 2.1 Gaining Credit

To gain credit towards the B.J. (Hons.) or B.J. degree, a student must meet the requirements relevant to that degree and must appear at all examinations, prepare such essays, exercises, assignments, reports, etc. as may be prescribed.

# 2.2 Credit Contingent on Settling Debts to the University

To gain credit a student must settle all obligations to the University with respect to tuition and residence fees, bookstore debts, library fines, etc. (not later than April 30 for graduation at May Encaenia).

## 2.3 Method of Assessment

In determining pass lists, the standings attained in prescribed class exercises, in field work, workshops, and in various examinations may be taken into consideration by an instructor. Each instructor must ensure that students are informed of the method of evaluation to be used in a class within two weeks of the first meeting of the class. Within two weeks after the beginning of each term, instructors teaching in the School of Journalism must report to the Director on the method of evaluation used in each class.

## 2.4 Grades

A letter-grade system is used to evaluate performance. Grades in the ranges of A, B, C and D are passing grades. Findicates failure. Other non-passing grades are W (withdrawal after deadline), INC (incomplete) and ILL (assigned for compassionate reasons or illness). Appropriate documentation is required for a student to be awarded a grade of ILL.

Beginning in the academic year 1991/92, the Grade Point Average (GPA) scale will be used. The GPA is the weighted sum of the grade points earned, divided by the number of classes in which grade points were earned, in accordance with the following grade scale:

Grade	Grade Points
A+	4.3
A	4.0
A-	3.7
B+	3.3
В	3.0
B-	2.7
C+	2.3
C	2.0

Classes worth less than one full credit earn proportional grade points (e.g., in a half-credit class, a C would yield 1 point.)

## 2.5 Submission of Grades

On completion of a class, instructors teaching classes in the School of Journalism are required to submit grades to the Director, such grades to be based on the instructor's evaluation of the academic performance of the students in the class in question. Christmas grades are normally submitted in all full-year classes.

## 2.6 Incomplete

Each student is expected to complete class work by the prescribed deadlines. Only in special circumstances may an instructor extend such deadlines. Incomplete work in a class must be completed within four weeks of the required date for submission of grades in that class to the Director.

## 2.7 Change of Grade

Corrections of errors in the recording of a grade may be made at any time. The final date for grade changes for other reasons is September 1 following the academic year in question, such changes to be made only after the procedures for reassessment of a grade have been complied with.

No student is entitled to appeal for a grade change more than six months after the required date for submission of grades in that class to the Director.

## 2.8 Examinations and Test

A period of roughly two weeks in the spring and one week in December will be set aside for the scheduling by the Registrar of formal written examinations. Instructors wishing to have an examination scheduled by the Registrar for a class must so inform the Registrar by October 15 for the Christmas period and February 15 for the Spring period. The School of Journalism will advise the Registrar, on request, of examinations to be scheduled by the Registrar. Instructors may also arrange their own examinations at a time and place of their choosing (including the formal examination periods), but with the understanding that in cases of conflict of examinations for an individual student, the Registrar's examination schedule takes priority. For B.J.(Hons.) students taking classes in the College of Arts and Science, no tests or examinations covering the work of an entire term or year in a Journalism class shall be held during the last two weeks of classes in the term and no tests or examinations in a Journalism class shall be held during the period between the end of classes and the beginning of the official examination period.

## 2.9 Reassessment of a Grade

On payment of a fee, a student may appeal to the Registrar at the University of King's College for reassessment of a grade in a class. The Registrar will direct the request to the Director of the School of Journalism who will ensure that the reassessment is carried out and reported to the Registrar. Written applications for reassessment must be made to the Registrar within two months of the date the grade is sent from the Office of the Registrar.

## 2.10 Special Examinations

Special Examinations may be granted to students in case of genuine illness, supported by a medical certificate, or in other unusual or exceptional circumstances. Medical certificates must be submitted at the time of the illness and will normally be accepted after a lapse of one week from the date of the examination. Students wishing to appear as a candidate at a special examination shall be required to give notice of their intention to the Registrar's Office at the University of King's College on or before July 10.

## 2.11 Repetition of Classes not Passed

Students can gain credit only by repeating a class which they have not passed.

# 3. Regular Academic Year 3.1 Workload

Five credits shall be regarded as constituting a normal year's work for a student. (See Curricula for B.J.(Hons.) and B.J. degree programmes, below.)
Applications from students who have strong reason for wishing to take an overload will be considered by the Director. Such permission will not normally be granted to any student in his or her first year of study, or to any student who, in the preceding academic year, has failed any class or had two or more class grades below B-. In no case will the workload exceed six classes per term.

## 3.2 Failed Year

Students who have not passed at least half of the classes for which they are enrolled, and all of their required writing and reporting workshops, after the final date of withdrawal without penalty, will be considered to have failed the year. The results reported in the pass lists of the academic year determine whether students have passed or failed the year.

## 3.3 Penalty for Failed Year

A student who has failed his or her year for the first occasion is required to apply to the University for consideration for readmission.

A student who fails a year on two occasions will be ineligible to return to the University as either a full-time or a part-time student. Ordinarily an appeal will be allowed only if illness has seriously interrupted the student's studies and this is established by submission of a medical certificate to the Registrar by the physician attending the student at the time of the illness.

## 3.4 Repeating Classes for which a Passing Grade has been Awarded

With the permission of the Journalism Studies Committee a student may repeat any class for which a passing grade has previously been awarded, provided the class is offered again. The original passing grade will nevertheless remain on the transcript, and a second entry will be recorded with the new grade and the notation "repeated class." No additional credit will be given for such a repeated class, but the higher grade, or point count appropriate to it, will be used for degree nurposes.

## 4. Summer School and Correspondence Classes (B.J.(Hons.) Students Only)

## 4.1 Limits on Credits

Up to two credits from Summer School and correspondence classes at King's/Dalhousie (or, in exceptional circumstances, from other universities, in accordance with procedures detailed in section 4.3, below) may be accepted towards the requirements for a degree. Such classes must have been passed at an adequate level and can be accepted only if they are closely equivalent to classes normally given in the joint King's/Dalhousie College of Arts and Science or the School of Journalism.

## 4.2 Maximum Workload

Normally no student may take classes totalling more than one full credit in any one Spring or Summer session. Not more than two full credits can be obtained at Summer School in any one academic year.

The Director will normally grant exceptions only for credits obtained at a university which operates a trimester system or its equivalent.

In all cases, permission must be obtained in advance, following the procedure detailed in Regulation 4.3 below.

# 4.3 Credit for Summer School Classes at Other Institutions

Students wishing to take, at a university other than King's, a Summer School class to be counted towards a B.J. (Hons.) degree must:

(a) obtain from the university they propose to attend a full description of the Summer School classes (or alternative classes) they wish to take (usually the Summer School calendar will suffice);

(b) make application to the Registrar of the University of King's College using the Letter of Petermission form available from the King's Registrar. Students will be asked to submit the class description of the class they wish to take (alternatives should be indicated where possible).

When a decision has been reached, the student will be notified directly by the Registrar. It is the student's responsibility to make all necessary arrangements with the receiving university.

# 5. Transfer Credit (B.J.(Hons.) Students Only)

Upon receipt of an official transcript of final marks from the previous university, students who have been admitted to the School of Journalism will be advised of the number of credits which may be transferred from the other university. Provisional assessment may be made on the basis of interim transcripts. See Regulation 9 below.

## 6. Credits from Other Faculties

A student taking classes in the joint College of Arts and Science as part of the B.J. (Hons.) programme must conform to the regulations of that College with respect to those classes, and likewise for classes taken with permission of the Director in Faculties and Schools other than Arts, Social Sciences and Science at Dalhousie.

# 7. Credits from Other Universities under Concurrent Registration

A student, while registered at King's, wishing to take classes at another institution, must make an application to the Registrar at the University of King's College and provide a description of the classes offered at the other institution. A letter of permission will be provided if approval for the classes is given by the Director (see Regulation 6 above). The class fee will be paid by the University of King's College, if

(a) the student is registered as a full-time student in the B.J. (Hons.) or B.J. programme; and (b) the classes are approved.

The class fee will be paid by the student if registered as a part-time student at King's/Dalhousie.

# 8. Withdrawal and Change of Registration

## 8.1 Withdrawal

A registered student who wishes to withdraw from the School of Journalism must write to the Director of the School as well as to the Registrar at King's explaining his or her circumstances. A student should not discontinue attendance at any class until his or her application has been approved. A student proposing withdrawal will normally be invited to discuss his or her situation with the Director of the School of Journalism, the Registrar at the University of King's College and, where appropriate, with the Director of the Foundation Year Programme.

Students who have registered are responsible for fees. Those who withdraw from the University may be entitled to refunds of fees; consult the Office of the Bursar for details. Withdrawal is not effective until notification is received by the Office of the Registrar and the Director of the School of Journalism. Nonattendance, by itself, does not constitute official withdrawal.

## 8.2 Class Changes

Class changes will normally be completed during the first two weeks of classes in each term. No change is effective until a Class Change form, available at the Office of the King's Registrar, is received by that Office.

See the Schedule of Academic Dates for deadlines for adding and dropping classes.

# 9. Transfer from other Universities to the School of Journalism (B.J.(Hons.) only)

## 9.1 Applications

The deadline for receipt of applications from all applicants is March 1. Applications received after March 1 may be considered, but prompt processing cannot be assured. The following documents must be submitted by all transfer applicants:

(a) a completed application form (available from the Registrar's Office);

(b) an official record of high school marks;

(b) official academic transcripts (or certified copies) from all Colleges and Universities attended;

(c) certification of proficiency in English if the native language of the applicant is not English.

Certificates in languages other than English or French must be accompanied by certified translations into English or French. On receipt of these documents, students will be notified by the Registrar and are then required to submit a sample of their written work, as described above, under "School of Journalism—Admissions."

## 9.2 Transfer of Credits

Students who have attended a recognized junior college for at least one year, and can present satisfactory certificates, may be granted Senior Matriculation standing provided the work has been done in approved academic courses. For work completed beyond the Senior Matriculation level, credit may be granted on admission of a maximum of five equivalent classes. Students who are admitted under these conditions can complete the requirements to the B.J. (Hons.) degree in three years.

Students who have attended another recognized university may, on presentation of satisfactory documentary evidence, be granted credits for appropriate classes, within the limits of the Regulations set out in 9.3, below.

# 9.3 General Regulations Concerning Transfer

(a) no transfer credit will be given for any work used as the basis for admission

(b) A student from another college or university who is not eligible for readmission to that college or university will not be admitted to the University of King's College.

(c) No transfer credit will be granted for any class in which a final mark of less than C+ (or the

equivalent) was obtained or for any class in which a final mark was granted conditionally.

(d) Students in the B.J. (Hons.) programme must attend King's as full-time students in their last two years, unless special permission to the contrary is obtained from the Journalism Studies Committee.

(e) No classes taken at another institution will be counted towards fulfilling the concentration requirements in the Arts, Social Sciences and Science or in the Journalism parts of the B.J. (Hong degree programme without specific approval from the Journalism Studies Committee.

(f) Transfer credits may be granted only for classes equivalent to classes offered at Dalhousie/King's, and only in subjects recognized as having standing in the joint College of Arts and Science, or approved classes in Journalism Studies, equivalently classes offered at King's.

(g) No credit will be given for any classes taken another university while a student is inadmissible at Dalhousie/King's.

(h) The programme of studies of all transfer students will be subject to approval by the Director.

# C. Programmes and Curricula - School of Journalism

The University of King's College offers the only degrees in Journalism in the Atlantic Provinces. The University offers two degrees, the four-year Bachelor of Journalism with Honours and the one-year Bachelor of Journalism.

N.B. The following descriptions of the curricula of the School of Journalism represent proposed changes to both Journalism degree programmes, which are to be implemented for the 1991/92 academic year. Studens should consult the School of Journalism before registering for classes.

# 1. The four-year Bachelor of Journalism with Honours—B.J. (Hons)

The aim of the B.J.(Hons.) programme is to provide a grounding in the methods and problems of contemporary journalism in the context of a liberal education. In addition to training in journalistic skills and methods, the student will acquire both a knowledge of the history of Western civilization and a specific competence in some of the traditional disciplines of Arts, Social Sciences and Science.

In the first year the B.J.(Hons.) student will normally take the Foundation Year Programme (see section headed "Foundation Year Programme" in this Calendar) and the Introduction to Journalism course in the School of Journalism. Each B.J. (Hons.) student will be asked to submit to the Director by the end of the first year a proposal for a programme made up of the credits taken in the first year, the four credits that must be taken in the second year, the two credits that must be taken in the third year, and the one credit that must be taken in the fourth year in the College of Arts and Science. The Director will advise each student on his of

her proposed programme, and will approve with changes where necessary, each student's plan. Any subsequent changes in a student's programme will require the approval of the Director.

In each of the first and the second years, students normally will take one credit in Journalism; normally they will take three credits in Journalism in the third year and four credits in Journalism in the fourth year. In order to qualify for graduation, all students normally will be required to complete a total of nine credits in Journalism. Note that, during the next few years, as the revised programme is phased in, students who have taken only four Journalism credits by the end of the third year may be required to take five Journalism credits in the fourth year in order to make up the total of nine.

# 2. The one-year Bachelor of Journalism (B.J.)

This is offered to students who have completed a first

Because of the intensive nature of this one-year programme, it does not conform to the lecture schedule of the College of Arts and Science. Students in the B.J. programme will begin work during the last part of August (see the Schedule of Academic Dates and Regulation A 2.3 above).

## **B.J.** (Hons.) Curriculum

Students in the Bachelor of Journalism (Honours) Programme are required to complete a total of twenty credits, or the equivalent. The normal course load for one year is five credits, or the equivalent classes.

All B.J. (Hons.) classes offered by the School of Journalism have one of the letters "A," "B" or "R" following the class number. "R" classes are those given throughout the Regular session (September to April) and are worth one full credit. "A" classes are those given in the Fall term, and "B" classes are those given in the Winter term. Classes marked "A/B" may be offered in both the Fall and the Winter term.

**School Meeting** 

All students in the B.J. (Hons.) programme are expected to attend the Journalism School meeting, held each Thursd. from 1:30 to 3:30 p.m.

Typing and Computerized Word Processing Requirement

All assignments in the School of Journalism are typewritten or written on a computer; students, therefore, must know how to type with reasonable speed and accuracy by the time they begin their first journalism class.

**Tape Recorders** 

All students will be expected to supply their own tape recorders, for taping interviews.

In-course Requirements

Attention is drawn to the following requirements detailed below: English Language (first year), Knowledge of the News (first year and second year), History of Journalism (third year), Legal Issues Requirement (third year), Internship (fourth year). Note also the required second, third and fourth year Arts and Science credits detailed below

## Year 1

## Required of all Students

K0100R Foundation Year Programme (four credits)

J1001R Introduction to Journalism: Basic Newswriting and Reporting (one credit)

**English Language** 

Upon entering the School of Journalism, all students are expected to be able to write correct English. At the beginning of the first term, all students will take a test to confirm that they can write correctly. Those who cannot will be advised to seek extra coaching. Students will be expected to pay any costs of this extra coaching. The English Language test will be offered again towards the end of the first term.

Students must attain a passing grade in the English Language test in order to proceed to the second term in the B.J. (Hons.) programme.

**Knowledge of the News** 

Students will be expected to subscribe to a daily newspaper and to follow the news on television and radio. Students will take part in a weekly news quiz or discussion, and news tests will be set at the end of each term.

Students must attain a passing average grade for the news quizzes and tests in order to proceed to the second year in Lournalism

## Year 2

## Required of all Students

2301R

Reporting Techniques

## Arts/Social Science/Science Credits

Four full credits, or the equivalent in half-credit classes, in the College of Arts and Science. Normally at least one of these credits must be taken in Canadian history and/or Canadian political institutions. Students who can demonstrate that they have an adequate knowledge of Canadian history and/or Canadian political institutions may be excused from this requirement, provided they propose a coherent alternative academic programme.

Also recommended: a course in English language or literature.

# Knowledge of the News

Students will again be expected to subscribe to a daily newspaper, and to follow the news on radio and television. Sundents will take part in a weekly news quiz and/or discussion, and news tests will be set at the end of each term. Students must attain a passing average grade for the news quizzes and tests in order to proceed to the third year in Journalism.

## year 3

## Required of all students

13301R	Newspaper Writing and Reporting
13601R	Introduction to Broadcast Journalism
J3001A	Journalism Research
1320111	

## Plus two of the following:

13501B	THOMBUCSK	
13610B	Broadcast Performance	
13520B	Photojournalism	

Topics in Broadcast Journalism 13620B

## Arts/Social Science/Science Credits

Two full credits, or the equivalent in half-credit classes, in the College of Arts and Science.

## History of Journalism Requirement

Students will be required to read texts in the history of journalism, journalism issues, and the structure of the Canadian news media. An essay question or test will be set towards the middle of the first term. Students who do not pass will be permitted to write another essay or take a second test at the end of the first term.

Students must attain a passing grade in the History of Journalism in order to proceed to the second term of the third year in the Journalism programme.

## Legal Issues Requirement

A series of workshops will be held to give students an introduction to media law and other legal issues of particular concern to journalists. A test will be held at the end of the series, and repeated later in the term for students who do not pass the first time.

Students must pass the Legal Issues test in order to proceed to the fourth year of the Journalism programme.

## Summer Employment

B.J. (Hons) students are strongly encouraged to try to arrange a summer job or internship in journalism at the end of their third year.

## Year 4

## **Print or Broadcast Concentration**

At the beginning of the fourth year, students will elect to concentrate either in print journalism or in broadcast journalism. The Print Workshop and the Broadcast Workshop will be offered only if sufficient numbers of student select both. The University reserves the right to offer an alternative programme to fourth year B.J.(hons.) students.

## Internship

All students will undertake a four-week internship, mid-November to mid-December, at an approved news media outlet. The university cannot pay students' moving or living costs for these internships, and cannot compensate residence students for lost benefits.

## First Term

## Required of all students

J4110A	Background to the News,	Part
	Background to the News,	Pa

Plus one of:

410A/B	Magazine and Feature	Writing

J4710A/B Radio Current Affairs

## PRINT CONCENTRATION

J4500A Print Workshop (1 1/2 credits)

Part 1:

Students will report to class the day after Labour Day to begin an intensive pre-production workshop.

Part 2:

Production of eight weekly issues of North End News and two magazines. Will include seminars in ethics and workshops in editorial and opinion writing.

## **BROADCAST CONCENTRATION**

Broadcast News Workshop (1 1/2 credits) J4600A

> Production of daily CKDU radio newscasts and production of Halifax This Week cablevision show, Will include seminars in ethics.

Note: The Print Workshop and the Broadcast Workshop will be offered only if sufficient numbers of students select both. If not, students will take the following:

J4110A Background to the News, Part I

plus 2 credits from among the following classes. All students are required to take either J4410A/B, Magazine and Feature Writing or J4710A/B, Radio Current Affairs.

Newspaper Production J4899A **Television Production** J4710A/B Radio Current Affairs

J4410A/B Magazine and Feature Writing

J4310A **Opinion Writing** J4120A Journalism Ethics

## **Second Term**

## Required of all Students

J4111B Background to the News, Part 2

plus one and one-half credits from among the following classes, as offered:

J4410A/B Magazine and Feature Writing (if space permits) J4710A/B Radio Current Affairs (if space permits) J4320B Specialist Reporting

J4350B Arts Journalism J4330B Business Journalism J4351B Investigative Reporting J4352B Political Reporting

J4353B Municipal Affairs Reporting

J4354B Science and Environmental Reporting

J4356B Court Reporting J4355B Sports Reporting J4530B Copy Editing

J4299B Independent Research Project

## **PRINT CONCENTRATION**

J4399B Advanced Writing and Reporting (required course)

## **BROADCAST CONCENTRATION**

J4898B Television Documentaries (required course)

# **B.J.** Curriculum

# Required of all Students

English Language

At the beginning of the first term, all B.J. students will take a test to confirm that they can write correctly. The test will be offered again towards the end of the first term.

Students must attain a passing grade in the English Language test in order to proceed to the second term in the B.J. programme.

Knowledge of the News

Students will be expected to subscribe to a daily newspaper, and to follow the news on radio and television. A news test will be set during the first term (and again during the second term for students who do not pass the first term test). Students must attain a passing grade in the news test in order to graduate in Journalism.

History of Journalism

Students will be required to read texts on the history of journalism, journalism issues, and the structure of the Canadian news media. An essay question or test will be set, towards the end of the first term (and again during the second term for students who do not pass the first term test).

Students must attain a passing grade in the journalism history test in order to graduate in Journalism.

Canadian History

Students are expected to have a general knowledge of Canadian history before entering the School of Journalism. For those who don't, a reading list will be made available. Students will not be tested on this, but are advised that a general knowledge of the history of the country in which one is working as a journalist is essential. Reading lists may also be made available in other subjects.

Typing and Computerized Word Processing Requirement

All assignments in the School of Journalism are typewritten; students must know how to type with reasonable speed and accuracy.

**Tape Recorders** 

All students will be expected to supply their own tape recorders, for taping interviews.

School Meeting

Students in the B.J. programme are expected to attend the Journalism School meeting, held each Thursda from 1:30 to 3:30 pm.

Internship

All students will undertake a four-week internship, mid-November to mid-December, at an approved news media outlet. The university cannot pay students' moving or living costs for these internships, and cannot compensate residence students for lost benefits.

## First Term

Introductory Skills Training

Instruction in the B.J. programme begins three weeks before the beginning of the regular term with an intensive introductory skills training session. The session will include:

· Introduction to the computer and word processing.

· Introduction to the tape recorder.

· Introduction to photojournalism.

Introduction to newswriting and reporting for print and for broadcast.

The session will also include seminars on journalism topics, with videotapes and guests, and an introduction to King's College.

## Required of all students:

J5301A Newspaper Writing & Reporting J5601A

Introduction to Broadcast Journalism J5201A Journalism Research (includes interviewing and note-taking skills)

## plus two of the following classes:

J5510A Newsdesk

J5610A **Broadcast Performance** 

J5520A Photojoumalism

J5620A Topics in Broadcast Journalism

With permission, students may take one of the following courses, normally taken in the second semester, for extra credit in the first semester (in which case fewer credits will be taken in the second semester to make up the year's total of 5 full credits):

J5410A/B Magazine and Feature Writing

J5710A/B Radio Current Affairs

## Second Term

## Required of all students:

## Legal Issues Workshop

A series of workshops will be held to give students an introduction to media law and other legal issues of particular concern to journalists.

Students must pass the Legal Issues test in order to graduate in Journalism.

One of the following:

J5410A/B Magazine and Feature Writing

J5710A/B Radio Current Affairs

J5898B Television Documentaries (available to Broadcast students only)

## One half-credit from among the following classes, as offered:

J5320B	Specialist Reporting
J5350B	Arts Journalism
J5330B	Business Journalism
J5351B	Investigative Reporting
J5352B	Political Reporting
J5353B	Municipal Affairs Reporting
J5354B	Science and Environmental Reporting
J5356B	Court Reporting
J5355B	Sports Reporting
J5530B	Copy Editing

## **PRINT CONCENTRATION**

J5500B Print Workshop (1 1/2 credits)

Intensive pre-production workshop.

Production of eight weekly issues of North End News and two magazines. Will include seminars in ethics and workshops in editorial and opinion writing.

## **BROADCAST CONCENTRATION**

J5600B Broadcast Workshop (1 1/2 credits)

> Production of daily CKDU radio newscasts and production of Halifax This Week cablevision show. Will include seminars in ethics.

# **Foundation Year Programme**

# Introduction

The University of King's College, in association with Dalhousie University, offers a special Foundation Year Programme in the first year of the Bachelor of Arts and Bachelor of Science. First offered in 1972/73, the programme has proved a successful way of providing an integrated and interdisciplinary course for first-year students. Approved by the Dalhousie Senate as a permanent part of the offerings of the Dalhousie/King's joint College of Arts and Science, the Programme is open only to students registered at King's. Students taking this course will, like other King's students, be proceeding to the degrees of Bachelor of Arts or Rachelor of Science granted by the Senate of Dalhousie University, or will be engaged in one of the preprofessional courses in Medicine, Dentistry, Law. Architecture, Divinity, Social Work, Education, Physiotherapy, and so on, or will be proceeding to the Bachelor of Journalism (Honours) awarded by King's College. The course can be taken as three or four first-

The Foundation Year Programme is a new approach to the first year of University. It is not a pre-university year but forms part of the first year work for a B.A. or B.Sc. (King's/Dalhousie) and for the B.J. (Hons.) (King's). Literature, history, philosophy, political and social institutions, the history of science, economic forms, religion, art and music are studied together in one course in an integrated manner which sees them as interdependent elements in the development of western culture. The movement of this culture is understood through the examination of some of the most basic works in our history. To learn to deal with these works is to acquire a foundation for studies in the humanities and social sciences, just as to have a conception of the nature of our society and culture is to have a basis for thoughtful living. To provide these is the aim of the Programme.

Many scientists are acutely aware of the need to understand the relation of science to other aspects of culture and to social life; a stream of the Programme will provide a general view of our culture for science students interested in these questions.

The form of the teaching is designed to meet the special needs of first year students. Enrolment in the Programme is limited to 200 students. The very favourable ratio of staff to students and the concentration of the student's work within one course permit the course to offer a wide variety of experiences and allow it to help students analyze, focus, and evaluate their experiences. The amount of time spent in small group lutorials permits close attention to be paid to each student's development. The exposure to many different aspects of our civilization, and the large number of departments recognizing the Programme as a substitute for their introductory class, give Foundation Year students both a wider experience from which to judge their interests and wider options for second year study.

The instructors in the Programme are specialists in a wide variety of university subjects. All take the view, however, that first-year study at university can profitably be devoted to attempts to integrate knowledge and understanding rather than to premature specialization in particular subjects.

## **Teaching Staff**

Lecturers 1990/91 A.R. Andrews, M.A. (Leeds), Ph.D. (III.) Professor of Theatre, Dalhousie University R. Apostle, B.A.(Sim. Fr.), M.A., Ph.D.(U Calif.) Professor of Sociology and Social Anthropology, Dalhousie University J.P. Atherton, M.A. (Oxon.), Ph.D. (Liverpool), Professor of Classics M. Bishop, B.A. (Manchester), M.A. (Man.), Ph.D.(Kent, Canterbury) Professor of French, Dalhousie University S. Boos, B.A. (Queen's), M.A., Ph.D. (York) S.J. Brooke, B.A. (Vind.), M.A. (McG.), D. Phil. (Oxon.)

Assistant Professor of History L. Burnett, B.A.(Tor.), B.A.(Hons.), M.A.(Dal.)

Junior Fellow

S.A.M. Burns, B.A.(Acad.), M.A.(Alta.), Ph.D.(London),

Associate Professor of Philosophy, Dalhousie University

C. Byrne, M.A., Ph.D.(Tor.)

Assistant Professor of Philosophy, St. Francis-Xavier University

M.L. Cross, A.A. (Dawson Coll.), B.A. (Montana), M.A.(S.F.U.), Ph.D.(Texas A & M)

Associate Professor of Economics, Dalhousie Univer-

R.D. Crouse, B.A.(Vind.), S.T.B.(Harvard), M. Th. (Trinity), Ph.D. (Harv.). D.D. (Trinity) Professor of Classics

L.P. Diepeveen, B.A. (Calvin Coll.), M.A., Ph.D. (Ill.) Assistant Professor of English, Dalhousie University

E. Edwards, B.A., M.A.(Dal.) Junior Fellow

C. Elson, B.A.(Hons.) (Vind.), M.A.(Dal.) Junior Fellow

M.G. Fry, B.A.(Vind.), M.Litt.(Oxon.) D.C.L.(Vind.) Professor of Humanities and Social Sciences

W.J. Hankey, B.A. (Vind.), M.A. (Tor.), D. Phil. (Oxon.), Associate Professor of Classics

K.M. Heller, B.A.(L.U. et Dal.), M.A.(Dal.) Junior Fellow

R.M. Huebert, B.A. (Sask.), M.A., Ph.D. (Pitt.) Professor of English, Dalhousie University

K. Jaeger, B.A., M.A., (U.B.C.), Ph.D.(Dal.)

A.M. Johnston, B.A.(Mt. A.), M.A.(Dal.), Ph.D.(Dal.), Assistant Professor of Humanities and Social Sciences R.C. Kaill, B.A.(Dal.), B.D., M.A.(Tor.), Ph.D.(McG.), Professor of Sociology, Dalhousie University W.H. Kemp, Mus. Bac., Mus. M.(Tor.), A.M.(Harv.), D.Phil.(Oxon.),

Professor of Music

## 52 Foundation Year Programme

K. Kierans, B.A. (McG.), D.Phil. (Oxon.)

Assistant Professor of Humanities and Social Science
M. Kussmaul, B.Sc., M.A. (Dal.), Ph.D. (Laval)

Fellow

B. Lesser, B. Comm. (Dal.), M.A., Ph.D. (Com.)

Associate Professor of Economics, Dalhousie University

D. MacIntosh, B.A. (Queen's), M.A. (Waterloo), Ph.D. (Tor.)

Assistant Professor of Philosophy, Dalhousie University

K.E. von Maltzahn, M.S., Ph.D.(Yale), Professor of Biology

C.J. Murphy, B.A.(St. F-X), M.A.(Dal.), Ph.D.(Tor.)

Associate Professor of Sociology

N. G. Robertson, B.A. (Hons.) (Vind.), M.A. (Dal.)

Junior Fellow

P.M. Robertson, B.A. (Wpg.), M.C.S. (Regent Coll./ U.B.C.), M.A., Ph.D. (Ott.)

Registrar

H. Roper, B.A. (Dal. et Cantab.), M.A., Ph.D. (Cantab.), Associate Professor of Humanities and Social Sciences C.J. Stames, B.A. (Bishop's), S.T.B. (Harv.), M.A. (McG.), Ph.D. (Dal.),

Associate Professor of Classics D.H. Steffen, Ph.D. (Gott.)

Professor of Humanities and Social Sciences, Associate Professor of German

J.A. Thompson, B.A. (Western), M.A., Ph.D. (Tor.)

Assistant Professor of English

## **Admission Requirements**

The admission requirements are those pertaining to the College of Arts and Science; see under the heading "College of Arts and Science," section 5, above.

## Scholarships

Scholarships ranging from \$1,000 to \$5,000 are open to students entering the Foundation Year Programme in Arts, Science and Journalism. The G.D. Harris, A.L. Chase and J.S. Cowie Memorial Entrance Scholarships require special application—see the entry under "Scholarships, Bursaries and Prizes" elsewhere in this Calendar

# Course Designation, Lecture and Tutorial Hours

King's Interdisciplinary Studies
K0100R Foundation Year Programme: (4 credits)
Lectures MWThF 9:35 a.m. - 11:25 a.m.
Four additional hours of tutorials, to be arranged.
K0110R Foundation Year Programme: (3 credits)
Lectures MWF 9:35 a.m. - 11:25 a.m.
Three additional hours of tutorials, to be arranged.

## **Grading and Credit**

The Programme is to be regarded as a complete unit. It is not possible for students to enrol in only part of the course. Evaluation of the students' performances is

continuous and is made on the basis of tutorial participation, examinations and essays. The final gradis is a composite of all evaluations. Final grading is the result of discussion among all those teachers who have had grading responsibilities. Grades are given in terms of the letter grade system of the College of Arts and Science.

Successful completion of the Programme gives students in the K0100R course twenty-four credit hour (i.e. four class credits) toward a Bachelor of Arts or Bachelor of Science degree. These students do one other class to achieve a complete first year. Students taking K0110R do two courses in addition to their wor in the Foundation Year Programme. This stream of the Foundation Year Programme carries eighteen hours of credit (i.e. three class credits) and comprises three-quarters of the work and requirements of K0100R. Normally students taking K0100R would be candidate for the Bachelor of Arts degree and students taking K0110R will be candidates for the degree of Bachelor of Science, but exceptions may be made.

The Foundation Year Programme may be combined with almost any programme of study in Arts and with many in Science but in all cases students are requested to discuss their proposed programmes with the Director before completing their registration.

Upon successful completion of the programme the normal departmental requirement of passing an introductory course in the discipline concerned is waived by the following departments of the College of Arts and Science:

English Language and Literature History Philosophy Sociology (excluding Social Anthropology)

The following departments of the College of Arts and Science admit students completing the Foundation Year Programme to introductory and advanced courses for which there is no language requirement:

Classics German Spanish Russian

The following special departmental provisions have been established:

## Biology

Successful completion of the Foundation Year Programme supplies the prerequisites for Biology 3410B, 3402A, 3403B. These are courses in the history of science, the history of biological sciences and maniferature.

## Economics

Honours students in Economics who have completed the Foundation Year Programme are exempted from doing one economics course.

## German

Successful completion of the Foundation Year Programme may be regarded as a substitute for German 2200.

Religion
The Department of Religion recognizes the Foundation
Year Programme as satisfying the prerequisites for
Year Programme 2101, 2202 and 2531.
Religion 2101, 2202

While there are no special arrangements with the Department of Political Science, students should note that some second year Political Science classes have no prerequisite and the Department will consider waiving the requirement for certain introductory courses.

# **Pre-Professional Training**

The Faculties of Medicine and Dentistry and the School of Physiotherapy of Dalhousie University have approved the Foundation Year Programme as part of the pre-professional work they require for admission to their respective faculties and schools. Students may substitute the Programme for the appropriate requirements laid down by these Faculties; for details of these provisions consult the Director of the Foundation Year Programme. The Department of Education of Dalhousie University waives its requirement of English 1000 for students enrolled in the B.Ed. Integrated Course who have successfully completed the Foundation Year Programme. The University of King's College requires the Foundation Year Programme for the first year of the B.J. (Hons.) degree.

## Evaluation

The mark for the course is based on students' papers, examinations and class participation. No student will be able to pass the course without completing the written requirements. All students (K0100 and K0110) write the first essay of the year within two weeks of the start of term. Beyond this, students registered in K0100 will write two essays for each of the six units of the course. Students in K0110 write two essays in three of the six units and one essay for each of the three remaining units. Some of the additional work of students in K0100 will relate to the Thursday lectures which are required for them but not for students in K0110.

# Outline of the Foundation Year Programme

The course is not just a collection of diverse materials but integrates them in accord with the interpretation of our culture which it develops. As we work out this interpretation, we consider works of various kinds, some the most crucial works in this culture. These we consider no matter what discipline ordinarily studies them. Thus we look, for example, at Mozart's Don Giovanni, early Greek urns, Michelangelo's "Last Judgment", the Bamberg Dom; these are usually understood to belong to the disciplines of music, archaeology, art history, and architecture. We read Homer's Odyssey, Shakespeare's The Tempest, Eliot's The Waste Land, works usually studied by the departments of classics, theatre, and English literature. We analyse St. Anselm's Proslogium, Descartes' Meditations, and Luther's The Freedom of a Christian, which are usually studied by the departments of theology, philosophy, and religion. We study Diaz's

The Conquest of New Spain, Rousseau's Social Contract, Marx's The Communist Manifesto,
Heilbroner's The Making of Economic Society, works thought to belong to history, political theory, sociology and economics. We read selections from Kepler's Epitome of Copernican Astronomy, and Newton's Mathematical Principles, texts taken from the history of astronomy and physics.

The following are the teaching units of the course. One or more of the aspects of culture mentioned above tends to be stressed in each unit. This is because of both the differences between the general character of each period, and the particular approach which the coordinator responsible for the section brings to the presentation of it. Four teaching weeks are devoted to each of these units.

1. The Ancient World: the origin of the primary institutions and beliefs of the western world in Greece, Rome and Israel. Religion manifesting itself in art, myth and institutions provides a focus for our approach to this epoch. Required reading may include the following works:

Homer, Iliad
Sophocles, Oedipus Rex
Euripides, The Bacchae
Plato, Republic
Aristotle, Physics (selections)
The Bible (Genesis, Exodus, Job)
Vergil, Aeneid

2. The Medieval World: the formation of Christendom. The development of Christian forms in political, social, intellectual life as these grow in contrast to and by assimilation of ancient culture is our main concern. We attempt to grasp the unity of this world as the medievals themselves saw it in Dante's Divine Comedy. Required reading may include the following works:

The Bible (Epistle to the Romans)
St. Augustine, Confessions
St. Benedict, The Rule (selections)
The Song of Roland
St. Anselm, Proslogium
St. Thomas Aquinas, Summa Theologica (selections)
Dante, Divine Comedy

3. The Renaissance and Reformation: the foundations of modernity in the breakup of the medieval world. The worldliness of the Renaissance and the renunciation of this in the Reformation form the two poles of our treatment of this period. Required reading may include the following works:

Pico della Mirandola, Oration on the Dignity of Man

Kepler, Epitome of Copernican Astronomy (selections)

Machiavelli, The Prince Thomas More, Utopia

Martin Luther, Selections from his Writings Marlowe, Doctor Faustus

Shakespeare, Henry IV Part I; The Winter's Tale

4. The Age of Reason or the Enlightenment: modern freedom developed theoretically in the philosophy of Descartes and in relation to nature and society is the central theme. Special attention is paid to political theory and natural science in this section. Required reading may include the following works:

Descartes, Mediatations on First Philosophy
Pascal, Pensées
Hobbes, Leviathan (selections)
Newton, Principia Mathematica (selections)
Hume, Enquiry Concerning Human Understanding (selections)
Rousseau, Discourse on the Origin and Foundations of Inequality among Mankind and The Social Contract (books I and II)
Mozart, The Marriage of Figaro
Goethe, Novelle

5. The Era of Revolutions: bourgeois culture from its triumph in the French Revolution to its collapse in World War I. The nineteenth century is treated mainly in terms of the revolutions—political and industrial—and we endeavour to understand the rise of parties and ideologies relative to them. The century is seen as providing the transition between Classical and Romantic Europe and our own Post-Romantic nationalistic individualism. Required reading may include the following works:

Wordsworth, Prelude (selections)
Adam Smith, The Wealth of Nations (selections)
J.S. Mill, Utilitarianism
Marx, Economic and Philosophic Manuscripts (selections)
Marx and Engels, The Communist Manifesto
Nietzsche, Genealogy of Morals
Beaudelaire, Selections from his Poetry
Dostoyevsky, Crime and Punishment

6. The Contemporary World: the period since World War I is characterized by the shift of political, economic and cultural power form Europe to Russia and the United States and to Asia and Africa, and by the technological and bureaucratic organization of the total means of life for individual well-being and freedom. This has made necessary a radical rethinking of aspects of our tradition and a concern for the validity of much that the "west" has developed. Required reading may include the following works:

Sigmund Freud, New Introductory Lectures on Psychoanalysis (selections)
T.S. Eliot, The Waste Land
J.P. Sartre, Existentialism is a Humanism
S. deBeauvoir, The Second Sex
Martin Heidegger, The Question Concerning Technology
L. Wittgenstein, Lecture on Ethics and Philosophical Investigations (selections)
B. Brecht, Galileo
J.-F. Lyotard, The Post-Modern Condition (selections)

The following are recurring general topics which are discussed in each of the units outlined above:

- (a) philosophical, theological and religious positions and forms;
- (b) literary, musical and artistic expression;
- (c) historical events and developments;
- (d) political institutions and conceptions of law and liberty;
- (e) economic institutions;
- (f) the conception of society and personality;
- (g) the understanding of nature and forms of natural science.

A classroom with facilities for slides, films and music reproduction is used so that the presentation of these aspects of culture can be an integral part of the teaching.

# Scholarships, Bursaries and Prizes

Students who hope to receive entrance scholarships should apply for admission by March 1, submitting with the application an essay written for a senior high school class, signed by a high school teacher.

No special application forms are required except in the case of the following scholarships: A.L. Chase Memorial; G.D. Harris Memorial; J.S. Cowie Memorial; and the J.F. Godfrey Travelling Scholarship. Please consult the entries below for details of each of these awards.

Applicants who wish to be considered for scholar-ship awards must indicate which of the College's programmes of study they wish to enter: B.A. Foundation Year Programme, B.A. regular first year, B.Sc. Foundation Year Programme, B.Sc. regular first year, or B.J. (Honours). In addition, they should ensure that the school authorities show on the transcript the applicant's rank and standing in the school graduating

In order to retain awards tenable for more than one year, a B average must be made each year, with no failing mark in any subject.

Students holding scholarships in their fourth year of full time study must be enrolled in a four-year degree programme (Advanced Major or Honours), or in an Honours Certificate or Advanced Major Certificate year.

All scholarships, prizes and bursaries, except awards to graduating students, will be credited to the student's account and not paid in cash.

Any scholarship winner who can afford to do so is invited to give up all or part of the money awarded. He or she will still be styled the winner of the scholarship during its tenure.

## **Arts and Science**

1. Entrance Awards
A. Annual scholarships up to the value of
\$5000

These scholarships are provided through various bequests to the University as well as from University funds.

The Arthur L. Chase Memorial Scholarship (\$5000)—(A.L. Chase was a King's student who died intragic circumstances.)

The John Stephen Cowie Memorial Scholarship (\$5000)—(J.S. Cowie was a King's student who died in tragic circumstances.)

The George David Harris Memorial Scholarship (\$5000)— (George David Harris was a student at King's who lost his life by drowning in an attempt to save the life of a friend.)

Established from bequests of the estates of Harold M. Chase, Dorothea Cowie, and James R. Harris, these three scholarships are open to competition to all students admitted to the University. The award is based on the record of performance in high school and on qualities of mind and character. Applications and nominations for these scholarships must be supported by high school transcripts, letters of reference and a sample of the applicant's writing. For further details and application forms, apply to the Registrar, King's College.

Completed applications for these scholarships must be received by March 1. Final selection may be based on interviews of leading candidates.

Alexandra Society Scholarships—The Alexandra Society of the University of King's College provides entrance scholarships, the number of which is determined annually by the Society on a fundsavailable basis.

Susanna Weston Arrow Almon Bequest—to be known as the Almon Scholarship.

Alumni Association Fund—a number of scholarships, ranging from \$1000 to \$5000, of which one is to be awarded to a student from King's-Edgehill, Rothesay Collegiate, Netherwood or Armbrae Academy.

Anna H. Cousins bequest—in memory of her husband, Henry S. Cousins, to be known as the Henry S. Cousins Scholarship.

Dr. Norman H. Gosse Bequest (\$400)—This scholarship, named for a former Chancellor of the University, is open to a Science student entering the Foundation Year Programme.

The Rev. J. Lloyd Keating bequest—to encourage students in the study of chemistry and physics.

The W. Garfield Weston Scholarships—Donated by the W. Garfield Weston Foundation, awards up to a total of \$6000 are given as entrance scholarships to students in either Arts, Social Sciences and Science or Journalism.

Mrs. W.A. Winfield bequest—in memory of her husband

B. Scholarships and Bursaries tenable for three years, or for four years if the student takes the Honours Course

Alumni Association Memorial Bursary Fund—In 1975 the King's College Alumni Memorial Fund was established with a two-fold purpose. It was to provide

an opportunity for gifts to be placed in memory of Kingsmen, staff, students or their friends. Monies received as a memorial are invested and a Book of Memory is established in the Chapel. In it are recorded names of those in whose memory gifts are placed.

The income is to be used as a bursary fund to assist worthwhile students, over and above scholarships, and to provide student aid and/or prize funds. This Fund is intended to provide a limited number of small bursaries for students registered full time at King's who are in need of financial assistance.

Applications for bursary aid may be submitted in writing to the University Registrar.

King's College Naval Bursary (\$500 a year)—In order to commemorate the unique and valuable relationship between the University of King's College and the Royal Canadian Navy during the Second World War, ships and establishments of the Atlantic Command have set up a Bursary to enable a student to attend King's.

Applicants must be children of officers and men either serving in the Royal Canadian Navy or retired from the R.C.N. on pension. Academic achievement and promise will be the first consideration in selecting a candidate. Purpose, industry, and character are to be carefully weighed, together with the likelihood that the candidate will make good use of the higher education to benefit not only himself but also his country.

The Bursary is awarded annually but it is intended to be tenable by the same student to the completion of his course at King's College provided he make acceptable progress. The Bursary will be withdrawn in the event of academic failure or withdrawal from King's College for

Margaret and Wallace Towers Bursary (\$1000 a year) - Established by Dr. Donald R. Towers, an alumnus of King's, in memory of his mother and father. This bursary, tenable for four years, is open to a student of high academic standing entering the University to study Arts and Science and who is a resident, or a descendant of residents, of Charlotte County, New Brunswick. Failing any qualified applicants from this county in any one year, the bursary for that year only will become available to a student resident anywhere outside the Maritime Provinces of Canada. The holder must live in residence.

## C. Professional Scholarships

Dr. W. Bruce Almon Scholarship (\$1500 a year)-Established by the will of Susanna Weston Arrow Almon, this scholarship is open to a student entering the University of King's College and proceeding the degree of Doctor of Medicine at Dalhousie University. It is renewable yearly provided that the student maintains a first class average, and lives in residence each year until the regulations of Dalhousie Medical School require otherwise. This scholarship is not available to be awarded for the 1990/91 academic year.

By the terms of the will, preference is given to a descendant of Dr. William Johnstone Almon.

James Fear Scholarships (Two of \$1000 annually) Established by the will of Mary L. Fear in memory of her husband James Fear, a graduate of the University King's College, two scholarships of \$1000 are awarded to students entering the University of King's College, pre-Divinity students and proceeding to the degree of Master of Divinity at the Atlantic School of Theology They are renewable yearly provided that the recipients maintain suitable standing. When no pre-Divinity students are nominated, the Fear Scholarships will be awarded as entrance scholarships for one year only.

Hazen Trust Scholarships (two of \$1000 annually) For students entering King's from New Brunswick high schools as pre-Divinity students officially certified by the Diocese of Fredericton.

These scholarships to be retained during the years necessary to complete their degrees at King's and at the Atlantic School of Theology, provided their grades at each institution are satisfactory to the Scholarship Committee—that is, an average no lower than B.

If in any one year, one or both of these scholarships is (are) not so held, such scholarship (or scholarships) will be available for one year only to a qualified student (or students) from the Diocese of Fredericton already registered at the Atlantic School of Theology, provided a nomination by the Diocese, or an application from the student, is made to the Scholarship Committee.

Failing the making of an award (or awards) according to provisions 1, 2 and 3, the scholarship (or scholarships) will be available to qualified students entering King's from New Brunswick high schools as an entrance scholarship (or scholarships) for one year

Charles Frederick William Moseley Scholarship (\$750 annually)—Established by the will of Charles Frederick William Moseley, this scholarship is open to a student from regions Nos. 16 and 17 of the Anglican Diocese of Nova Scotia (to be eligible a student must have resided in one of the areas for at least one year while attending high school) entering the University of King's College as a pre-Divinity student, and proceeding to the degree of Master of Divinity at the Atlantic School of Theology. It is renewable yearly provided that the student maintains suitable academic standing. When no pre-Divinity student is nominated, it will be awarded to the highest competitor from the regions as an entrance scholarship for one year only.

H.H. Pickett Trust Scholarships—A number of scholarships not exceeding \$3000 each, and bursaries not exceeding \$1000 each, will be awarded annually as a memorial to H.H. Pickett of Saint John, N.B. The memorial has been established by Miss Lesley L. Pickett. The awards may be made to: (1) students entering the University of King's College as pre-Divinity students from the Diocese of Fredricton. These students will hold their awards for each of their years al King's, and while studying at the Atlantic School of Theology; (2) graduates of the University of King's College who are undertaking theological studies at the Atlantic School of Theology in preparation for ordination in the Diocese of Fredricton; and (3) student

of the University of King's College.

preference in all cases will be given to students who are members of Trinity Church, Saint John, N.B., and, secondly, to students who are members of the Diocese of Fredricton. Those holding scholarship awards under this title must maintain the standards set from time to time by the Scholarship Committee.

# p. Restricted Scholarships and Bursaries

neihl Bridgewater Bursary (\$400)—To assist needy students of suitable standing, resident in the town of Bridgewater, or within six miles of the town. Bequeathed by the late Lena Ruth Deihl.

Dr. John F. Godfrey Travelling Scholarship (\$4000)—Established by his friends to commemorate the services of Dr. John F. Godfrey, President of King's 1978-1987, this scholarship will assist:

(a) a student from a developing country to study at King's College;

(b) a student at King's College to study for a year or less in a developing country; or

(c) a student at King's College to engage in a project connected with education or development work in a developing country.

Applications for this scholarship must be received before April 1. Please consult the Registrar for details.

Lois Hudson Bursary (\$150)—Established by a bequest from the estate of David W. Hudson in memory of his sister, Lois Hudson, as an entrance bursary for a first-year woman student in need of financial assistance.

Charles E. Merrill Trust Scholarship—Scholarship or Scholarships to a total of \$4000 to be awarded annually to students entering or continuing full-time degree programmes in Arts, Science or Journalism, who are citizens of the United States and who completed their secondary education in that country. Preference will be given to students who have transferred to King's for a full academic session as exchange students.

The Margaret Rice Memorial Scholarship (\$3500)— First consideration will be given to an entering female student of high academic standing from Pictou County. Failing this, the scholarship will be awarded according to the usual criteria for entrance scholarships.

# II. Second, Third and Fourth Year

A. Annual scholarships of up to \$4000, provided by the bequests listed below and from University funds

Students holding scholarships in their fourth year of full time study must be enrolled in a four-year degree programme (Advanced Major or Honours), or in an Honours Certificate year or in an Advanced Major

Certificate year.

G. Frederick Butler Scholarship (\$1000)—Established by the Alumni Association from income derived from his bequest.

Roy M. Haverstock Scholarship (\$2000)-Established from a bequest from the estate of Gertrude H.

Archbishop Runcie Scholarship (\$500)—Established by the Province of Nova Scotia to commemorate the visit of Archbishop Runcie in August 1985.

Frank Sobey Scholarship (Two of \$2500)-Established from the income of his bequest to the College.

## **B. Restricted Scholarships**

Alexandra Society Scholarship (\$1000)—An annual award offered by the Alexandra Society of King's College to a woman student who stands highest in the second or third year examinations. If the student who stands highest holds another scholarship, the award shall be left to the discretion of the Scholarship Committee.

Dr. John F. Godfrey Travelling Scholarship (\$4000)—Please refer to "Entrance Scholarships,"

Holy Trinity (Yarmouth) Scholarships—Established by the Parish of Holy Trinity, Yarmouth, these awards of varying amounts are to be used for in-course scholarships in Arts and Science and Journalism.

The Honourable Ray Lawson Scholarships (one of \$1000 and two of \$500)—Established through the generosity of the Hon. Ray Lawson, Chancellor of the University 1948-56, and of his son, Colonel Tom Lawson.

The Stevenson Scholarship (\$120)—Founded by the Rev. J. Stevenson, M.A. (sometime Professor of Mathematics), this scholarship of \$120, tenable for 2 years, will be awarded to a student with the highest average on the five best subjects in the first year examinations.

The Claire Strickland Vair Scholarship (\$300)—An annual award to be offered to a student beyond the first year who displays excellence in English, an English Major or English Honours student preferred.

## C. Bursaries

Otto Antoft Memorial Loan Scheme—Esablished in memory of Otto Antoft, this fund provides loans to Danish students studying at the University of King's

The Binney Bursary (\$50)—Founded in the year 1858, by Miss Binney, sister of the late Bishop Binney, and daughter of the late Reverend Hibbert Binney, in memory of her father.

Charles Cogswell Bursary (\$20)—Charles Cogswell, Esq., M.D., made a donation of \$400 to the Governors of King's College, the object of the donation being "to promote the health of the students and encourage them in the prosecution of their studies."

Roy M. Haverstock Bursary (\$225)—Established by a beguest of Gertrude H. Fox in memory of her brother, Roy M. Haverstock.

The Jackson Bursary (\$25)—Founded by the Rev. G.O. Cheese, M.A. (Oxon.) in memory of his former tutor, the late T.W. Jackson, M.A., of Worcester College, Oxford.

Khaki Bursary (\$60)—Application should be made to the Registrar.

E. Mable Mason Memorial Bursary (\$200)— Available to women students in need of financial assistance, as a single bursary of \$200 or two bursaries of \$100 each.

Walter Lawson Muir Bursary (\$175)—Endowed by Mrs. W.L. Muir. To be awarded at the discretion of the Scholarship Committee to a student returning to the College who won high scholastic standing in the previous year.

Archdeacon G.S. Tanton Memorial Trust Bursary (\$500)—This bursary will be awarded annually after consultation with the Priest-in-Charge of the King's Chapel to a male student enrolled in a full-time degree programme in Arts, Science or Journalism, and who is preparing for ordination in the Anglican Church. Preference will be given to students from Prince Edward Island and Nova Scotia.

## D. Prizes

The Akins Historical Prize (\$100)—Founded by T.B. Akins, Esq., D.C.L., Barrister-at-Law and Commissioner of Public Records.

The award is made for the best original study in Canadian History submitted in competition. Essays must be handed in, under a nom de plume with the writer's name in an attached envelope, on or before the 1st day of April of the year concerned. Essays become the property of King's College.

The Almon-Welsford Testimonial Prize (\$30)—The Honourable William J. Almon, Esq., M.D. (1816-1901) and his family endowed a prize to commemorate the gallant and loyal deed of Major Augustus Frederick Welsford who died in the Crimean War (1855) and to

annually to the student in his first year who makes the highest mark in a Latin course state 1000 highest mark in a Latin course at the 1000 or 2000 len Medals and Prizes provided the grade is at least B.

The Norah F.W. Bate Prize (\$250)-An in-course open scholarship used to recognize the standing of all Rachelor of Journalism (Honours) degree programme student.

Bishop Binney Prize (\$20)—This prize, which was founded by Mrs. Binney, is given to the undergradua. with the best examination results at the end of the second year with ten classes.

The Henry D. deBlois English Prize (\$50)-Thelan Rev. Henry D. deBlois, D.C.L., a graduate of King's College, left the sum of \$200 to the Governors of the College to establish a prize in English. Awarded toth student of the 2nd, 3rd, or 4th year in Arts or Science

The Harry Crawford Memorial Prize (\$40)— Offered annually by a friend in memory of Harry Crawford, son of Thomas H. and Elizabeth A. Crawford, Gagetown, N.B., a student of this College who died true to his King and his Country, April 14 1915, while serving in the Canadian Motor Cycle Corps. The prize is awarded to the student completing 1913 the second year Arts course, of good character and academic standing, who in the opinion of the Faculty deserves it most.

The Beatrice E. Fry Memorial Prize (\$50)— Established by the Diocesan Board of the W.A. of the 1924 Diocese of Nova Scotia, in memory of Miss Beatrice 1925 Fry. To be awarded to the woman student of the College obtaining the best mark in English 100, provided that mark is at least B.

The Zaidee Horsfall Prize in Mathematics (\$10)— 1950 Established as a memorial to the late Zaidee Horsfall, 1950 M.A., D.C.L. Awarded to the student who makes the 1955 highest mark in first year Mathematics.

The Lawson Prize (\$100)—Established by the Hon. Ray Lawson, a former Chancellor of the University, in the student who shows the greatest progress between first and second year.

The McCawley Classical Prize (\$35)—Established a testimonial to the Rev. G. McCawley, D.D., on his retirement in 1875 from the office of President of the University. This prize is awarded annually to the student who makes the highest mark in a Greek cours 1. Entrance Awards at the 1000 level providing the grade is at least a B.

Dr. M.A.B. Smith Prize (\$25)—Established by a bequest of \$500 from the late Dr. M.A.B. Smith. Awarded to the student with the highest marks at the end of his or her second year with ten classes. In case a tie, preference will be given to a pre-Divinity student

The Governor General's Medal—Awarded to the The out of the student who is graduating with first-class honours in the or with distinction in the post-baccalaureate Bachelor of Journalism programme, and who has shown significant progressional development during his or her time in the school of Journalism.

The King's Medal—Awarded to the graduating student who stands highest in an Honours programme in an Arts or Science subject.

The Rhodes Scholarship—Tenable at the University of Oxford. Before applying to the Secretary of the Committee of Selection for the Province (which application must be made by November 1) students should consult the Registrar, King's College.

Rhodes Scholars who have attended the University of King's College:

- Medley Kingdon Parlee, BA'08 1909
- Robert Holland Tait, BCL'14
- Arthur Leigh Collett, BA'13
- 1916 The Rev. Douglas Morgan Wiswell, BA '14,
- 1916 The Rev. Cuthbert Aikman Simpson, BA'15, MA'16
- William Gordon Ernst, BA'17
- The Rev. Gerald White, BA'23, MA'24
- M. Teed, BA'25
- Allan Charles Findlay, BA'34
- John Roderick Ennes Smith, BSc'38
- Nordau Roslyn Goodman, BSc. 40, MSc 46
- Peter Hanington, BA'48
- Ian Henderson, BSc'50
- Eric David Morgan, BSc'50
- Leslie William Caines, BA'55
- Roland Arnold Grenville Lines, BSc'61
- Peter Hardress Lavallin Puxley, BA'63
- John Hilton Page, BSc'69
- Bernard John Hibbitts, BA'80
- Gregory Yuri Glazov, BA'86

## Journalism

# A. Annual Scholarships up to the value of

hese scholarships are provided through bequests to the University as well as from University funds.

Applicants to the first year of the Bachelor of oumalism (Honours) programme are eligible to apply for the A.L. Chase, J.S. Cowie and G.D. Harris Memorial Scholarships (for details, refer to "Arts and

Science Entrance Awards" above).

Dr. John F. Godfrey Travelling Scholarship (\$4000)—For details, refer to "Arts and Science— Entrance Scholarships" above.

The W. Garfield Weston Scholarships-Donated by The W. Garfield Weston Foundation, awards up to a total of \$6000 are given as entrance scholarships to students in either Arts and Science or Journalism.

## B. Bursaries

The Ian R. MacNeil Bursaries in Journalism (2 awards of \$10000)—Bursaries established by the friends and family of Ian R. MacNeil, to be awarded annually to students from Cape Breton in the School of Journalism.

## II. Second, Third and Fourth Year Awards

In order to be considered for a scholarship, a returning student must receive credit for five full classes or the equivalent in half classes during the regular academic session (September to April).

## A. Annual Scholarships

These scholarships are provided through bequests to the University as well as from University funds.

Dr. John F. Godfrey Travelling Scholarship (\$4000)—For details, refer to "Arts and Science— Entrance Scholarships" above.

Holy Trinity (Yarmouth) Scholarships—For details. refer to "Arts and Science-Second, Third and Fourth Year Awards," above.

Charles E. Merrill Trust Scholarship-For details, refer to "Arts and Science-Entrance Awards," above.

Frank Sobey Scholarship—Two of \$2500 each.

## **B. Prizes**

Atlantic Community Newspapers Association Prize (\$500)—To be awarded at the end of the academic year to a student in the B.J. or B.J. (Hons.) programme who is in financial need and who is preparing for a career in community journalism.

The Nova Scotia Press Gallery Association Prize for Political Reporting (\$400)—To be awarded to a student of the School of Journalism for political reporting published or broadcast in newspapers, radio. television or magazines in Nova Scotia during the academic year. The deadline for entries is February 15.

George B. Pickett Prize (\$500)—Established from a bequest of the estate of George R.B. Inch, this prize commemorates George B. Pickett, farmer and philosopher of Oak Point, N.B. It is awarded to the

first-year Bachelor of Journalism (Honours) student who has the highest aggregate average among those who achieve a first-class standing in a university-level French course.

Major Cecil R. Thompson Prize (\$250)—Given to the student who achieves the highest grade in Journalism 201.

## C. Bursaries

The Sheila H. Jones Memorial Bursary (\$1500)— Established in memory of Sheila Jones by her family and friends to provide bursaries and loans for students enrolled in the School of Journalism.

The Ian R. MacNeil Bursaries in Journalism-For details, see "Journalism-Entrance Awards," above.

The Sheila Urguhart Memorial Bursary (\$175)— Established as a memorial to Sheila Urquhart to assist a student enrolled in the School of Journalism.

## Divinity

Scholarships in Divinity are tenable at the Atlantic School of Theology (or elsewhere in the case of particular scholarships). The Anglican faculty members of the Atlantic School of Theology advise on their disposition. Information on the application for these scholarships should be sought from the Divinity Secretary of King's College, Dr. Theodore S. deBruyn.

Canon W.S.H. Morris Scholarship (an award or awards up to a total of \$5000 annually)-This scholarship was founded by the late Robert H. Morris, M.D., of Boston in memory of his father, the Reverend Canon W.S.H. Morris, M.A., D.D., Kingsman, Scholar and Parish Priest in the diocese of Nova Scotia for forty

The scholarship may be awarded annually by the President and Divinity Faculty to the most deserving member of the present or recent graduating class of the Divinity School, who has been at King's at least two years and who, in the opinion of the Faculty, would benefit from travel and/or study in Britain, the U.S.A. or some other area outside the Atlantic Provinces of Canada, provided he reaches a satisfactory standard. Applications stating the use which the applicant expects to make of the scholarship, must be submitted to the Divinity Secretary on or before January 8, of the year in which the applicant, if successful, intends to use the scholarship. The recipient will be required to serve in the Atlantic Provinces for a minimum of three years after his return from abroad.

Charles Frederick William Moseley Scholarship (\$750 a year)—For details, refer to "Arts and Science—Professional Scholarships" above.

For details, refer to "Arts and Science-Professional Scholarships" above.

Hazen Trust Scholarships (two of \$1000 annually) For details, refer to "Arts and Science-Professional Scholarships" above.

The Alexa McCormick Sutherland Memorial\_The sum of \$5000 has been willed to the Board of Governors of the University of King's College by the late Annie M. Smith of Granville Ferry, Nova Scotia for the purpose of founding a memorial to her mother from the net annual income. The award is open to an Anglican student, including any post-graduate student, in the Divinity school, now a partner in Atlantic School of Theology, considered worthy in terms of scholarship financial need and devotion to his or her vocation, nominated by the Anglican Faculty Group of Atlantic School of Theology to the above-named Board of Governors.

Greta L. Scott Memorial Fund—Financial assistance for Divinity students for board, lodging and tuition.

the University of Kings's College, willed by the late Miriam MacDonald of Bourne, Mass., U.S.A., and administered by the University in the same manner as other endowment funds, is to be used for aid to Divinity students (including post-graduate students) from New Brunswick in the Divinity School, now a partner in Atlantic School of Theology, considered worthy and recommended by the Anglican Group of Atlantic School to the above-named Board of Governors.

William Cogswell Scholarship—Open to students intending to work in the Diocese of Nova Scotia.

Scholarship A: Under the direction of the Trustees the William Cogswell Scholarship, to be awarded to the student who passes a satisfactory examination and who takes his Divinity course at any recognized Divinity College of the Anglican Church in Canada best fitted, in the opinion of the Trustees, to serve the terms of the

Scholarship B: Under the direction of the Faculty of Divinity of the University of King's College, Halifax, Nova Scotia, an entrance scholarship of \$200 or \$300 depending on quality of work submitted, will be awarded to the properly accredited student entering the examination to be held in the month of admission provided he reaches a satisfactory standard. The recipient will be required to sign a statement promisin to serve in the Diocese of Nova Scotia for a period of a least as long as the period during which he holds the scholarship. Awards will not be made every year.

The Daniel Hodgson Scholarship (\$240)—Founder 1883 by Edward J. Hodgson and the Reverend G.W. Hodgson in memory of their father Daniel Hodgson, who died about that time. This scholarship of an annua value of \$60, tenable for four years, is for the purpose of encouraging students to take an Arts Degree before

James Fear Scholarships (Two of \$1000 annually) onlering upon the study prescribed for Holy Orders. Candidates, who must be residents of Prince Edward Island, shall file their applications and certificates of having passed the full Arts matriculation requirements hefore August 15, and must not be over 24 years of age at that time. Other terms of this scholarship may be obtained from the Divinity Secretary.

> The Mabel Rudolf Messias Divinity Bursary (\$120)—The interest on an endowment of \$2000, the oft of Mrs. M.R. Messias of Wolfville, Nova Scotia, is to be used to provide an annual bursary for a needy and deserving Divinity student.

> The H. Terry Creighton Scholarship (\$150 approximately)— The annual income from an endowment of \$2000 established by the family and friends to honour the memory of H. Terry Creighton of Halifax, Nova Scotia, who was an active Lay Reader and prominent Layman of the Diocese of Nova Scotia for many years.

The Scholarship is to be made to an outstanding and deserving Anglican Divinity student at the conclusion of his final year of training and who is intending to enter the ministry of the Diocese of Nova Scotia. The Ernest H. MacDonald Fund—The annual interest Should there be no suitable candidate for the scholarof a bequest of \$13,878.60 to the Board of Governors of ship training in Nova Scotia, the award may be made. in consultation with the Bishop of Nova Scotia, to one studying elsewhere, provided that the student intends to return to Nova Scotia for ministry in that Diocese.

> The George M. Ambrose Proficiency Prize (\$300 approximately)—The income from a trust fund set up in memory of Canon G.M. Ambrose, M.A., an alumnus of King's, provides an annual award to the Divinity student who receives the highest aggregate of marks at the end of his first year, provided that during that year such student takes the regular full course in Theology.

> Anderson Scholarship (\$450)—Two scholarships of the value of \$450 each, established under the will of Maple B. Anderson of Lunenburg, Nova Scotia, in loving memory of her brothers, Roseville W. & George M. Anderson, to be used for scholarship purposes for qualified applicants wishing to study theology at the Atlantic School of Theology.

> The scholarships are to be awarded annually on the recommendations of the Anglican Divinity professors at the Atlantic School of Theology with the approval of the President of the University of King's College.

The Margaret Draper Gabriel Bursary (\$450)—A fund has been established in memory of Margaret Draper Gabriel by her son, Rev. A.E. Gabriel, M.A., an alumnus of King's, the yield from which is to be used to give financial aid to a Nova Scotian Divinity student in preparation for the Ministry of the Church. The recipient must be nominated or recommended by the dishop of Nova Scotia! If in any year there is no candidate for this assistance the yearly yield is to be used to augment the fund. Should King's College Divinity School cease to exist as such, the fund is to be transferred to the Diocese of Nova Scotia and the income used as aforesaid.

The Reverend Canon H. Douglas Smith Bursary Fund—A fund of \$4000 has been established by Mrs. Ethel May Smith in memory of her son and King's graduate, the Reverend Canon H. Douglas Smith. The income of the fund is disbursed in the form of bursaries (one or more) to needy and deserving persons from the Diocese of Nova Scotia or the Diocese of Fredericton who are theological students at the Atlantic School of Theology and who intend to enter the Ministry in one of these Dioceses.

Jack Clark Wilson Memorial Bursaries (two of\$100)—Established in 1947 by Miss Catherine R. Kaiser, in memory of John Clark Wilson. Two bursaries of \$100 each, tenable for one year. Awarded to Divinity students deemed worthy of financial help.

Moody Exhibition (\$100)—The "Catherine L. Moody" Exhibition of \$50 a year for two years is awarded every two years to the student entering the second year preparing for Holy Orders, whose scholarship and exemplary conduct shall, in the opinion of the Faculty,

The George Sherman Richards Proficiency Prize (\$120)—In memory of the Reverend Robert Norwood. D.D. The income from a fund of \$2000 to be awarded annually to the Divinity student who gains the highest aggregate of marks at the end of his penultimate year. provided that in that year he takes the regular full course in Theology.

The Countess of Catanzaro Exhibition (\$100)—The income from a fund of \$2000 to be awarded by the Faculty to a Divinity student during his second year in college. The award will be made on the basis of character and need.

The McCawley Hebrew Prize (\$25)—Open to all members of the University who are below the standing

The prize is given out of the interest of a Trust Fund, the gift of the Reverend George McCawley, D.D., in the hands of the Society for the Propagation of the Gospel in Foreign Parts.

This prize will be awarded to the student who leads the class in Hebrew 2 and receives a recommendation from the professor of Hebrew.

Junior McCawley Hebrew Prize (\$25)—With the accumulated unexpended income from the McCawley Hebrew Prize a fund has been set up establishing a second prize, to be awarded to the student standing highest in first year Hebrew.

Archdeacon Forsyth Prize (\$50)—The Ven. Archdeacon D. Forsyth, D.C.L., of Chatham, N.B. who died in 1933, left to King's College \$1,000 to provide an annual prize or scholarship, to be awarded to a Divinity student for proficiency in the study and knowledge of the original Greek Scripture. To be awarded on the combined results of Greek Testament 1 and 2.

Prince Prize in Apologetics (\$60)—Established by a bequest of the late Dr. S.H. Prince. Awarded every alternate year, at the discretion of the Faculty. (New award 1989/90).

Wiswell Missionary Bursary (\$200)-Founded by Dr. A.B. Wiswell for help to a Divinity student who believes he has a call to the Mission field either Overseas or in the Canadian West.

Preference will be given to a student who has given promise of the needed qualities and has taken his degree or is within a year of completing his Arts course. If there is no student meeting the above requirements the award will be left to the discretion of the Divinity Faculty.

Clara E. Hyson Prize (\$5)—Founded by Miss Clara E. Hyson and awarded each year on vote of the Faculty.

Johnson Family Memorial Bursary (\$60)—Founded by the Misses Helen and Marguerite Johnson in memory of their parents. This bursary is to be awarded annually at the discretion of the President and Divinity Faculty to the Divinity student considered most worthy on grounds not only of scholarship, but also of financial need and of devotion to his vocation. Preference will be given to a student from the Parish of St. Mark's, Halifax.

Divinity Grants—Grants to aid students in Divinity who require assistance are made by the Bishop of Nova Scotia and by the Bishop of Fredericton. The holders of these must fulfill such conditions as the Bishops lay down and in every case attend a personal interview. For further particulars, apply to the Divinity Faculty.

The Wallace Greek Testament Prize (\$50)—A Book Prize established by the late Canon C.H. Wallace of Bristol, England, in memory of his father Charles Hill Wallace, barrister, of Lincoln's Inn, who graduated at King's College in 1823, and died in England in 1845. Subject: Epistle to the Hebrews. Application to be made to the Divinity Secretary by March 1.

Agnes W. Randall Bursary (two of \$15)—Bursaries will be given each year to the students in Theology who show the greatest diligence in their studies. An award will not be made twice to the same student.

Bennett-Cliff Memorial Prize (\$10 annually)— Award to be at the discretion of the President.

Kenelm Eaton Memorial Scholarship (\$60)—This scholarship is provided by the Synod of Nova Scotia as a memorial to The Hon. Captain Kenelm Edwin Eaton, B.Sc., L.Th., who made the supreme sacrifice while serving as a Chaplain in Italy, August 31, 1944. For particulars, apply to the Divinity Secretary.

Dr. C. Pennyman Worsley Prize (\$100)—A memorial to the late Dr. Worsley. To be used in alternative years for a prize in Church history. Next award 1989/90.

Fenwick Vroom Exhibition (\$100)—To be awarded to

a Divinity student at the direction of the Faculty. Application should be made to the Divinity Faculty by November 1 of each year.

The Florence Hickson Forrester Memorial Prize (\$60)—The Prize, presented in memory of the late M. Forrester by her husband, is to be awarded on Encar Day to the Divinity student in his penultimate or final year who passes the best examination on the exegesis the Greek text of St. Matthew, Chapters V-VII, provided always that the standard is sufficiently high

The Bullock Bursary (\$225)—Established by C.A.R Bullock of Halifax for the purpose of defraying the conof maintenance and education of Divinity students who H. Pickett Memorial Scholarship-For details, see were, before being enrolled, residents of Halifax and members of a Parish Church there, and who are unable to pay the cost of such maintenance and education.

The Harris Brothers Memorial (\$150)—To be awarded at the beginning of each college year as a bursary to a student of Divinity. The student shall be selected annually by the Divinity Faculty, preference being given to a needy student from Prince Edward Island, failing that, to a needy student from the Parish of Parrsboro, and failing that, to any deserving student

The Carter Bursaries (\$200)—Two bursaries of a value of \$160 each, established under the will of Beatrice B. Carter of Amherst, Nova Scotia, to be used to assist young men studying for Ministry.

Royal Canadian Air Force Protestant Chapel Bursary (\$150)—This bursary, established in 1959by endowment from collections taken in R.C.A.F. chapels is awarded annually at the discretion of the Divinity Faculty to a bona fide ordinand, preference where possible being given to (a) ex-R.C.A.F. personnel, (b) children of R.C.A.F.

The Reverend Dr. W.E. Jefferson Memorial Bursary (\$400)—This bursary, the gift of the Parishal Granville, N.S., is established in memory of Reverend W.E. Jefferson, D. Eng., an alumnus of King's and a graduate engineer, who was ordained late in life and ye was able to give nearly twenty years of devoted service to the ordained Ministry. Preference will be given to older men pursuing post-graduate studies or to older men preparing for ordination. The award is to be made by the Divinity Faculty.

The Archdeacon Harrison Memorial Bursary (\$20)—Established by Miss Elaine Harrison in memor of her father. To be awarded to a deserving and need) Divinity student, at the discretion of the Faculty.

St. Paul's Garrison Chapel Memorial Prize (\$20) To be awarded to the Divinity student chosen by the Faculty to attend a Christmas Conference.

The Clarke Exhibition—An endowment was established by the late Reverend Canon W.J. Clarked Kingston, New Brunswick, the first charge upon while

shall be the provision of copies of The Imitation of Christ to members of each year's graduating class in Divinity. The balance of the income each year to be awarded by the decisions of the Divinity Faculty to a deserving Divinity Student for the coming year.

Northumbria Region Bursary (\$150)—Offered annually by the Brotherhood of Anglican Churchmen in the Northumbria Region.

It is awarded to a needy and worthy student from the Amherst region. If no candidate is available from this region in any one year, then any needy and worthy Anglican student would be eligible.

"Arts and Science—Professional Scholarships" above.

Richard Middleton Leigh Award—An award made annually to Divinity students who have attained proficiency in preaching.

## Convocation 1990

## **Graduating Class**

**Honorary President** Dr. John Ferguson Godfrey President George MacLean Vice-President Geoffrey Muttart Secretary-Treasurer Jill Stanfield

## **DOCTOR OF CIVIL LAW (honoris**

Dr. John Frank Shears Crocker

Halifax, N.S.

Ms. Doreen Wadad Kays

Boston, Massachusetts

## DOCTOR OF DIVINITY (honoris causa)

The Right Rev. George Colborne Lemmon

Fredricton, N.B.

The Rev. Dr. William H. Ralston

Savannah, Georgia

## **BACHELOR OF ARTS DEGREE:**

Patricia Mary Andrews	Clarke's Beach, Nfld.
(Honours in Classics and Ru	issian)
Robert Charles Awalt	Debert, N.S.
Patricia Anne Babineau	Albert Bridge, N.S.
John Peter Beale	Peggy's Cove, N.S.
Trina Louise Boutilier	Donkin, N.S.
Michelle April Bruce	Bedford, N.S.
James Lincoln Caylor	Palgrave, Ont.
Christie Diane Chisholm	Halifax, N.S.
Scott Andrew Christnsen	Truro, N.S.
Joan Eileen Cluney	Halifax, N.S.
Christina Evelyn Coleman	Toronto, Ont.
(Honours in French and Eng	glish)
Harold Douglas Cooper	Great Village, N.S.
John Andrew Curry	Halifax, N.S.
(Honours in Political Science	ce)
Elisabeth Davies	Falmouth, N.S.
(Adv. Major in Sociology a	nd Social Anthropology)
Sara Elizabeth Devanney	Halifax, N.S.
(First Class Honours in Eng	lish)
David Randall Douglas	Truro, N.S.
Terence O'Duffy Doyle	Toronto, Ont.
Heather Jane Findlater	Whitehorse, Yukon
(Distinction)	
Thomas Darcy Finn	Ottawa, Ont.
Martha Jo Finnamore	Fredricton, N.B.
William Talivaldis Folkins	Lower Debert, N.S.
Andrew Alexander Galloway	Toronto, Ont.
John George Ghiz	Charlottetown, P.E.I.
Carolanne Grances Gillis	Grand Mira, N.S.
Kelly Jo-Anne Gooding	Sydney Mines, N.S.
Nicholas Lund Graham	Halifax, N.S.

Jean Elizabeth Haliburton	Truro, N.S
Shelley Anne Harris	Halifax No
William Arthur Harris	Toronto O.
James Taylor Palmer Hayhur	st Bradford, Ont
James Malo Heimbecker	Toronto, Ont
Duncan William Hills	Truro, N.S.
Christopher George Irving	Lower Sackville, N.S.
Gregory Michael Kennedy	Debert, N.S.
(Advanced Major in English	sh)
Kevin McNamara Kielty	Toronto, Ont
Robert Francis Kilvert	Halifax, N.S.
David Burns Kimball	Windsor, N.S.
Ian Eugene Kimball	Windsor, N.S.
Janet Theresa Kowalski	Bras d'Or, N.S.
Vincent Nicholas LoLordo	Halifax, N.S.
(First Class Honours in His	story and English)
(University Medal in Histo	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Darren Gerard MacDonald	Halifax, N.S.
Jamie Frank MacGillivray	Stellarton, N.S.
George Andrew MacLean	West LaHave, N.S.
(Honours in Political Scien	
Susan Lee MacPherson	Port Hawkesbury, N.S.
Paul Edwin Mayer	Toronto, Ont
Christopher Richard McCann	
Sean Daniel McCarron	Halifax, N.S.
Gary Lance McGonagill	Morro Bay, Calif.
(Honours in Classics)	Wayoslav No.
*Karen Mary MacIntyre	Waverley, N.S.
Peter James Mitham Blaine C. Mullins	Kingston, N.B. Halifax, N.S.
	Mount Uniacke, N.S.
Brett Arthur Mumford	
Leslie Anne Munro Peter Hart O'Brien	Souris, P.E.I Halifax, N.S.
	ATTOMICS TO A STATE OF THE PARTY OF THE PART
(First Class Honours in Class	
(University Medal in Class	
Allison Haley O'Neill	Glace Bay, N.S.
Katherine Doreen Orr	Ottawa, Onl.
(Honours in Political Scien	
Tara Elizabeth Power	Truro, N.S.
William Nicholas Pullen	Halifax, N.S.
Kathy Quas	Moncton, N.B.
Patricia Quas	Halifax, N.S.
Soonya Patina Quon	Dartmouth, N.S.
(Distinction)	Townsto Out
Janet Isabelle Read	Toronto, Onl.
Kristen Anne Rector	Truro, N.S.
Lisa LeaAnne Richardson	Trenton, N.S.
*Margaret Ida Rissesco	Dartmouth, N.S.
D. Fraser Robb	Bridgetown, N.S.
(Honours in Classics)	TY NO ME
Jennifer Anne Scott	Halifax, N.S.
(First Class Honours in Int	ernational Developilies
Studies)	TY US NIC
Jennifer Louise Seamone	Halifax, N.S.
Sean David Smith	Sackville, N.S.
Barbara Jill Stanfield	Truro, N.S.
Johanna Margaretha Steffen	Halifax, N.S.
(First Class Honours in Cla	assics and German)
Paul Andrew Thomson	Darmouth, N.S.
Jonathan Michael Toms	Truro, N.S.
Sarah Elizabeth Tracy	Port Maitland, N.S.
Deborah Anne Tucker	Sackville, N.B.
(Advanced Majorin Econo	mice)

Lorna Marie Upham

(Advanced Major in Economics)

(Advanced Major in Political Science)

Truro, N.S.

Angela Lynne Van Amburg	Argyle, N.S.
Last John Walson	Windsor, N.S.
Craio Wegemer	Topsail Nfld
A Juanced Major in English	)
Susan Lorraine White	Alma, Ont.
Susan Elizabeth Whitman	Westville, N.S.
Bemard Newman Wills P	ort Hawkesbury, N.S.
(First Class Honours in Class	rice)
Ronald Sigurd Wood	
(First Class Honours in Class	Halifax, N.S.
(First Class Honours in Class	IL-1:6 N.C.
Cynthia Martha Yazbek	Halifax, N.S.
(Distinction)	
rimothy Cuyler Young	Toronto, Ont.
*awarded during the session	
BACHELOR OF ARTS	DEGREE -
<b>《</b> 图像是是一种是一种,	
Jennifer Dawn Adcock	Greenwood, N.S.
(Honours in Political Science)	)
Emmett Patrick Flynn	Calgary, Alta.
(Honours in Political Science)	Market Line Line
Glenn Joseph Langille	Dartmouth, N.S.
(Honours in English)	

BACHELOR OF SCIE	ENCE DEGREE:
Douglas L. Brown (Distinction)	Belmont, N.S.
Suzanne Marie Hawkes Katharina Elisabeth Kieser Geoffrey Peter Muttart Lea Danielle Raiche Peter Rendek *Bryan Todd Smithenson Llewellyn Llord Turnquist	Halifax, N.S. Nanaimo, B.C. Port Williams N.S. Greenwood, N.S. London, Ont. Silton, Sask. Midapore, Alta.

Halifax, N.S.

Sydney, N.S.

\*awarded during the session

Jon MacInnes Legorburu

(Honours in Political Science) Terrance Gerard Sheppard

(Honours in Political Science)

## BACHELOR OF SCIENCE DEGREE -HONOURS CERTIFICATE

lames Alexander Hubbard Gerln Haven, N.S. (Honours in Mathematics)

## BACHELOR OF SCIENCE DEGREE -ADVANCED MAJOR CERTIFICATE

William Lester Jack Stellarton, N.S. (Advanced Major in Biology)

## **BACHELOR OF JOURNALISM** (HONOURS) DEGREE:

Sonia Anne Arab	Halifax, N.S.
Douglas Elliot Beazley	Pictou County, N.S.
Lisa Michelle Blackburn	Lower Sackville, N.S.
Kimberlea Susan Covert	Sheffield Mills, N.S.
Jacqueline Starr Cunningham	Pictou County, N.S.
Sandra Joy Goodwin	Dartmouth, N.S.
Linda Marie Kelly (First Class Honours)	Sydney, N.S.
Jennifer Lynn MacDonald	Dartmouth, N.S.
Kim I. Moar	Toronto, Ont.
Theresa Martina Nowlan	Oromocto, N.B.
Janelle Lynn Poole Midd	le Musquodoboit, N.S.
	Mmadinara, Botswana
Kimberly Anne Schimmel	Halifax, N.S.
JoAnn Louise Sherwood	Berry Mills, N.B.
Jennifer Lynn Yabsley	Halifax, N.S.

## **BACHELOR OF JOURNALISM** DEGREE:

Heather C. M. Ballantyr	e Vancouver, B.C.
Karin Maria Bergen	Ottawa, Ont.
Laura Louise Boast	Toronto, Ont.
Christine Claire Callagh	an Halifax, N.S.
Silia Rose Coiro	Toronto, Ont.
Jeffrey Keith Harrington	Halifax, N.S.
David Sean Hartigan	Windsor Junction, N.S.
Susan Catherine Hickey	Gander, Nfld.
Mark Stephen Tait Hylar	
Scott Lindsay Inniss	Halifax, N.S.
Kathryn Reta Kaufield	Charlottetown, P.E.I.
Jacqueline Dawn Langill	e Middleton, N.S.
Scott Douglas Latham	Halifax, N.S.
Richard Levangie	Halifax, N.S.
(Distinction)	
Clare Isobel MacKenzie	St. John's, Nfld.
Donald Roy McDonald	Halifax, N.S.
Joyce Ann Ouellette	Cap-Pelé, N.B.
Bill Paul	Vancouver, B.C.
Jonathan Alexander Rom (Distinction)	alo Edmonton, Alta.
Louann Margaret Scallion	n Halifax, N.S.
Lorraine Catherine Steven	nson Winnipeg, Man.
Nancy Lee Waugh	Dartmouth, N.S.
John Gerard Valentine	Calgrary, Alta.

## **ENCAENIA AWARDS** Arts and Science and Journalism

The Governor General's Medal	Richard Levangie
The King's Medal	V. Nicholas LoLordo
The Almon-Welsford Testimon	nial Prize

	Shane Barker
The Norah F.W. Bate Prize	Susan Isa
The Bishop Binney Prize	Colin Ingalls
	Colin Poold

Harry Crawford Memorial Prize

D. Gregory MacIsaac

66

The Henry deBlois English Prize	
The first start the early	Tania Robinson
Beatrice E. Fry Memorial Prize	Geeta Narang
The Zaidee Horsfall Prize	John Gould
The Lawson Prize	Christopher Morse
The George B. Pickett Prize	Jane Douce
The McCawley Classical Prize	Margaret Smith
Dr. M.A.B. Smith Prize	Colin Ingalls
AND A STREET STATE OF THE STATE	Colin Roald

The Major Cecil R. Thompson Prize Ricky Conrad E. Lyssa McKee

## **ENTRANCE SCHOLARSHIPS** AND BURSARIES **Arts and Science**

	CANAL STREET	The state of
	Alexandra Society	Alice Crawley
	Samuel Charles and the same	Heidi Hugli
		Jennifer Morawiecki
	Susanna Almon	David Jackson
	Alumni Association	Chere Chapman
		S. Allison Davis
		Tara Day
		David MacFarlane
	Arthur L. Chase	Neil Cameron
	Henry S. Cousins	Sara Hill
	John Stephen Cowie Memorial	Mark Fleming
	AND DESCRIPTION OF THE PARTY NAMED IN	Elizabeth Sancton
	The Dr. Norman H. Gosse	PeterGiddens
	Hazen Trust Scholarship	Stacy Gillis
	AND RESIDENCE OF THE PARTY OF T	Robert Hart
	The Reverend J. Lloyd Keating	Jennifer Corcoran
	Hon. Ray Lawson	Tracey Marshall
	Charles E. Merrill Trust	Scott Simpson
	H.H. Pickett Trust	Carla Araujo
		Gretchen Fitzgerald
		Peter Jelley
		Danielle Morrison
	Margaret Rice	Lisa Dennis
		Beth Edwards
		Paula Lerikos
	Unviersity Scholarship	Jill Borodin
	attacher and it is to the	Richard Creaser
		Lia Daborn
		Nada Haidar
		Susan Humphreys
		H.A. Sandy MacKay
		Mark McElman
		Christine Stoddard
		D. Mark Thompson
		Christopher White
	W. Garfield Weston Foundation	Nigel Biggar
	Mrs. W.A. Winfield	Walter Hannam

## IN-COURSE SCHOLARSHIPS

## **Arts and Science**

Alexandra Society	Michelle Prostak
Dr. W. Bruce Almon	Susan Isa
Alumni Association	Paul Charlebois

The Beaver Award

Dr. G. Frederick Butler Dr. John F. Godfrey Travelling The Honourable Ray Lawson

H.H. Pickett Trust

Archbishop Robert Runcie Stevenson Frank Sobey

Clare Strickland Vair University Scholarship

Andre Han Susan Owen Paul Atanya Imogen Fox Benjamin Schreiner Kyle Fraser Kathryn Morris Kevin Gibson Irfan Mian Colin Ingalls Colin Roald Tania Robinson Mary Abbott Hilary Atherton Laurie Cook Susan Corkum Alsion Creech Brian Curry Jane Doucet Sinikka Ellion A. Margaret Estok Catriona Fekete Heather Fournier Suk Han Fung Brigid Garvey Kevin Gormely Mary Grise Andrew Han

Heather Fournier

Andrew Hartlen Jason Haslam Patricia Hyrek Susan Isa Troy Jollimore Stephen Jones Stephen Kirkpatrick David Luft Tracy MacIntyre D. Gregory MacIsaac Cheryl Marshall Jennifer McDonald Wendy-Ann McGuinness Geeta Narang Andrew Newcombe Valerie Pottie Geoffrey Rector

Annika Renborg

Kimberly Schofield

John Reynolds

Kara Sutherland

Catherine Torne

Jennifer Walker

Kathryn Wood

Krista Blair

Paul Sandhu

W. Garfield Weston Scholarship

# STUDENT ORGANIZATIONS

# The University of King's College Students' Union

The University of King's College Students' Union is the continuing representation of the students' will. The University of King's College attempts to provide such services as will aid in the realization of each student's goal. Examples of these services are the following: a comprehensive health insurance plan, the Yearbook. and representation in all aspects of the University. In addition, the Students' Union owns and operates the campus lounge, the HMCS King's Wardroom.

The Union is governed by its members in two semiannual General Meetings at which all members are expected to exercise their right to direct decisionmaking. Between these two meetings, the Students' council acts as the governing body of the Union, and the Executive, in turn, is charged with the daily administration of King's Students' Union affairs.

Council operates through standing committees, such as Constitutional Review, Social, Graduation, and Finance, as well as through various ad hoc committees. Council also administers the "K point" system (q, v)and all student societies.

## King's College Day Student Society

The Day Student Society promotes the interests of the non-resident members of the College. It administers the College Fee paid by each non-resident student registering at King's.

## King's College Women's Athletic Association

Executive officers of this association are the President, Vice-President, Secretary, Treasurer and Inter-Wing Manager. Its objective is the organization, administration, and promotion of women's athletics at the College. Women's varsity teams compete in soccer, rowing, volleyball and basketball within the Women's Division of the N.S. College Conference, and the volleyball team is a member of Volleyball Nova Scotia with the full playing privileges of that organization. A strong Inter-Wing programme operates two nights per week, and the swimming pool is available for recreational swimming every evening. The Women's Athletic Association in conjunction with the Men's Athletic Erin Casey Association is also responsible for the organization and administration of the University's annual Awards Banquet and Dance.

## King's College Men's Athletic Association

The executive of this association (President, Vice-President, Secretary, Treasurer and Inter-Bay Manager) is responsible for the organization, administration and promotion of the men's athletic programme at the University. Varsity athletics includes soccer, rugby, rowing, volleyball, and basketball. The Inter-Bay League features spirited and sometimes hilarious competition between the various men's residences on the campus. Competition in road racing, volleyball and basketball are available to inter-bay competitors, and all bay members are encouraged to participate. In addition, weightlifting is available and the swimming pool is open daily for student use. The Men's Athletic Association in conjunction with the Women's Athletic Association is also responsible for the organization and administration of the University's annual Awards Banquet and Dance.

## King's College Theatrical Society

The society was founded in 1931 to further interest in theatre and drama at the College. Every year, the Society puts on a Fall and Winter production; the former is usually a group of one-act plays, and the latter is a musical.

## The Record

The Record, founded in 1878, evolved from a magazine to its current place as the College Yearbook. It includes a summation of the year's activities and awards.

## The Quinctilian Debating Society

The Ouinctilian Society, founded in 1845, is the oldest surviving debating association in the British North America.

## The Haliburton

The Haliburton was founded and incorporated by the Act of Legislature in 1884, and is the oldest literary society on a college campus in North America. Its object is the cultivation of a Canadian Literature and the collecting of Canadian books, manuscripts, as well as books bearing on Canadian History and Literature. College students and interested residents of the metropolitan area meet to listen to papers and readings given by literary figures and by the students.

## The Ancient Commoner

The Ancient Commoner is the student newsletter, scandal sheet and gossip column.

## The North End News

The North End News is the publication of the students of the University's Journalism School. It is reported, edited, and produced completely by the students to cover news and events of the North End of Halifax.

# The St. Andrew's Missionary Society

The society was founded in 1890. Its object is to promote interest in missionary work and to further the gospel of Christ especially in the Maritime Provinces, and particularly on the University campus. The annual meeting is held on St. Andrew's Day, or as near to it as possible. The society seeks to direct its energies to the development of the spiritual life open to university students at King's and promotes a strong and lively witness to the Christian faith on the university campus. On the larger scale it addresses itself to the concerns of the faithful of the Dioceses of Nova Scotia and Fredericton.

## The King's College Chapel Choir

The Choir enjoys a membership of approximately 30 students, sings in the Thursday and Sunday services, and has a considerable range of liturgical music. In celebration of the Bicentennial, the Choir recorded a 200th Anniversary Album during the 1988/89 academic year.

A small number of choral scholarships are available to choir members. Applications may be made to the Choir Director.

# Musica Regalis (The King's Madrigal Society)

The King's Madrigallers sing unaccompanied secular songs of the sixteenth and seventeenth centuries. Membership in the society is open to all members of the College, presuming, of course, that they are interested, able, and not prone to tone-deafness. Madrigallers go madrigalling for the sheer enjoyment of the activity itself; they occasionally perform publicly too.

## The St. Thomas Aquinas Society

This group is concerned with the maintenance of the liturgical life of the College.

## Awards

The Students' Union awards its students "K's" for participation in all aspects of College Life. Under this system, begun in the 1956/57 academic year, students receive a silver "K" upon amassing 250 points and a gold "K" when they have acquired 500.

In addition several awards are presented to students for outstanding achievements in extra-curricular activities:

The Bob Walter Award. Awarded to the graduating male student who best exemplifies the qualities of manhood, gentlemanliness, and learning, and has contributed to the life at King's.

The Warrena Power Award. Awarded annually to the graduating female student who best exemplifies the qualities of womanhood, gentleness, and learning and

has contributed to the life at King's.

The Sandra MacLeod Memorial Award. This award commemorates the life of Sandra MacLeod, a University of King's College student who died in 1973 and may be given to any undergraduate member of King's, whether in residence or a day student. The award is made to a student with a good scholastic record, who by the fullest use of his or her qualities of character and mind, makes a contribution to the University of King's College. The award may be given to a student in any year of his or her degree but will be given only if there is a deserving recipient. The award is made at the annual Alumni dinner in May. For further details on nomination of candidates, see the Registrar.

The Michael Elliott Memorial Award. This award, made possible through donations from Michael's family and friends, is to be awarded to a student beyond the first year returning to the University of King's College with a good academic standing. It is to be made to a student who, as Michael did, displays integrity of character and a spirited concern for the lives of others, and who has made an all-round contribution to the life of the University. The award will be given only if there is a deserving recipient. For further details on nomination of candidates, see the Registrar.

The Michael Saunders Award. Given by Michael Saunders, '52, in memory of his years at King's, this award is for a student from New Brunswick, with satisfactory academic standing, who shows financial need and who has made a positive commitment and contribution to life at the University of King's College Preference may be given to a student entering Holy Orders of the Anglican Church of Canada. For further details on nomination of candidates, see the Registrar. The R.L. Nixon Award. This award is given annually to the resident male student who, in the opinion of his fellows, contributes most to residence life in King's. The Margaret J. Marriner Award. This award is the women's counterpart of the R.L. Nixon Award. It is presented to the woman who contributes most to residence life at King's.

The John F. Godfrey Journalism Book Award. Established by the Alumni Association in 1987 to honour former King's President John F. Godfrey and his contribution to the School of Journalism, this award will be given to a Journalism student who has made a significant contribution to life at King's.

The H.L. Puxley Award. Awarded annually to the besall-round male athlete.

The Bissett Award. This award is given annually to the best all-round female athlete.

The Arthur L. Chase Memorial Trophy. This is presented annually to the student who has contributed most to debating in the College.

The Ron Buckley Award. Awarded annually to the most valuable player on the Men's Varsity Soccer Team.

The G.H. McConnell Award. Presented annually to the men's varsity basketball player who best combines ability and sportsmanship.

The Beaver Club Award. Established by the "Beavers," a group of students who served in the Second World War and who lived at King's, this award.

is presented annually to a returning resident student, with above average academic results, who has established a significant presence in some extracurricular activity which enhances the quality of student course at King's.

The Helen Roby Choral Scholarships. Awarded annually by the Scholarship Committee at the nomination of the Choirmaster of the King's Chapel Choir, these scholarships commemorate the outstanding contribution to the College of Helen Roby, an alumna, who was for twelve years Choirmistress of the Chapel.

## **Student Services**

Canada Employment Centre on Campus

The main function of the Employment Centre is to aid students during the academic year in their efforts to obtain permanent, summer, or part-time employment. It is located on the fourth floor of the Dalhousie Student Union Building, and operates Monday through Friday from 8:00 a.m. to 4:30 p.m. (Telephone 494-3537).

The Employment Centre also has useful information on resume preparation, interview techniques, and jobsearch skills.

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

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

Students are encouraged to visit the Employment Centre on a weekly basis throughout the school year for any type of employment assistance.

In addition, there are opportunities for King's students to earn part of their College expenses by working in the Library, Gymnasium, Dining Hall, or as Campus Police. For information on these positions, students should consult the Office of the Bursar at King's.

Counselling and Psychological Services

The Counselling and Psychological Services Centre offers programmes for personal, career, and educational concerns. Counselling is provided by professionally trained male and female 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 Training and Shyness Clinic, Resume Writing and Job Search Skills. Information on a wide variety of careers and academic programmes is available in the 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 for hose individuals who have been out of school for a Period of time is available 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 Dalhousie Student Union Building. Inquire or make appointments by dropping in, or by calling 494-2081.

## **International Student Centre**

The International Student Centre provides services and programmes for the University'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 3J5, or telephone (902)494-7077.

## **University Health Services**

Dalhousie University operates an outpatient service, in Howe Hall, at the corner of Coburg Road and Le-Marchant 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. Dalhousie 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 his or her doctor.

The cost of any medication prescribed by a physician

is recoverable under a prepaid drug plan administered by the King's Students' Union.

## **Writing Workshop**

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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 writing skills, 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.

## **Athletics Programmes**

The Department of Athletics is an integral part of campus life at King's. The University is a member of both the Nova Scotia College Conference and the Canadian Colleges Athletic Association. Women's varsity teams compete in soccer, basketball, volleyball and rowing, while men compete in soccer, basketball, volleyball, rowing and rugby.

The Director of Athletics works in co-operation with the elected representatives of the King's Amateur Athletics Association (A3 or CUBE) to provide an intramural programme which is characterized by spirited co-ed competition among the student body. We feel safe in saying that King's Interbay/Wing competition is unique among college intramural programmes in Canada in its ability to combine whimsical digression with the release of physical agression. In short, the intramural programme at King's offers generous portions of fun to its participants, in the guise of events such as road racing, volleyball, basketball, backgammon, chess, Trivial Pursuit, and snow football.

The College also offers weight training, aerobics classes, swimming and other related services for those students who are interested in achieving or maintaining a more balanced level of personal fitness. Possibly the most inviting feature of the King's intramural and recreational programmes is the degree to which they are demand-responsive. At King's, you truly have the opportunity to have your opinions heard and your interests met (within reason, of course) through intramural activities.

For the Varsity athlete, King's offers one of Nova Scotia's best opportunities for those who wish to combine the pursuit of academic excellence with an equal commitment to excelling in their chosen sport. King's affords the true student/athlete a unique environment in which to enjoy a close-knit, highly personal community atmosphere coupled with challenging athletic competition.

In summary, the King's Athletic Department offers a dynamic opportunity for the student who wishes to remain involved in athletics after completing high

school. For the serious athlete, there are varsity programmes which are characterized by a commitment to excellence. For those whose aims are more recreational in nature, the College offers a surprisingly wide range of exciting and enjoyable activities from which choose. We urge every prospective student to join us a his or her chosen level of involvement.

## Societies Connected with the College

## Alumni Association of King's College

This Association, incorporated in 1847 by Act of the Legislature, consists of graduates and others whose objects is the furtherance of the welfare of the University. The Association maintains annual scholarships, and supports alumni, student and university activities.

The annual meeting of the Association is held during the week of Encaenia.

## Officers(1990-91)

## President

Ms. Colleen McNamara 75 Hardisty Court Dartmouth, N.S. B2V 1K8

## **Vice-Presidents**

Mr. Robin Calder 8 Falcon Place Halifax, N.S. B3M 3R4

Mr. Michael Nichol 51 Richlin Crescent Ottawa, Ontario K2B 8L5

## Treasurer

Ms. Jane Spurr 2548 Gottingen Street Halifax, N.S. B3K 3C4

Director of Alumni Affairs and Development Jone Mitchell University of King's College Halifax, N.S. B3H2A1

## The Alexandra Society of King's College

This Society, which has branches all over the Maritime Provinces, was formed in Halifax in 1902 as the Women's Auxiliary to the College. It maintains an annual scholarship and bursary fund and provides a number of entrance scholarships.

# Officers 1990-91

# Honorary President

Mrs. Arthur G. Peters, 1370 Tower Rd., Halifax, N.S. B3H2Z1

# Honorary Vice-President

Mrs. G.C. Lemmon, 115 Church St., Fredericton, N.B.

# Immediate Past-President

Mrs. J.A. Munroe, 1350 Tower Road, Halifax, N.S. B3H2X1

## president

Mrs. F. Trynor, 317 Purcell's Cove Road, Halifax, N.S.

## First Vice-President

Mrs. H.L. Puxley, 45 Dahlia Strett, Dartmouth, N.S. Miss Mary Beth Harris, 45 Admiral St., Charlottetown, P.E.I. C1A 2C5

## Treasurer

Mrs. A.G. MacIntosh, 39 Clifton Street, Box 1542. Truro, N.S. B2N 6A4

## Recording Secretary

Mrs. E.L. Linton, 15 Citadel Court, Eastern Passage, N.S. B3G 1C5

## Corresponding Secretary

Mrs. H.T. Creighton, 1721 Cambridge Street, Halifax, N.S. B3H 4A8

## Conveners

## Friends of King's

Mrs. Edith Baxter, St. Stephen's Rectory, R.R.1, Lake Charlotte, N.S., BOJ 1YO

Mrs. A.G.H. Fordham, Aprt. 1103, 1074 Wellington Street, Halifax, N.S., B3H 2Z8

## Hospitality

Mrs. Margaret Banfield, 5643 Duffus St., Halifax, N.S., B3K 2M7

## Publicity

Miss Dora Pepper, 6303 Cork Street, Apt. 209, Halifax, N.S. B3L 1X1 Pins

Mrs. Joy Smith, 1606 Oxford Street, Halifax, N.S. B3H

## Scrapbook Custodian

Miss Doris Harding, 1030 South Park St., Apt. 615, Halifax, N.S., B3H 2W3

## Telephone

Mrs. F. Edwards, 1521 LeMarchant St. Apt. 4G, Halifax, N.S. B3H 3R2

## Dean of Women

Ms. Susan Tuck, Dean's Suite, Alexandra Hall, University of King's College, Halifax, N.S. B3H2A1 Editor, Tidings

Ms. Susan Williams, 6360 Coburg Road, Halifax, N.S. **B3H2A1** 

## **Branch Presidents**

## Dartmouth Branch

Mrs. Alma Clarke, 28 Brookdale Crescent, Dartmouth. N.S. B2A 2R5

## Sydney Branch

Ms. Jean Moffatt, 192 Cartier Street, Sydney, N.S. B1P

## Saint John Branch

Mrs. E.R. Puddington, 14 King's Square South, Apt. 703, Saint John, N.B., E2L 1E5

## **Prince Edward Island Branch**

Miss Mary Beth Harris, R.R. 1, Battery Point Road Charlottetown, P.E.I. C1A 1P92

## Divinity

With the establishment of the Atlantic School of Theology during 1974, the work of the Faculty of Divinity of the University of King's College was transferred so that School and the Faculty dissolved as a teaching component of King's College.

Divinity scholarships awarded by King's College are tenable at the Atlantic School of Theology.

Details of the basic requirements and offerings of the Atlantic School of Theology are given in a bulletin published separately and available from that School on request.

# Director of Parish Field Work and Divinity Secre-

Theodore S. deBruyn, B.A. (Calvin College), M.T.S. (Calvin Theological Seminary), Ph.D. (U. of St. Michael's College)

## Master of Sacred Theology (M.S.T.)

In conjunction with the Institute of Pastoral Training, the University of King's College offers the degree of Master of Sacred Theology in the field of Pastoral Care. Particulars concerning regulations for this degree may be obtained from the Executive Director of the Institute of Pastoral Training at the University of King's College. A degree in Divinity is a prerequisite.

## **Institute of Pastoral Training**

The organization and incorporation by the Nova Scotia Legislature of the Institute in 1958 by collaboration of the University of King's College, Pine Hill Divinity Hall, the Divinity School of Acadia University. Presbyterian College (Montreal), and representatives of the Medical Faculty of Dalhousie University, pioneered this modern development in theological education on the Canadian scene. It is the objective of the Institute to bring pastors and theological students face to face with human misery as it exists both in and out of institutions. principally through courses in Clinical Pastoral Education, usually commencing late April at the Nova Scotia Hospital, Dartmouth, (Mental); the Victoria General Hospital, Halifax; Waterford Hospital, St. John's, Nfld.; Western Memorial Hospital, Corner

Brook, Nfld; and Springhill Medium Correctional Centre, Springhill.

While the above-mentioned courses aim primarily at increasing the pastoral competence of the parish minister or church worker, students of particular aptitude and interest can be guided in further theological training to become qualified teachers of these subjects in theological courses, directors of clinical training courses, and institutional chaplains; also, in certain cases, to become experts in particular specified fields, such as ministering to the mentally ill or alcoholics, where the church may have a significant role to play in partnership with other professions.

A recent development in this field was the formal constitution in December 1965 of "The Canadian Council for Supervised Pastoral Education". In 1974, the Canadian Council for Supervised Pastoral Education officially adopted the shorter and now more appropriate title of Canadian Association for Pastoral Education (C.A.P.E.) which seeks to coordinate training across Canada, establishing and maintaining high standards, accrediting training courses, and certifying supervisors. The Institute of Pastoral Training has links with the Association, usually having one or more members on its Board and on its Accreditation and Certification Committee.

Other goals of the Institute include the production of teaching materials, the promotion of workshops, and the establishment of a library and reference centre at the Institute Office.

One-to four-day workshops have been sponsored in various localities in the Maritimes, and information as to what is involved in setting one of these up may be obtained from the Secretary of the Institute.

All enquiries concerning courses offered should be addressed to the Executive Secretary of the Institute of Pastoral Training, 1300 Oxford Street, Halifax, Nova Scotia, B3H3Y8. Board and lodging can usually be arranged, and some bursary assistance is forthcoming. Academic credit is given by certain Canadian and American colleges (including the Atlantic School of Theology, Acadia Divinity College and Queen's College, Newfoundland) for satisfactory completion of Clinical Pastoral Training.

# Faculty of Arts and Social Sciences

#### Introduction

The Faculty of Arts and Social Sciences was established on July 1, 1988. It consists of the Arts and Social Science Departments in the old joint Faculty of Arts and Science. In these broad categories are units that study and teach in the humanities, languages, social sciences, and the performing arts. In addition there are interdisciplinary programmes of study leading to the BA degree. The Faculty of Arts and Social Sciences (FASS), together with the Faculty of Science and the School of Education, form the College of Arts and Science.

The central role of the Faculty of Arts and Social Sciences is the education of those wishing to comprehend the heritage of the past, recognize the complexities of the present, and use that understanding to plan for the future. The undergraduate programmes of the Faculty stimulate and refine the processes of critical analysis, disciplined speculation, and artistic expression. To understand more fully the conventions, history, and traditions of one's society is to understand more about oneself. Study and teaching in the Faculty of Arts and Social Sciences frequently involves questioning and analysing why things are as they are, as well as understanding what they are. Some Departments in FASS teach and evaluate performance. The values associated with study and research in the Faculty of Arts and Social Sciences have long been recognized as central to a liberal education.

### Officers of the Faculty

Location:

3rd Floor

Arts & Administration Building

Telephone: FAX:

(902) 494-1440 (902) 494-1957

### Dean

R.J. Smith, BA (Natal), MA (Oxon), PhD (Natal), McCulloch Professor in English Telephone: (902) 494-1439

### Associate Dean

M.E. Binkley, BA, MA, PhD (Tor.), Associate Professor of Sociology and Social Anthropology Telephone: (902) 494-1254

#### Assistant Dean (Students)

R.D. Byham, BM, MM (III.Wesleyan), Associate Professor of Music Telephone: (902) 494-1440

### Secretary

H.E. Morgan, BA (UBC), MA (Wash.), BLitt (Oxon), PhD (Wash.), Assistant Professor of English

Telephone: (902) 494-3384

### **Administrator**

D.G. Miller, BCom (Acadia) Telephone: (902) 494-1441

# Departments and Programmes of the Faculty of Arts and Social Sciences

Canadian Studies

Classics

Comparative Religion

English

French

German

History

International Development Studies

Music

Philosophy

Political Science

Russian

Sociology and Social Anthropology

Spanish

Theatre

Women's Studies

### Degree, Certificate and Diploma Requirements

See section 11 of the College of Arts and Science entry for information on the requirements for degrees, certificates and diplomas in the Faculty of Arts and Social Sciences.

African Studies

Location:

Pearson Institute Halifax, N.S.

Telephone:

(902) 494-2142

Advisor:

John Flint 494-2011

Dalhousie University offers a set of classes in different disciplines which focus on Africa. Its Centre for African Studies, established in 1975, coordinates teaching, seminar, research, community and publications programmes in African Studies. Its faculty associates hold appointments in the social sciences, humanities and professional schools. Undergraduate classes on Africa are usually available in Economics, History, International Development Studies and Political Science. Other classes with a broader Third World focus, which usually includes African content, are offered in Comparative Religion, English, Education, Health Law, and Sociology and Social Anthropology.

Students interested in Africa are encouraged to select classes from these several disciplines which concentrate on the continent. These could be included in single or combined major or honours programmes in Economics, History, Interrnational Development Studies and/or Political Science.

### **Ancient History**

See under Classics.

### **Anthropology**

See under Sociology and Social Anthropology.

### Architecture

ARCH 1000R Introduction to Architecture: An introductory class showing architecture as a bridge between the Arts and Science providing an insight into professional architectural studies. In the first term discussion centres around some components of architectural design; in the second term, architecture in present day life. Available as an elective in the general degree programmes in Arts and Social Sciences and Science. This class is held at TUNS.

Instructor: Format:

Enrolment:

Staff

mat: Lecture/seminar 1 hour, practical 2

hours

Limited

# Canadian Studies Programme

Location:

Multidisciplinary House 1444 Seymour Street

Halifax, N.S.

Telephone:

(902) 494-3814

### Coordinator:

J.A. Wainwright - (494-3814/3384)

### Faculty

- R. Apostle (Sociology and Social Anthropology)
- B. Bednarski (French)
- M. Bradfield (Economics)
- D. Cameron (Political Science)
- D. Clairmont (Sociology and Social Anthropology)
- M. Cross (History)
- J. Elliott (Sociology and Social Anthropology)
- R. Finbow (Political Science)
- B. Lesser (Economics)
- P. Monk (English)
- I. Oore (French)
- H. Runte (French)
- J. Smith (Political Science)
- G. Taylor (History)
- A. Wainwright (English)

### Aim

The purpose of the programme is to allow students to concentrate part of their work on Canadian Studies both within their major field and outside of it. For example, a student who is planning to major in a subject will take a number of classes in that subject that are designated as Canadian. The student will in addition take a number of classes that are designated as Canadian outside his or her major field.

In other words, the Canadian Studies
Programme does not at present attempt to
establish a new major field. It seeks to use any
one of a number of departments in the Faculty of
Arts and Social Sciences as a base around which a
student may effectively cluster a number of classes
in Canadian subjects. It is hoped that in the
future an interdisciplinary seminar in Canadian
Studies will be available; students in such a
seminar will consider significant issues in
Canadian history, politics, society, and literature
and their interrelated contribution to this
country's past, present, and future.

#### Classes

Before enroling in any of the classes listed below, students should consult with the Coordinator of Canadian Studies in the Multidisciplinary House.

In addition to the disciplines and classes listed below, there are individual Canadian content classes available from the Departments of Comparative Religion and Music, and from the School of Education. Please consult with the appropriate Chairs.

Students who are interested in a Canadian Studies programme should plan in their first year to take an introductory class in the following subjects: English, French, History (preferably HIST 1200R if available), and in either Political Science or Sociology and Social Anthropology. (Prospective Economics majors may substitute an introductory class here).

With attention to prerequisite classes, in the second, third, and possibly fourth years of study, students, either as part of, or in addition to, fulfilling their major discipline requirements, should take:

One or more classes in English from the list below;

One or more classes in French from the list below, including FREN 2021A/FREN 2022B (Études pratiques/Practice in Language Skills -please consult the Department for appropriate section);

One or more classes in History from the list below;

One or more classes in either Political
Science or Sociology and Social
Anthropology from the lists below
(again, an Economics major may
substitute an upper-level class here).

NOTE: Classes marked \* are not offered every year. Please consult the current timetable on registration to determine if these classes are offered.

## ENGLISH CLASSES CROSS-LISTED WITH CANADIAN STUDIES

\*ENGL 2207R Canadian Literature
\*ENGL 4357R Honours Seminar in Canadian Literature

# FRENCH CLASSES CROSS-LISTED WITH CANADIAN STUDIES

FREN 2021A/FREN 2022B Études
pratiques/Practice in Language Skills
FREN 2203A/B Approaches du texte
littéraire/Approaches to Literary Texts
\*FREN 3025A/B Les Parlers acadiens:
Introduction linguistique/Linguistic Introduction to
Acadian Dialectology

\*FREN 3900A/FREN 3901B La Littérature canadienne-française/French Canadian Literature \*FREN 3910A/B Études acadiennes/Acadian Studies

Studies
\*FREN 4902A Écrivains Québecois
Contemporains/Contemporary Quebec Writers
\*FREN 4904A/B Écrivaines Quebécoises/Quebec

\*FREN 4904A/B Ecrivaines Quebécoises/
Women Writers

HISTORY CLASSES CROSS-LISTED WITH CANADIAN STUDIES HIST 1200R History of Canada \*HIST 2202B Canada's Industrial Revolution, 1850-1950

HIST 2211A Social History of Canada Before 1870

HIST 2212B Social History of Canada Since 1870 HIST 2221A Rough Justice: Canadian Popular Culture to the 1890's

HIST 2222B Rough Justice: Canadian Popular Culture, 1890's to Present

HIST 2230R Canada in the 20th Century HIST 2270R The Atlantic Provinces

\*HIST 2334A/B The United States, Canada, and the World

\*HIST 3220A/B Youth Culture in Canada, 1950's to 1970's

\*HIST 3225A/B Crime, Punishment and the Criminal Law in Canadian Society

\*HIST 3230A Labour and Community in 19th Century Canada

\*HIST 3231B The Canadian Working Class: The 20th Century Experience

\*HIST 3245A French Canada

\*HIST 3250A Canada Within the Empire

\*HIST 3255B The Age of MacDonald and Laurier

\*HIST 3260B West by North: History of the Canadian West and North

\*HIST 3272A/B Themes in the History of Atlantic Canada

HIST 3273A Nova Scotia: Pre-Confederation HIST 3274B Nova Scotia: Post-Confederation \*HIST 3286A/B The Urban Experience in Canada

\*HIST 3292A/B Wealth and Power in North America

\*HIST 3302A/B Technology and History in North America

\*HIST 3610A/B Women in Capitalist Society: The North American Experience Cross-listed in Women's Studies as \*WOST 3305A/B.

\*HIST 3750A/B History of Seafaring

Please note: 3000-level classes have prerequisites which apply to Canadian Studies students as well as History majors.

### POLITICAL SCIENCE CLASSES CROSS-LISTED WITH CANADIAN STUDIES

POL 2200R Canadian Government and Politics
\*POL 2228B Government and Business Relations
\*POL 3205A Canadian Political Thought
POL 3216A Local and Regional Government
POL 3220A Intergovernmental Relationships in
Canada

\*POL 3224A Canadian Political Parties
\*POL 3228B Interest Groups: Function and

Management
\*POL 3235B Regional Political Economy in
Canada

\*POL 3245A The Judicial System and Canadian Government

\*POL 3250B Canadian Public Administration POL 4204R Advanced Seminar in Canadian Government POL 4240A Policy Formulation in Canada POL 4241B Introduction to Policy Analysis

SOCIOLOGY AND SOCIAL ANTHROPOLOGY CLASSES CROSS-LISTED WITH CANADIAN STUDIES \*SSA 2110R Canadian Society

Please note that this class is not offered every year. However, there are numerous Canadian content classes in the Department. Students should consult with the Chair and then with the Coordinator of Canadian Studies.

## ECONOMICS CLASSES CROSS-LISTED WITH CANADIAN STUDIES

ECON 2232R Canadian Economic History ECON 3316B Collective Bargaining and Labour Market Policy

\*ECON 3317B Poverty and Inequality ECON 3324R Public Finance \*ECON 3326A Money and Banking

ECON 3332A/B Resource Economics
•ECON 3336B Regional Development

\*ECON 3432R Regional Economics

\*ECON 4000R Seminar on Economic Policy (not usually offered)

\*ECON 4426B Monetary Policy \*ECON 4433B Intergovernmental Fiscal Relations

Other Economics classes that deal with Canadian issues are available. Students should consult with the Chair and with the Coordinator of Canadian Studies.

### Classics

Location:

1244 LeMarchant Street

Halifax, N.S. (902) 494-3468

Telephone:

R. Friedrich (494-3468)

### Undergraduate Advisor

CJ. Starnes (494-3468)

## Professors Emeritus

AH. Armstrong, MA (Cantab.), FBA JA. Doull, BA (Dal), MA (Tor.)

### Professors

IP. Atherton, MA (Oxon.), PhD (Liverpool)
R.D. Crouse, BA (Vind.), STB (Harv.), MTh
(Trin.), PhD (Harv.) DD (Trin.)
R. Friedrich, Dr.phil. (Goettingen)

### Associate Professors

WJ. Hankey, BA (Vind.), MA (Tor.), DPhil (Oxon.)

D.K. House, MA (Dal), PhD (Liverpool)
P.F. Kussmaul, Dr.phil (Basle), Dr.phil.habil.
(Heidelberg)
C.J. Starnes, BA (Bishop's), STB (Harv.), MA
(McG), PhD (Dal)

### Adjunct Professors

P.J. Calkin, BA (UBC), MA, PhD (Dal) A.M. Johnston, BA (MtA), MA, PhD (Dal) T.E.W. Segelberg, DTh, FK (Upsala)

Classics is the study of our origins - how the Christian-European tradition to which we belong arose out of the ancient civilizations of the Mediterranean area. The fundamental ideas and beliefs of Europeans and North Americans, by which we are distinguished from Chinese, Indians, and those of other traditions, were formed in the meeting of Greek and Oriental cultures in ancient times. To understand fully our own contemporary culture, we must study its historical origins.

Such an understanding of the unique aspects of Western culture is most important in the contemporary world where all cultures have come into relation with one another.

Classics is the study of the intellectual forces that have shaped our civilization, and to understand fully the assumptions and ideas of that civilization we have to go back to their original formulation. Our literary forms, the shape of our political and social institutions, such disciplines as Philosophy, History, and many of the Natural Sciences all originated and took shape in the ancient cultures of Greece and Rome.

Classics is thus more than the study of ancient languages. Languages are not learned for themselves, but because they are necessary for the scientific study of ancient history, literature, religion, mythology and philosophy. The Classics Department at Dalhousie provides instruction both in these subjects and in ancient languages. While previous preparation in one or more ancient languages is desirable, it is nevertheless quite feasible for a student who discovers an interest in classics to begin his language studies at university.

Students of classics must learn Greek and Latin if they wish to take an honours degree or to go on to graduate studies in the field, but the Department offers a variety of classes in Greek and Roman Literature, Ancient and Medieval Philosophy, Ancient and Christian Religion, and general Classical Culture, which do not require a foreign language.

Classics is worth studying for its own sake by students who wish to obtain a better understanding of the common assumptions and beliefs of our society. This knowledge has always been regarded as pertinent to a career in politics and the higher levels of the civil service. For those who are thinking of the clergy, Classics is the most relevant preparation. Classical studies also prepare students for a life of teaching and

### **Degree Programmes**

**Honours Programmes** 

The candidate may choose between three programmes: BA with Honours in Classics (Ancient Literature), BA with Honours in Classics (Ancient History), or BA with Honours in Classics (Ancient Philosophy). In each case, it is highly desirable, but not essential, that the student begin the study of at least one of the classical languages during the first year of study. For purposes of meeting grouping requirements, Ancient History, and Ancient and Medieval Philosophy classes may be counted either as Classics credits, or as History and Philosophy credits, respectively.

To receive an Honours degree in Classics:

- Students must complete nine to eleven classes in Classics beyond the 1000 level chosen in accord with the general Faculty regulations for Honours.
- The programme must include work in either Greek or Latin Language and Literature to the 3000 level and work in the other language to an appropriate level as determined by the Undergraduate Advisor.
- The programme must be approved by the Undergraduate Advisor.
- Students must take the Honours Seminar and pass the Honours examination.

Whether the Honours degree is awarded in Ancient Literature, History or Philosophy depends on the area of the Department's offerings in which a larger part of the work is done.

Candidates for Honours and Combined Honours degrees who anticipate continuing their studies at the Graduate level in Classics should consult the calendars of the Graduate Schools of their choice concerning requirements for entry into Graduate programmes. It may be the case that additional preparation in the classical languages or in other aspects of ancient civilizations is required for entry into certain

### **Combined Honours**

Classics may be taken as part of a combined honours programme with other disciplines. Students interested in such programmes should consult with the chairs of the respective departments.

### 20 Credit Advanced Major

The department offers an advanced major For further information refer to specific regulations for this program on page 78. The Department normally requires students to take at least two language classes (in Greek and/or Latin)

### **BA** and **BSc**

Of classes offered by the department, CLAS 1000R, CLAS 1010R, CLAS 1020R, CLAS 1030R and CLAS 1100R and those classes in Ancient History and Religions, and Ancient and Medieval Philosophy not having a Language prerequisite should be especially useful to students taking a bachelor's degree. All classes beyond the 1000 level are available for major and minor programs in Classics. The Department is glad to assist students in working out programmes according to their interests.

Note: The following classes satisfy the first-year writing requirements for a degree: CLAS 1000R; CLAS 1010R; CLAS 1100R.

The programmes of all students majoring or honouring in the Department must be approved by the Undergraduate Advisor.

#### Classes Offered

Note: Classes marked \* are not offered every year. It is advisable to inquire at the Classics Department (494-3468) to determine if these classes are offered.

Note: The Introductory classes, and the more elementary classes in Ancient History and Religions, and Classical Philosophy listed below do not require knowledge of the ancient languages. However, students who plan to do advanced work in any of these areas are advised to begin study of the appropriate languages as early as possible.

CLAS 1000R Classical Literature: An introduction to classical civilization by way of the literature, read in English translations. Authors studied are Homer, the Greek Dramatists, Plato, Vergil and St. Augustine. This class meets the first year writing requirement.

W. Hankey/R. Friedrich/R. D. Instructors: Crouse/C. J. Starnes and others.

Lecture 2 hours Format:

Limit 100 including Classics Enrolment:

2000R

CLAS 1010R Ancient History: An Introduction to the Cultural History of the Ancient World: The first term is devoted to a study of the major pre-classical civilizations (Sumer, Egypt, etc.) with attention paid to the art, religion and social forms of these cultures as well as their political development. In the second term the civilizations of Greece, Rome, and Israel are studied, and their issue in the Early Christian world considered. As the class is intended as an introductory one, no special preparation is expected. There is no foreign language requirement. This class fulfills the first year writing requirement.

D. K. House Instructor: Lecture 2 hours Format: Limited Enrolment:

· Clas 1021A Ancient Art: Greece and the Ancient Near East: Aided by slides and films, in addition to lectures and readings, this class will study the origin and development of ancient art in Greece, Mesopotamia and Egypt to the end of the Hellenistic period.

G. Thomas (this is given at St. Instructor:

Mary's University) Lecture 3 hours Enrolment: Limit 50

\*CLAS 1022B Ancient Art: Rome and Christian Europe: Aided by slides and films, in addition to lectures and readings, this class will study the art of Ancient Rome after the Hellenistic period and of the Christian world to the end of the 14th century.

Instructor: W. J. Hankey Lecture 3 hours Format: **Enrolment:** Limit 50

Format:

CLAS 1100R Classical Mythology: Why has the mythology of the world of classical Greece and Rome been so central a part of the artistic, intellectual and religious culture of the Western world? This course explains the origin, meaning and importance of classical mythology. During the first term, work begins with a survey of preclassical mythology: this is explored through myths of the origin and creation of the natural world; here the early cultures of the Sumerians, the Egyptians and the Jews are studied. After a historical lecture on the origins of Indo-European mythology, attention turns to the world of Mycenean and Early Classical Greece; the works of Hesiod, and the myths of Prometheus are particularly closely considered in this section. In the New Year the understanding of the human world (community & family) through myth is the Principal pre-occupation; here the Iliad of Homer, the Aeneid of Virgil (for the Romans) and the Oedipus plays of Sophocles are the texts through which the mythological consciousness is analysed. The course concludes with a consideration of why the Greeks broke away from the world of myth and began to understand nature and human

culture through science and philosophy. This class fulfills the first year writing requirement.

J. P. Atherton Instructor: Format: Lecture 2 hours

Enrolment: Limit 200 including Classics

2100R

CLAS 1700R Introductory Greek: An introduction to Classical Greek. Greek is a highly inflected language and as such presents Englishspeaking students with a number of challenges not found in most modern languages. This class introduces the student in a systematic way to the most common and important elements of Classical Greek grammar. The aim of the class is to bring the student by the end of the year to read connected passages from Xenophon and other Greek prose writers.

Instructor:

Lecture 3 hours Format: Enrolment: Limit 50

CLAS 1800R Introductory Latin: An introduction to Latin through the study of its basic grammar. The aim of the class is to enable students to read Latin texts with the assistance of nothing more than a Dictionary.

C. J. Starnes Instructor: Format: Lecture 3 hours Limit 75 **Enrolment:** 

CLAS 2000R Classical Literature: An introduction to classical civilization by way of the literature, read in English translations. Authors studied are Homer, the Greek Dramatists, Plato, Vergil and St. Augustine. This class is the same as Class 1000R and may therefore not be taken by anyone who has taken that class.

Instructors: W. Hankey/R. Friedrich/R. D. Crouse/C. J. Starnes and others.

Lecture 3 hours Format:

**Enrolment:** Limit 100 including Classics

1000R

CLAS 2100R Classical Mythology: Why has the mythology of the world of classical Greece and Rome been so central a part of the artistic, intellectual and religious culture of the Western world? This course explains the origin, meaning and importance of classical mythology. During the first term, work begins with a survey of preclassical mythology: this is explored through myths of the origin and creation of the natural world; here the early cultures of the Sumerians, the Egyptians and the Jews are studied. After a historical lecture on the origins of Indo-European mythology, attention turns to the world of Mycenean and Early Classical Greece; the works of Hesiod, and the myths of Prometheus are particularly closely considered in this section. In the New Year the understanding of the human world (community & family) through myth is the principal pre-occupation; here the Iliad of Homer,

the Aeneid of Virgil (for the Romans) and the Oedipus plays of Sophocles are the texts through which the mythological consciousness is analysed. The course concludes with a consideration of why the Greeks broke away from the world of myth and began to understand nature and human culture through science and philosophy.

Instructor: Format:

J. P. Atherton Lecture 2 hours

Enrolment: Limit 200 including Classics

1100R

\*CLAS 2200R Ancient History: The Ancient City: An introduction to Ancient History through a study of the constitutions of the Greek city states (especially Athens) and of Rome. Basic texts, such as Aristotle's Athenian Constitution, are read in English translation. This class is open to first-year students. There is no foreign language requirement. This class is given alternately with Clas 2210R.

Instructor: Format:

P. F. Kussmaul Lecture 2 hours

**Enrolment:** Limit 50

\*CLAS 2210R Roman History: The Roman Empire and the Rise of Christianity: A continuation of the introduction to Ancient History through a study of the institutions and constitutional arrangements of the Roman Empire from the time of Augustus. The relation of the Empire to Christianity is a topic of primary interest. This class is given alternately with Clas 2200R and, like it, is open to first-year students. There is no foreign language requirement.

Instructor: P. F. Kussmaul Lecture 2 hours Format: **Enrolment:** Limit 50

CLAS 2361A/CLAS 2362B Ancient Philosophy from its Beginning to the Sixth Century AD: Proper attention is paid to the great classical philosophies of Plato and Aristotle studied in their historical context. Much emphasis is laid on the Greek philosophy of the first centuries AD and its influence on developing Christian thought. The first half considers the history from the Pre-Socratics to Plato. The second half moves from Aristotle to Plotinus.

Instructors: J. P. Atherton/W. J. Hankey

Format: Lecture 2 hours Cross-listed: PHIL 2361A/2362B Enrolment: Limit 50

Exclusion: CLAS 3361A/3362B

\*CLAS 2501A Introduction to Classical Rhetoric: In recent years rhetoric has attained great importance and significance for literary criticism and theory as well as for philosophy. The system of rhetoric and its terminology were developed and completed by the Greeks and Romans; therfore, Classical Rhetoric forms the basis of all modern approaches to rhetorical practice and

theory. This class is intended to introduce the student to the system and to the central terms of rhetoric, as they have been developed and shaped in the relevant texts of Greek and Roman authors All texts will be studied in English translation.

Instructor: R. Friedrich

Format: Seminar/Lecture 3 hours Cross-listed: COMPARATIVE

LITERATURE 2501A

Limit 25 **Enrolment:** 

CLAS 2700R Intermediate Greek: A continuation of CLAS 1700R and the normal second year class in Greek. The work of the class is divided equally between formal grammar sessions and the reading of Greek texts from Xenophon, Lysias and Plato. In the grammar sessions a complete and systematic review of all Greek grammar is undertaken during which the student meets the more difficult forms and constructions which are omitted in CLAS 1700R The aim of the class is to prepare the student to read the philosophical and dramatic texts of the 5th century BC.

Instructor: Staff

Format: Seminar 3 hours Prerequisite: CLAS 1700R or 2710R

Enrolment: Limit 25

CLAS 2710R Greek Prose: A study of Greek grammar through the reading of Greek prose authors (Xenophon, Lysias). Prerequisite: any 1000 level Classics class or equivalent.

Instructor: Staff

Enrolment:

Format: Seminar 3 hours

Prerequisite: Any 1000 level Classics class or

equivalent Limit 50

CLAS 2800R A Study of Latin Prose and Poetry: CLAS 2800R is a continuation of CLAS 1800R or CLAS 2810R. A study of the poetry and prose literature of Rome through a selection of texts. Particular attention is paid to improving the students' command of the grammar and syntax of the Latin language.

Instructor: P. F. Kussmaul Format: Seminar 2 hours Prerequisite: CLAS 1800R or 2810R **Enrolment:** Limit 25

CLAS 2810R Latin Prose: A study of Latin accidence and syntax through the reading of Roman prose authors (Caesar, Cicero).

Instructor: C. Starnes/P. Kussmaul Format: Seminar 3 hours

Prerequisite: Any 1000 level Classics class or

equivalent

**Enrolment:** Limit 75 •CLAS 2860R Latin Historical Texts:

J. P. Atherton/P. F. Kussmaul

Seminar 2 hours 1800R or 2810R

Prerequisitie: Enrolment: Limit 25

·CLAS 3280R Christian Beginnings and the Early History of the Church: Format: Seminar 2 hours

Enrolment: Limited

Instructors:

Format:

CLAS 3300R Pagan and Christian Schools from Clement of Rome to Augustine: The class considers the mutual effect of pagan and Christian intellectual, spriitual and institutional forms on one another in the first four centuries of the Common Era. In particular it treats the way in which the pagan schools and the Christian church mirror one another: the common elements and their opposed systematic relations. Students will ordinarily have some background in Ancient History and Philosophy.

Instructor: W. J. Hankey Lecture 2 hours Format: Limited Enrolment:

\*CLAS 3370R The Augustinian Tradition: The class considers the effect of Augustine on the philosophical and theological thought of late Antiquity and the Middle Ages. The relation to the Proclean Neoplatonism transmitted through Pseudo-Dionysius is a special concern. Texts from Dionysius, Eriugena, Anselm, Bonaventure, Aguinas and Cusanus are analysed. Students will ordinarily have begun either Greek or Latin though others may be admitted by permission.

W. J. Hankey Instructor: Lecture 2 hours Format. Enrolment: Limited

CLAS 3380R Medieval Philosophy: A study of the development of philosophy in the formative age of European civilization related to political, institutional, literary and theological concerns. An attempt is made to show how the legacy of classical and Christian antiquity was appropriated and reformed to constitute the ideology of medieval Christendom. The lectures are devoted mainly to the study and discussion of a few fundamental texts, beginning with Boethius' Consolation of Philosophy. Special attention is given to Anselm's Proslogion and the first few questions of Thomas Aquinas' Summa. It is the object of lectures to present the continuity of the historical development and to emphasize broad implications of the philosophical doctrines presented in the texts. In the later part attention is given to late medieval Platonism and Mysticism, to show something of the Reformation and modern philosophical and religious thought.

Instructor: R. D. Crouse Format: Lecture 2 hours Cross-listed: **PHIL 3380R** Enrolment: Limit 50

\*CLAS 3400R The Dialogues of Plato: This seminar involves the detailed study of a group of dialogues. The choice of dialogues varies from year to year.

Instructor: D. K. House Format: Seminar 3 hours Enrolment: Limit 25

\*CLAS 3410R St. Augustine's Confessions: A study of the three parts of Augustine's Confessions with a view to understanding his dissatisfaction with the various positions he adopted prior to his conversion to Christianity (Part 1), the practical consequences of this conversion (Part II), and the new theoretical understanding of time, space and motion which come out of his Trinitarian exegesis of the first chapters of Genesis (Part III). This class presupposes some knowledge of the history of Ancient Philosophy, and some of Latin. This class is given alternately with CLAS 3420R.

Instructor: C. J. Starnes Format: Seminar 2 hours Enrolment: Limit 35

\*CLAS 3420R St. Augustine's City of God: A study of Augustine's account of the failure of the Roman Empire and of the new Christian 'city' that replaced it. The class sometimes concentrates on the entire twenty-two books of the City of God and sometimes begins with a study of earlier accounts of Rome (Aeneid), and of the relations of Rome and the church in, for example, the Apostolic Fathers, the Acts of the Martyrs and Tertullian, before turning to the first ten books of the City of God. This class is given alternately with CLAS 3410.

Instructor: C. J. Starnes Format: Seminar 2 hours **Enrolment:** Limit 35

CLAS 3470R, Reading and Research: Ancient

CLAS 3480R, Reading and Research: Ancient

CLAS 3490R, Reading and Research: Ancient **Philosophy** 

\*CLAS 3500R Aristotle: This seminar involves the detailed study of either Aristotle's Metaphysics or De Anima or Physics or ethical and political treatises. The choice of texts varies from year to year.

Instructor: D. K. House Format: Lecture/Seminar 2 hours

Recommended background: CLAS 2361A/2362B Enrolment: Limit 25

CLAS 3510R Ancient and Modern Drama I:

Ancient and Modern Drama is a study of Western drama from its ritual beginnings in ancient Greece to its 20th century forms. It is presented in two parts, each forming a full credit class. However, both parts (CLAS 3510R and 3511R) are designed in such a way that they can be taken independently from one another. Ancient and Modern Drama I deals with ancient drama and theatre: their beginnings in the Dionysian ritual; the Dionysian festivals: production and stage conventions. The aim of this class is a study of Greek and Roman plays, both tragedies and comedies, by Aeschylus, Sophocles, Euripides, Aristophanes, Menander, Plautus, Terence and Seneca. This study will be accompanied by readings from Aristotle's Poetics and Horace's Art of Poetry. All texts will be studied in English translation. This class is given alternately with CLAS 3511R.

Instructor: R. Friedrich
Format: Seminar 2 hours
Recommended: CLAS 2000R

Cross-listed: Comparative Literature 3510R

Enrolment: Limit 25

\*CLAS 3511R Ancient and Modern Drama II:

Format: Seminar 2 hours Enrolment: Limit 25

CLAS 3700R Advanced Greek: This class which reads both a prose and a poetic work is the normal third class in Greek.

Instructors: D. K. House/R. Friedrich
Format: Seminar 2 hours
Prerequisite: CLAS 2700R

\*CLAS 3710R Greek Epic:
Instructor: R. Friedrich
Format: Seminar 2 hours

Prerequisite: CLAS 2700R Enrolment: Limit 15

\*CLAS 3720R Greek Lyric:

Instructor: Staff
Format: Seminar 2 hours
Prerequisite: CLAS 2700R
Enrolment: Limit 15

\*CLAS 3730R Greek Drama: Tragedy:

Instructor: R. Friedrich
Format: Seminar 2 hours
Prerequisite: CLAS 2700R
Enrolment: Limit 15

\*CLAS 3750R Greek Authors: Format: Seminar 2

hours

Prerequisite: CLAS 2700R Enrolment: Limit 15

CLAS 3760R Reading and Research of Greek Texts:

Format: Seminar 2 hours
Prerequisite: CLAS 2700R
Enrolment: Limit 15

\*CLAS 3780R Greek Historians:

Format: Seminar 2 hours
Prerequisite: CLAS 2700R
Enrolment: Limit 15

CLAS 3791A/B Reading and Research:

Format: Seminar 2 hours
Prerequisite: CLAS 2700R
Enrolment: Limited

\*CLAS 3800R Roman Satire:

Instructor: P. F. Kussmaul Format: Seminar 2 hours Enrolment: Limit 15

CLAS 3810R A Study of Vergil: A study of the development and importance of Vergil's basic themes and ideas embodied in the Aeneid. In the first part of the class special attention is given to his early work the Bucolics, where his themes begin to appear, and their development is then followed through the relevant parts of the Georgics. The main part of the class is devoted to the reading and discussion of the chief themes of the Aeneid, especially as they illustrate Roman political, religious and social ideas which have greatly influenced our own beliefs and institutions.

Instructors: J. P. Atherton/R. Friedrich
Format: Seminar 2 hours

Prerequisite: A class in Latin at the 2000 level.

Enrolment: Limit 15

CLAS 3820R Advanced Reading in Latin Literature:

Format: Seminar 2 hours
Prerequisite: CLAS 2800R
Enrolment: Limited

\*CLAS 3840R Latin Philosophical Texts: The purpose is to give students experience in reading philosophical Latin. Various authors are read from Cicero to the late Middle Ages.

Instructor: R. D. Crouse
Format: Seminar 2 hours
Prerequisite: CLAS 2800R
Enrolment: Limited

CLAS 3850R Reading and Research of Latin Texts

Format: Seminar 2 hours
Prerequisite: CLAS 2800R.
Enrolment: Limited

\*CLAS 3900R The Philosophy of Aristotle: The general scope of the Aristotelian Philosophy - the understanding of nature, the City, the aesthetic experience of humanity - is considered in relation to the argument of the Metaphysics or 'First Philosophy'. Given alternately with CLAS 3910R.

Instructor: J. P. Atherton
Format: Seminar 2 hours
Enrolment: Limit 20

Neoplatonism: Plato and Neoplatonism: The philosophy of Plotinus and later thinkers considered as the resume of Greek philosophy; in particular the role of Plato and other older philosophers in the formation of Neoplatonism is a principal interest. Given alternately with CLAS 3900R.

Instructor:
Format:
Recommended: CLAS 2361A/2362B
Enrolment:
Limit 29

CLAS 4200R Ancient Practical Philosophy:

Format: Seminar 2 hours
Enrolment: Limited

\*CLAS 4320R Ancient and Modern Dialectic:

Format: Seminar 2 hours
Enrolment: Limited

•CLAS 4400R Philosophy of the Church Fathers: This seminar involves the detailed study of a text, or group of texts, from one or more of the Greek or Latin Church Fathers. The choice of text varies from year to year, in relation to the needs and interests of students. Given alternately with CLAS 4450R.

Instructor: R. D. Crouse
Format: Seminar 2 hours
Enrolment: Limit 20

\*CLAS 4450R Medieval Interpreters of Aristotle: The precise topic of this seminar is chosen in consultation with prospective students. For example, it might concentrate upon the interpretation of a work of Aristotle by Thomas Aquinas, or Albert the Great, or Dante. Given alternately with CLAS 4400R.

Instructor: R. D. Crouse
Format: Seminar 2 hours
Enrolment: Limit 20

\*CLAS 4500R Seminar on Neoplatonism: Major Neoplatonic systems, pagan and Christian, are considered from Plotinus to Cusanus.

Instructor: W. J. Hankey
Format: Seminar 2 hours
Enrolment: Limit 20

CLAS 4530R Seminar on the Roman Empire and the Rise of Christianity: Selected topics from the transition from Classical to Christian culture are studied. Particular attention is paid to the connection between religious innovation and the effect of the new beliefs on literature, art and philosophy.

Instructor: P. F. Kussmaul
Format: Seminar 2 hours
Enrolment: Limit 20

CLAS 4580R Reading and Research

CLAS 4680A/4690B Reading and Research

CLAS 4710A/4720B Special Topics

CLAS 4800R Reading and Research

CLAS 4810A/4820B Special Topics

CLAS 4850R Reading and Research

CLAS 4900R Departmental Seminar:
Format: Seminar 2 hours

CLAS 0400C Hounours Seminar: In order to obtain their Honours degree, students must complete twenty credits plus the Honours Seminar and pass the exam at the end of it. This is a noncredit class which meets every two weeks. Details available from the department. Note: Students are not required to take all units of this class in one year but may spread them out over two or three years to suit their individual programmes.

Instructor: R. Friedrich et al. Format: Seminar

Prerequisite: CLAS 2810R and CLAS 2710R

Enrolement: 10

Classes in Ancient Hebrew, Coptic, Syriac and Arabic, are sometimes available as electives at the discretion of the Department, only in relation to the needs of the particular student.

### Comparative Literature

Location: Classics House

1244 LeMarchant Street

Telephone: (902) 494-3468

Chair R. Friedrich (494-3468)

Undergraduate Advisor H.R. Runte (494-2430)

**Professors** 

A.R. Andrews (Theatre)
J.A. Barnstead (Russian)
S.A.M. Burns (Philosophy)
R. Friedrich (Classics)
F. Gaede (German)
R.M. Hubert (English)
S.F. Jones (Spanish)
J.M. Kirk (Spanish)
R.M. Martin (Philosophy)
H.R. Runte (French)
M.C. Sandhu (French)
H.-G. Schwarz (German)

H.S. Whittier (English)

Compartive Literature, despite its name, is not so much defined by 'comparisons' as by studies involving literary works which belong to

more than one literature and language. The idea of a national literature (English literature, French literature, Canadian literature, etc.) is of relatively recent date. It originated in the 18th century with the rise of national consciousness; yet at the same time the traditional broad unity of all literatures reasserted itself in Goethe's concept of 'world literature'. In Comparative Literature the literary work is treated in its double aspects of belonging to a national literature as well as forming part of world literature. Comparative Literature has various approaches. It implies the study of themes and motifs (e.g. Faust, myths, etc.) as they recur in literary works of different ages and literatures; of literary genres such as drama, epic or romance; of periods (e.g. Renaissance, 18th century, etc.); of authors writing in different languages but linked by influences; of the reception of the work of an author in another literature (e.g. Shakespeare in Germany). The relationships of literature to the other arts (e.g. film, the fine arts, music, etc.) may also be a subject of Comparative Literature; and last but not least, Comparative Literature forms a bridge between literature and other fields in the humanities such as philosophy, religion, and

The Departments of Classics, English,
French, German, Philosophy, Russian, Spanish and
Theatre offer the following classes in Comparative
Literature. Classes which are cross-listed may form
part of an area of concentration. All lectures are
given in English and works are read in English
translation unless otherwise noted.

#### Classes Offered

Classes marked \* are not offered every year.

Please consult the current timetable on
registration to determine if this class is offered.

\*COML 2000R Introduction to Comparative Literature: This is an introduction to the understanding of man's approach to the problems of life through the study of selected masterpieces of European literature which may include works by Dante, Chaucer, Cervantes, Shakespeare, Moliere, Goethe, and others. Note: English 1000R or Classics 2000R is acceptable as an equivalent to Comparative Literature 1000R.

COML 2011A/B The History of the Theatre from its Origins to the Renaissance: 3 hours, A. Andrews. This class is cross-listed as THTR 3011A/B.

COML 2012A/B The History of the Theatre from Renaissance to the Twentieth Century: 3 hours, A. Andrews. This class is cross-listed as THTR 3012A/B.

COML 2030R Masterpieces of Western Literature: H.S. Whittier. This class is cross-listed as ENGK 2203R.

COML 2040R The European Novel: Staff. This class is cross-listed as ENGL 2204R.

COML 2100R Classical Muthology: A. Johnston, This class is cross-listed as CLAS 2100R.

\*COML 2110R Theories and Manifestations of Love in Medieval Europe: H.R. Runte. A literary and anthropological study of major poetic, ramanesque, and dramatic works by English courtly poets, French troubadours, and Germa Minnesaenger, with special emphasis on their relation to our time.

\*COML 2120R Realism and the 18th Century English and French Novel: H.R. Runte. Novels by such authors as Marivaux, Richardson, Prevost, Fielding, Rousseau, Diderot, Smollett, and Laclos are studied. Aspects of realism in style and structure provide the basis for comparison/contrast of the works read.

\*COML 2140R Arthurian Romances: H.R. Runte. A historical, archaeological, cultural and literary investigation of French, English, and German Arthurian texts dealing with the medieval legend of King Arthur and the Knights of the Round Table. All readings in modern English translations.

\*COML 2180R Germanic and Greek Mythology: This class is cross-listed as GER 2350R.

\*COML 2370R Restoration and 18th Century Comedy: H.R. Runte. A comparative study of English and French plays by such authors as Wycherley, Etherege, Congreve, Steele, Sheridan, Moliere, Lesage, Marivaux, Voltaire, and Beaumarchais. Critical essays on comedy are studied with a view to defining the universal, national and temporal nature of comic elements in the works read.

COML 2400R German Arts and Literature: H.-G. Schwarz. This class is cross-listed with GER 2400R.

COML 2501 Introduction to Classical Rhetoric R. Friedrich. Cross-listed with CLAS 2501Å. In recent years rhetoric has attained great importance and significance for literary criticism and theory as well as for philosophy. The system of rhetoric and its terminology were developed and completed by the Greeks and Romans; therefore Classical Rhetoric forms the basis of all modern approaches to rhetorical practice and theory. This class is intended to introduce the student to the system and to the central terms of rhetoric, as they have been developed and shaped in the relevant texts of Greek and Roman authors. All texts will be studied in English translation.

COML 2705A/B Philosophy in Literature: R.M. Martin. Cross-listed as PHIL 2700A/B.

COML 3500R The Modern Theatre: A. Andrews.
This classis cross-listed as THTR 3500R.

COML 3510R Ancient and Modern Drama I: R. Friedrich. This class is cross-listed as CLAS 4510R. Given alternately with COML 3511R.

COML 3511R Ancient and Modern Drama II: R. Friedrich. This class is cross-listed as CLAS 3511R. Given alternately with COML 3510R.

COML 4900R Dramatic Theory and Criticism, and the Aesthetics of the Theatre: A. Andrews. This class is cross-listed at THTR 4900R.

### **Comparative Religion**

Location:

6209 University Ave., 3rd floor

Halifax, N.S.

Telephone: (902) 494-3579

R. Ravindra (494-3578)

Undergraduate Advisor C.T. Sinclair-Faulkner (494-3579)

Professor

R. Ravindra, BSc, MTech (IIT), MA (Dal), MSc, PhD (Tor), Adjunct Professor of Physics

Associate Professor

C.T. Sinclair-Faulkner, BA (Tor), MTh, MA, PhD (Chic)

The University study of religion aims at an intellectual understanding of this more than intellectual reality. Religion is a phenomenon virtually universal in human society and history; some have held that it is central to the human condition. Understanding involves grasping simultaneously both the meaning of faith in the lives of participants, and the critical analysis of outside observers. Both the student wishing enhanced understanding of religion as an historical, and social and human fact, and the student who wishes to wrestle with problems arising in academic reflection concerning the relation between the personal and the objective, can find material to engage them in the classes described below.

Advanced Major

The Department is able to offer an advanced major in the 20-credit programme. For further information refer to specific regulations for the 20-credit programme on page 78.

**BA** Degree

Students wishing to major in Comparative Religion must successfully complete Comparative Religion 1000R or 1301R, and at least four to eight full-year classes or their equivalent in Comparative Religion beyond the 1000 level. These must include at least two from each of the groups (CREL 2001A/B, CREL 2002A/B, CREL 2003A/B) and (CREL 2011A/B, CREL 2012A/B, CREL 2013A/B). After earning at least 10 credits of any kind, students must successfully complete one class in Comparative Religion beyond the 3000 level (see "Topics in Comparative Religion"). This provides them with a broad introduction to both Eastern and Western religious life, and to the various ways in which religion may be studied. In light of their specific interests, Comparative Religion majors are encouraged to enrol in related classes offered by other Departments. Programmes should be planned in consultation with the undergraduate advisor, Dr. C.T. Sinclair-

Classes marked \* are not offered every year. Please consult the current timetable on registration to determine which classes are being offered.

### Classes Offered

First-year students are not admitted to classes beyond the 1000 level without the consent of the instructor. Classes at the 2000 level do not have prerequisites. Prerequisites for classes at the 3000 and 4000 levels are listed with each individual class below; in general, they are available only to students in their third year or above in the University.

\*CREL 1000R/2000R Introduction to World Religion: This class will focus on a comparative study of Christianity and other major world religions. The first half of the class will be an introduction to the basic ideas and concerns of the world religions with an emphasis on fundamental general questions in comparative studies: What materials in different traditions are comparable? What psychological and intellectual attitudes are required for such a study? The second half is devoted to a comparative study of the Gospels and a scripture from another religion. Extra work will be required in 2000R which is not available to first-year students.

Instructor: R. Ravindra

Format: Lecture and tutorial 3 hours

\*CREL 1301R Introduction to the Study of Religion: Religion is: a way of life? an encounter with God? a neurosis? the essential human trait? an epiphenomenon? The possibilities are explored by using the insights of modern social scientists, humanists and theologians to study Canadian life. This class fulfils the first-year Writing Requirement. A detailed syllabus is available from the Department of Comparative Religion.

C.T. Sinclair-Faulkner. Instructor

Format: Lecture 2 hours, section meeting 1

\*CREL 2001A/B Judaism:

C.T. Sinclair-Faulkner Instructor:

Lecture and seminar 3 hours Format:

\*CREL 2002A/B Christianity:

Instructor: C.T. Sinclair-Faulkner

Lecture and seminar 3 hours Format:

\*CREL 2003A/B Islam:

Instructor: C.T. Sinclair-Faulkner

Format: Lecture and seminar 3 hours

\*CREL 2011A/B Hinduism:

R. Ravindra Instructor:

Lecture and seminar, 3 hours Format:

\*CREL 2012A/B Chinese and Japanese Religions:

Instructor: R. Ravindra

Format: Lecture and seminar, 3 hours

\*CREL 2013A/B Buddhism:

Instructor: R. Ravindra

Format: Lecture and seminar, 3 hours

The six semester-long, 2000-level classes listed above serve variously as prerequisites to 3000-level classes. Each deals with one of the world's six major religious traditions by examining its founder(s), scriptures, history, communal forms, a key ritual and the impact of the modern world. The common text for all six classes is Nielsen et al., Religions of the World. There are no prerequisites for these classes but first-year students are not admitted without the consent of the instructor.

\*CREL 2200A/B Religion and War: Religious attitudes toward war have ranged from pacifism, through vigorous efforts to enforce limits on war's destructiveness, to outright support for specific wars. The class will examine comparatively the views of major religious traditions on war; the use of war and the warrior as religious symbols; the crisis of religious views on war in the nuclear age. It is cross-listed with Religious Studies 342.2 at Saint Mary's University.

Instructor:

C.T. Sinclair-Faulkner

Format: Lecture and seminar 3 hours

\*CREL 3002R Religion in Story: When religious people seek answers to ultimate questions or try to come to grips with the mystifying phenomenon of the Holy, they turn to stories. Modern novels and short stories, particularly Canadian works, are the primary reading assignments in this class. They are set in the context of related material from the broader western culture, including the Jewish scriptures. A detailed syllabus is available from the Department of Comparative Religion.

Instructor: Format:

Prerequisite:

C.T. Sinclair-Faulkner Lecture and seminar 3 hours at least one of CREL 2001A/R CREL 2002A/B, CREL 2003A/R or instructor's consent

\*CREL 3003R Religion in Canada: When

Canadians have built cities, gone to war, founded economic empires, fallen in love, designed school systems, and elected governments, religion has often been a decisive factor. Sometimes religion has been the decisive factor. What is "religion" in Canada? In the course of this extensive historical study of life in Canada from the 16th century to the present, a variety of answers will be explored A detailed syllabus is available from the

Department of Comparative Religion. C.T. Sinclair-Faulkner Instructor: Format: Lecture and seminar 3 hours

CREL 2001A/B or CREL Prerequisite: 2002A/B or instructor's consent

\*CREL 3006A/B Western Spirituality - Mystics: Some have argued that the mystic's experience lies at the heart of all religions, while others see it as dangerous to what has traditionally been regarded as religion. Original accounts of Jewish, Christian. Muslim and Amerindian spiritualities are studied in their historical context in this class. A detailed syllabus is available from the Department of Comparative Religion.

Instructor: C.T. Sinclair-Faulkner Format:

Lecture and seminar 3 hours Prerequisite: at least one of CREL 2001A/B.

CREL 2002A/B, CREL 2003A/B or permission of the instructor.

**CREL 3001R Exclusion:** 

\*CREL 3007A/B Western Spirituality -

Communities: Modern persons tend to view religion as a solitary enterprise, but more often than not religious communities have taken shape around those who have had a profoundly religious experience. Original accounts of Jewish, Christian and Muslim spiritualities are studied in their historical context in this class. A detailed syllabus is available from the Department of Comparative

Religion. Instructor: Format:

Prerequisite:

C.T. Sinclair-Faulkner Lecture and seminar 3 hours at least one of CREL 2001A/B,

CREL 2002A/B, CREL 2003A/B or instructor's consent

CREL 3001R

Exclusion:

\*CREL 3014A/B Love and Death in World Religions: lecture and seminar, 3 hours, R. Ravindra. What are love and death? Is it possible to love in the midst of intense suffering and hatred, as in the Holocaust? How are sex and love related with each other? Why do mystics in many traditions speak of love and death together? What meaning can life have in the face of the

inevitability of death? Does individual identity come to a complete end or does one continue edistence in some form, as most religions assert? what is the nature of judgment after death? Is there reincarnation?

Instructor: R. Ravindra

Format: Prerequisite:

Lecture and seminar, 3 hours a class in Comparative Religion or

the instructor's consent

CREL 3015A/B Myths, Symbols and Rites: Myths, symbols and rites have been among the major vehicles of spiritual truths and psychological insights in all religions. After a general discussion of the nature of symbolic and mythic understanding, the focus is on some of the major myths and symbols associated with the lives and teachings of Krishna, Shiva, Gautama Buddha and Jesus Christ.

Instructor:

R. Ravindra

Lecture and seminar, 3 hours Format: a class in Comparative Religion or Prerequisite:

the instructor's consent

•CREL 3531R Mystical Consciousness and Modern Science: Yoga, Zen, Prayer of the heart, Sufism and other spiritual disciplines have eathered an enormous amount of experiential and theoretical material about human consciousness and its many levels, from the ordinary to the mystical and cosmic. The first term is devoted to understanding many levels of human consciousness based on these disciplines. The second term is devoted to a critical examination of mystical consciousness in the light of modern scientific discoveries, and of the fundamental presuppositions of modern science in the light of the universal experience and knowledge of the many levels of consciousness.

Instructor: Format:

R. Ravindra Seminar 3 hours

Prerequisite: a class in Comparative Religion or

in Science (preferably both)

\*CREL 3502A/B The Rise of Modern Science: The modern world has been fundamentally altered by science and technology. In what ways? How has this come to be? This class, designed for students in the arts as well as the sciences, examines these questions by looking at the origins of modern science in the 16th and 17th centuries, its growing popularity in the 18th century and the rise of the scientific profession and science-based industry in the 19th and 20th centuries.

Instructors:

J. Farley (Biology) and R. Ravindra (Comparative Religion/Physics) Lecture/tutorials 4 hours

Prerequisites: see BIOL 3402A/B

CREL 3503A/B Nuclear Bombs: Survival and Morality: This class, designed for students in the arts and the sciences, will study the history of

atomic bomb development, the moral issues involved in the destruction of Hiroshima and Nagasaki, and the concerns about human survival raised by the proliferation of these weapons.

Instructor: R. Ravindra Format: Seminar 3 hours

Prerequisite: CREL 3502A/B (or equivalent)

or instructor's consent

\*CREL 4310A/4320B Topics in Comparative

Religion: Structured as a seminar or for independent guided study depending on the interests and needs of the students and the faculty. The intention is to devote some concentrated time to a specific topic of interest (e.g., Cults and New Religions, The Feminine in World Religions, Religious Aspects of Middle-East Politics, Tradition and Modernity). Please consult the Department for the topic which may be discussed in any given term. This class will normally only be arranged at the request of a student who is majoring in Comparative Religion, though other students may then be admitted to the class upon application to the instructor. These classes permit the student majoring in Comparative Religion to integrate the work of many previous classes and lines of study while examining some chosen topic in the academic study of religion.

Instructor: Staff

Format: Seminar 3 hours

### English

1434 Henry Street

Halifax, N.S. Telephone: (902) 494-3384

Chair

M. Furrow (494-3411)

**Undergraduate Advisor** 

J. Thompson (494-3384)

**Professors** Emeritus

J. Gray, MA (Aberd.), MA (Oxon), PhD (Montreal), FRSC, FRSA M.M. Ross, OC, BA (UNB), MA (Tor.), PhD (Corn.), DLitt (UNB), LLD (St. Thom.), LLD (Dal.), LLD (Queen's), DLitt (Trent), DLitt (Edinburgh), DLitt (Windsor), DSL (Trinity College), FRSC S.E. Sprott, MA, BD (Melb.), PhD (Col.)

### **Professors**

J. Fraser, MA (Oxon), PhD (Minn.), George Munro Professor of English Literature R.M. Huebert, BA (Sask.), MA, PhD (Pitt.) A.E. Kennedy, BA, MA (UBC), PhD (Edinburgh) M.A. Klug, BA (Minn.), MA (Kan. State), PhD

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

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

R.R. Tetreault, BA (UBC), MA, PhD (Corn.)
D.P. Varma, MA (Patna), PhD (Leeds)
J.A. Wainwright, BA (Tor.), MA, PhD (Dal)

#### **Associate Professors**

J.R. Baxter, BA, BEd, MA, PhD (Alta.)
S.A. Cowan, BA (Montana), MA (Yale)
R. MacG. Dawson, MA (Tor.), M Litt (Oxon)
M.M. Furrow, BA (Dal), MA, MPhil, PhD (Yale)
B. Greenfield, BA (York), MA (McGill), PhD (Columbia)
V. Li, BA, MA (UBC), PhD (Cantab.)
D. McNeil, BA (Concordia), MA (UNB), PhD (McMaster)
C.J. Myers, BA (Sask.), MA, PhD (Tor.) M.I.
Stone. BA (Guelph), MA, MPhil (Wat.), PhD

H.S. Whittier, BA (U.S. Naval Acad.), MA (New Hamp.), PhD (Yale)

### **Assistant Professors**

L.P. Diepeveen, BA (Calvin Coll.), MA, PhD (III)
A. Higgins, BA (Conn.), MA (McGill), MA
(Mass.), MA, PhD (Yale)
C. Luckyj, BA, MA, PhD (Tor.)
H.E. Morgan, BA (UBC), MA (Wash.), B Litt
(Oxon), PhD (Wash.)
J.A. Thompson, BA (Western), MA, PhD (Tor.)

### Lecturer

A. Dowdall, BA (Carleton), MA (Princeton)

### **Adjunct Professor**

R.L. Raymond, BS (Yale), MA (Tor.)

#### Senior Instructor

L. Choyce, BA (Rutgers), MA (Montclair), MA (CUNY)

The study of English literature at Dalhousie is not just the study of the literature of England. Although largely concerned with the rich written heritage of the British Isles, it also includes the study of writing in Canada, the United States, parts of the English-speaking Commonwealth and, indeed, some European countries, in translation.

It ranges widely in time from early
Anglo-Saxon works of the eighth century through
thirteen centuries of changing ideas and language
to the still-changing thoughts, feelings and
expressions of our own time. The many forms that
the written word may take - poetry, fiction, drama,
essay, history - are read, not only for an
understanding of the literary evolution that brings
them to be what they are, but also for an

understanding of that which is temporary and that which is more enduring.

The purpose of English studies at Dalhousie, briefly stated, is the enjoyment and understanding of the written word. Since the word is the principal link between the individual heart and mind and the rest of the world, such studies naturally touch upon philosophy, politics, religion, and the fine arts as well. At the same time, the student is required to think, and to use language with clarity, judgement and imagination.

In more detail, the goals of English studies are to perceive that reading is a source of pleasure, knowledge and wisdom, to sharpen the powers of discrimination between what is good and bad in literature and ideas, to gain some understanding of the process by which great writing is achieved and indeed to inspire students to their own best expression.

In the first year, ENGL 1000R is required of all students who wish to take further English classes. There are about twenty different sections ranging from historical surveys to more eclectic studies. To enable students to choose the one most suited to their inclinations and needs, the English Department and the Registrar's Office have an ENGL 1000R supplement which includes the aims and reading lists of each section.

Classes numbered from 2000 to 4099 are especially suited for those concentrating in English, studying it as a complement to their main area, or taking an elective, and classes beyond 4250 are designed as studies of specialized areas for Honours students. Honours classes are open to General students with permission of the Chair and the professor concerned. A supplement describing Upper-year General and Honours classes in detail is available from the English Department.

### Degree Programmes

### The BA with Honours in English

The Honours programme in English offers a systematic study of the major writers and trends from medieval times to our century. It is therefore of particular relevance to the student who is interested in detailed study of English as a basis of a liberal education, to the prospective high-school teacher of English who needs a comprehensive understanding of the subject, and to the student intending to proceed to the graduate study of English and to complete in one year the requirements for the MA degree.

Students intending to enter the Honours programme in Year II must consult the Department in advance to plan their classes and be formally enrolled. In the subsequent years, Honours students are encouraged to seek advice of the Department in choice of classes.

N.B. In recent years, enrollment pressures have been such that students are not admitted 10

Honours until their third year. Students intending to enter Honours are thus advised to choose their second year classes from section G, and to register early in order to guarantee that they are carolled in courses that will count towards their Honours degree.

The Honours programme consists of nine classes (in addition to ENGL 0451A) beyond ENGL 1000R. At least one class must be taken from each of the following six sections:

Section A: ENGL 4252R (recommended for third year)
Section B: ENGL 4253R, ENGL 4351R
Section C: ENGL 4251R, ENGL 4352R
Section D: ENGL 4254R, ENGL 4356R
Section E: ENGL 4354R, ENGL 4355R,
ENGL 4452R, ENGL 4457R
Section F: ENGL 4357R, ENGL 4453R,
ENGL4455R.

The student may choose the three remaining classes from those not already chosen in Sections B to F, or from Section G: ENGL 2200R, ENGL 2203R, ENGL 2204R, ENGL 2205R, ENGL 2211R, ENGL 2220R, ENGL 2221R, ENGL 2225R, ENGL 2226R, ENGL 2227R, ENGL 2225R, ENGL 2233R, ENGL 2224R, ENGL 2201R, ENGL 2302R, ENGL 3202R, ENGL 3201R, ENGL 3202R, ENGL 3216R, ENGL 3218R, ENGL 3232R, ENGL 3244R, ENGL 4001A/B, ENGL 4002A/B, ENGL 4003A/B, ENGL 4004A/B, ENGL 4005A/B, ENGL 4006A/B, ENGL 4007A/B, ENGL 4008A/B, ENGL 4009A/B, ENGL 4010A/B.

### Introduction to Literary Research

ENGL 0451A, a non-credit class which meets one hour per week in the first term, is required of all Honours students and is to be taken in the first year of the Honours programme.

Honours students must meet the requirements for the General BA degree. They are advised to select a minor from one of the subjects listed under either Group A or Group B in the "Academic Programmes" section of the Calendar.

#### **BA** with Combined Honours

There are several Combined Honours programmes: English and French, English and German, English and History, English and Philosophy, English and Spanish, English and Theatre. Students interested in any of these combinations or any other that involves English and another subject should consult with the Departments concerned.

### BA With Advanced Major in English

The Faculty requires that a student majoring in English in the 20-credit BA programme must successfully complete between six and nine English classes above the 1000 level. The English Department requires:

- (1) two 2000 series classes in the student's second year
- (2) three classes above the 2000 series (in keeping with the Faculty requirement)
- (3) one full credit (two half-credit classes) in the 4000 series
- (4) at least <u>one</u> class from each of Groups I, II, and III

In addition, the English Department strongly recommends that students take:

- (1) at least two years of language study (or its equivalent) in a single language other than English
- 2) at least two full elective credits above the 1000 level in a single subject area other than English
- (3) at least eight full credits in English above the 1000 level

The following programme of study is recommended for English majors intending to become teachers of English at the high-school level:

ENGL 2200R Advanced Composition, or ENGL 3201R The English Language, or ENGL 3202R History of the English Language ENGL 2207R Canadian Literature ENGL 3214R Shakespeare ENGL 2228R The Short Poem in English, or ENGL 3215R Romantic Poetry, or ENGL 3210R Modern Poetry in English, or ENGL 3224R Renaissance Poetry, or ENGL 3229R Victorian Poetry. ENGL 3220R English Drama, or ENGL 2226R Tragedy, or ENGL 2227R Comedy and Satire, or ENGL 3232R Modern Drama ENGL 2208R English Novel to 1900, or ENGL 3209R Modern Fiction, or ENGL 3212R British Literature of the 20th Century, or ENGL 3213R American Literature of the 20th Century

At least one class chosen from the last three groups should involve a substantial amount of literature written prior to the 20th Century.

The student in the Advanced Major programme may also choose a maximum of three more classes in English.

### **BA** Programme

Students in the 15-credit BA programme must take from four to eight classes in English beyond the 1000 level. The Department expects all of its students to consult with faculty advisors and to form coherent programmes of study; it strongly recommends that these programmes contain at least six classes in English beyond the 1000 level.

English majors must take at least one class from each of the following groups, unless they have departmental permission to use an honours class to meet a group requirement.

ENGL 2207R, ENGL 3209R, GROUP I: ENGL 3210R, ENGL 2211R, ENGL 3212R, ENGL 3213R, ENGL 2221R, ENGL 2231R, ENGL 3232R, ENGL 2233R,

2234R.

ENGL 2205R, ENGL 3206R, GROUP II: ENGL 2208R, ENGL 3215R, ENGL 3218R, ENGL 3219R, ENGL 3224R, ENGL 3229R.

ENGL 2200R, ENGL 3201R, GROUP III: ENGL 3202R, ENGL 2203R, ENGL 2204R, ENGL 3214R, ENGL 3216R, ENGL 2220R,

ENGL 2225R, ENGL 2226R, ENGL 2227R, ENGL 2228R,

**ENGL 3244R.** 

The purpose of the requirements stated above is to ensure some variety in each student's programme. The Department recommends that the student take at least one class that concentrates on poetry and one that concentrates on fiction, and at least one class from each of two different historical periods. There is, of course, more to a sound programme than variety. From the Department's offerings, students may approach the study of English literature in a number of different ways. They may choose programmes which offer a broad historical background, which focus on specific genres or which concentrate on specific historical periods such as the 19th or 20th century. There are numerous other possible combinations. In any case, students should give careful consideration to planning their programmes to meet their individual needs and interests, and should consult with their departmental advisor if they need help in doing SO.

Classes numbered from 2000 to 4099 (excepting those in section G, above) are not accepted as preparation for Graduate Studies in English. Students who may desire to change to an Honours Programme or continue in Graduate Studies should arrange with their advisor and with the Chair of the Department to complete several Honours classes before graduating with a General BA. It is possible to enter a two-year MA programme on completion of a General BA degree, but only if the student has completed four or five Honours rather than General classes for the concentration and has attained at least a second-division average in them.

### Classes Offered

Note: Classes marked \* may not be offered every year. Please consult the current timetable on registration to determine if these classes are offered.

ENGL 1000R Introduction to Literature: Since ENGL 1000R consists of sections taught by manu different instructors, statements about its objectives and approach must be confined to generalizations. All instructors of ENGL 1000R have these two broad objectives in common: (a) to involve students in the serious study of literature; (b) to involve them in the discipline of words so that they will be more critical and responsive readers and more exact and imaginative writers. The subject matter varies from section to section. Detailed syllabi of all sections are available. Practice in writing is carried on throughout the year in regular essays. Each section attends three lectures per week. In addition, the tutors attached to each session conduct small discussion groups and personal interviews with students. Lecture/discussion 3 hours

Format: Limited

**Enrolment:** 

### Classes for General Degree

Successful completion of ENGL 1000R is the prerequisite for entry into Upper-Year classes.

For a more complete description of classes and of texts, students should consult the Departmental Supplement for Upper-Year classes.

### Classes in the 2000 Series

The 2000 series includes classes that emphasize genre or literary form, and those that offer broad surveys of literature. Classes in the 2000 series are open to students in their second or third year of studies who have completed ENGL 1000R.

\*ENGL 2200R Advanced Composition: An advanced class in the theory and practice of writing English prose, designed for people who already have some competence and interest in writing. The class is not a "remedial" class and not a "creative writing" class.

Lecture/discussion 3 hours Format: ENGL 1000R Prerequisite:

Limited Enrolment:

\*ENGL 2203R Masterpieces of Western

Literature: Intensive reading of selected major works from Western literature, designed to broaden the student's outlook on literature and also to increase his familiarity with works that are not only stimulating in themselves but also comprise the basis for the development of English and other literatures.

Lecture/discussion 3 hours Format:

ENGL 1000R Prerequisite: limited Enrolment:

\*ENGL 2204R The European Novel: An intensive study of about ten representative European novels of the last two hundred years. A considerable amount of attention is paid to the philosophical ideas which are an important feature in many of

the novels studied.

Lecture/discussion 2 hours Format:

Prerequisite: ENGL 1000R

Enrolment: Limited

ENGL 2205R Landmarks of English Literature: This class studies works by many of the most influential British authors from Chaucer to the present century. These landmarks provide some orientation in the literary landscape, and help to make students aware of the diversity available in literary studies. The class is aimed at, but not limited to, English majors.

Format:

Lecture/discussion 3-4 hours

ENGL 1000R Prerequisite: Enrolment: Limited

FNGL 2207R Canadian Literature: This class offers an introduction to Canadian poetry and prose written in English. The aim will be to trace the development of Canadian fiction and poetry from the nineteenth century to the present through discussion of selected texts. Lecture/discussion 2 hours

Format: Prerequisite: ENGL 1000R Canadian Studies

Cross-listed: Limited

Enrolment:

\*ENGL 2208R The English Novel to 1900: Based on a selection of titles by representative authors. this class is a survey of the early English novel. Attention is given to the rise of the genre as well as to the variety of forms and functions which the novel assumed or served.

Lecture/discussion 2 hours Format:

**ENGL 1000R** Prerequisite: Enrolment: Limited

\*ENGL 2211R Commonwealth Literature: An introduction to the literature of the British Commonwealth, emphasizing writing from Africa, Australia, the Caribbean and India. The bulk of the literature studied will be modern.

Format: Lecture/discussion 2 hours Prerequiste: ENGL 1000R

Enrolment: Limited

ENGL 2220R English Drama: An introduction to some of the major plays and playwrights in the history of English drama. Special emphasis is given 10 plays by such leading dramatists as Marlowe, Webster, Wycherley, Shaw, Pinter, and Stoppard. Some attention is paid to the principal changes in slaging practices from the medieval beginnings of English drama to the recent experimental theatre. The objective of the class as a whole is to sample the richness and diversity of the English dramatic tradition.

Format: Lecture/discussion 2 hours

Prerequiste: ENGL 1000R Enrolment:

Limited

\*ENGL 2221R Fictions of Development: A study of a variety of literary works (chiefly novels) which portray the crises and conflicts involved in growing up, finding a vocation, and finding oneself. Works from the nineteenth century to the present by Canadian, English and American authors are included, and special attention is given to the connections between art and autobiography, and between literature and psychology, as well as to the influence of gender differences in patterns of human development, and ways of writing about them.

Format: Lecture/discussion 2 hours

Prerequisite: ENGL 1000R

Cross-listed: Women's Studies 2200R

**Enrolment:** Limited

\*ENGL 2226R Tragedy: A study of the nature and method of tragedy in literature. Examples are taken from Greek, Shakespearean, and modern drama, as well as from poetry, and from novels. Format: Lecture/discussion 2 hours

Prerequisite: ENGL 1000R **Enrolment:** Limited

\*ENGL 2227R Comedy and Satire: The comedian and the satirist are interested in both the laughable and the deplorable antics and eccentricities of human nature. This class concerns itself with their points of view, as expressed in such varied forms as stage comedy, graphic satire, the comic novel, and the humorous essay. It also considers theories of comedy and laughter in their application to a wide variety of literary types. Lectures and class discussions are augmented with play readings, films and other illustrative materials.

Lecture/discussion 4 hours Format:

ENGL 1000R Prerequisite: Enrolment: Limited

Prerequisite:

Enrolment:

\*ENGL 2228R Short Poems in English: Forms and themes in the short poem are studied by means of critical reading of poems written in English. Topics may include the following: the self in the short poem, other persons, public events, love, nature, the city, the machine, wit, myth, traditional forms, free verse, the hokku, lyric as song, spoken poetry, poetry in print, concrete poetry, and possibly other topics to suit the class. Format: Lecture/discussion 2 hours

\*ENGL 2231R Modern American and Canadian Novels: Six Canadian and six American novels are treated as related "pairs", with the instructors dividing their time equally between the two sections. Both sections and both instructors meet together to discuss each pair of novels, after the novels have been dealt with individually.

**ENGL 1000R** 

Limited

Format: Lecture/discussion 2 hours Prerequisite: ENGL 1000R Enrolment: Limited

\*ENGL 2233R Science Fiction and Fantasy: Selected works of speculative fiction are read for pleasure and studied for understanding. The study emphasizes analysis and evaluation of the works as literature. Non-majors are welcome.

Lecture/discussion 2 hours Format:

ENGL 1000R Prerequisite: Enrolment: Limited

\*ENGL 2234R The Short Story: This class attempts to combine detailed consideration of a wide range of the best short stories of the last 150 years with discussion of general questions about the nature of the genre itself. As much as anything else it is a class in 'reading and writing' intended to improve reading ability and to develop the capacity to understand and interpret literature.

Format: Lecture/discussion 2 hours

Prerequisite: ENGL 1000R Enrolment: Limited

### Classes in the 3000 Series

The 3000 series includes classes that focus on periods in national literatures, that take up the descriptive and historical study of the English language itself, and that deal with the theory and history of literary study. Classes in the 3000 series are open to any student who has completed ENGL 1000R.

\*ENGL 3201R The English Language: This class. concerning the English language of today, begins with some general questions about the nature of language, and goes on to investigate the syntax, semantics, phonology, and dialects of modern English, with an ultimate interest in the stylistic analysis and comparison of short literary texts. Format: Lecture/discussion 2 hours

Prerequisite: ENGL 1000R Enrolment: Limited

\*ENGL 3202R History of the English Language: An introduction to the historical development of the English language. The growth of our "word-hoard", the evolution of word meanings, the changing patterns of speech sounds, of word forms and of syntactic structures, the distinction of dialects and literary styles are studied through analysis of selected literary texts. ENGL 3201R and ENGL 3202R are complementary classes.

Format: Lecture/discussion 2 hours Prerequisite: ENGL 1000R

Enrolment: Limited

\*ENGL 3206R American Literature of the Nineteenth Century: An introduction to American literature through representative works by major writers from 1800 to 1900. Among these studied are Cooper, Hawthorne, Poe, Emerson, Melville,

Whitman, Dickinson, and Twain. Both fiction and poetry are studied. Students are encouraged to discuss the works, and classes usually proceed by a combination of discussion and lecture.

Format: Lecture/discussion 2 hours Prerequisite: ENGL 1000R Enrolment: limited

\*ENGL 3209R Twentieth-Century Fiction: An introduction to the main thematic and technical trends in the modern novel. Each section has its own emphasis and choice of texts.

Format: Lecture/discussion 2 hours Prerequisite: ENGL 1000R

Enrolment: Limited

\*ENGL 3210R Modern Poetry in English: A study of modern poetry in English focussing on the seminal poets Yeats, Stevens, Pound, Eliot. and Williams. Developments and trends in poetry from the 1930's to the present are also considered. For readers, beginning and more experienced, who wish to get their bearings in modern poetry.

Lecture/discussion 2 hours Format: Prerequisite: ENGL 1000R

**Enrolment:** Limited

\*ENGL 3212R British Literature of the Twentieth Century: A survey introduction to the past seventy-five years of British fiction, drama, and poetry.

Format: Lecture/discussion 2 hours Prerequisite: ENGL 1000R **Enrolment:** Limited

\*ENGL 3213R American Literature of the Twentieth Century: An introduction to poetry. fiction and drama by American poets and novelists of the twentieth century.

Format: Lecture/discussion 2 hours Prerequisite: ENGL 1000R Limited **Enrolment:** 

\*ENGL 3214R Shakespeare: An introduction to Shakespeare's career as a playwright, through discussion and interpretation of a dozen or more of his plays.

Format: Lecture/discussion 21/2 hours

ENGL 1000R Prerequisite: Enrolment: Limited

\*ENGL 3215R Poetry of the Romantic Period: An introduction to the spirit of an age and its manifestations in literary art. Examples of shorter and longer lyrics and excerpts from longer narrative and dramatic poems are drawn from the works of Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats. Although devoted to the study of a period, the class begins with a general introduction to the reading of poetry. Format: Lecture/discussion 2 hours

Prerequisite: ENGL 1000R Limited Enrolment:

FINGL 3216R The Gothic Novel: A survey of the origins and development of The Tale of Terror and the Supernatural during the latter half of the eighteenth century and its various manifestations and influences in succeeding fiction. students will not only chart the chief landmarks of oothic fiction but also explore the various chambers of horror-literature.

Lecture/discussion 2 hours Format: Prerequisite: ENGL 1000R

Enrolment: Limited

FNGL 3218R Medieval Literature: A study of selected medieval works of Northern Europe, with major emphasis upon the Arthurian legend as found in Malory. Beginning with a look at Nordic. Celtic and Frankish background materials (in translation), one goes on to focus upon late-medieval developments in saga and romance. concluding with a look at some post-medieval uses of the inherited matter in Tennyson, Morris, Lewis and Tolkien. An enriched ENGL 3218R is available for Honours credit students who have previously taken ENGL 4351R.

Lecture/discussion 2 hours Format: ENGL 1000R Prerequisite: Enrolment: Limited

\*ENGL 3219R Chaucer and his Contemporaries: A selection from the genres of late medieval literature in English: romances, fabliaux, plays, lyrics, and legends. Some works are studied in

translation; others (including Chaucer's) are read in the original Middle English. Lecture/discussion 2 hours

Prerequisite: ENGL 1000R Enrolment: Limited

Format:

\*ENGL 3224R Renaissance Poetry: An introduction to English poetry from the early sixteenth to the mid-seventeenth century, concentrating on authors whose works have exercised a continuing influence: Sidney, Shakespeare, Donne, Jonson, and Milton. Format: Lecture/discussion 2 hours

Prerequisite: ENGL 1000R Enrolment: Limited

ENGL 3229R The Victorian Age: A survey of selected Victorian texts designed to deconstruct modern myths about the Victorians and to introduce students to the diversity of the Victorian Age. Works by Mill, Tennyson, Arnold, the Brownings, the Pre-Raphaelites, and Wilde demonstrate that Victorian Literature is animated by a spirit of rebellion and a zest for controversy, marked by innovation and experimentation in literary forms and subjects, and notable for both its passionate defences of individual liberty and its surprisingly modern affirmations of women's

rights.

Format: Lecture/discussion 2 hours

Prerequisite: ENGL 1000R Enrolment: Limited

\*ENGL 3232 Modern Drama: An introduction to the major developments in drama from Ibsen to the present. Special attention is given to changes in dramatic style and to the growth of modern theatrical movements. The playwrights represented include Strindberg, Shaw, Pirandello, Brecht, Genet, Ionesco, Pinter, Albee, and Stoppard. A few recent Canadian plays provide a focus for discussion of contemporary trends.

Format: Lecture/discussion 2 hours

Prerequisite: ENGL 1000R **Enrolment:** Limited

\*ENGL 3244R Literary Criticism: A survey of Classical Greek and Latin theory, English critics and some pertinent European writers and trends. Format: Lecture/discussion 2 hours

Prerequisite: ENGL 1000R Enrolment: Limited

### Classes in the 4000 Series

Classes in the 4000 series focus on more specialized topics than other classes in the major programme. They are designed for the more experienced student of literature and are open to English advanced majors in their third or fourth years. These classes will be organized as seminars and will have a lower enrolment than other major programme classes. Their specific subject matter will vary year-to-year.

\*ENGL 4001A/B Studies in an Individual Author

\*ENGL 4002A/B Studies in an Individual Author

\*ENGL 4003A/B Studies in Genres I

\*ENGL 4004A/B Studies in Genres II

\*ENGL 4005A/B Studies in National Literatures in English I

\*ENGL 4006A/B Studies in National Literatures in English II

\*ENGL 4007A/B Studies in Literary History I

\*ENGL 4008A/B Studies in Literary History II

\*ENGL 4009A/B Studies in Literary Theory I

\*ENGL 4010A/B Studies in Literary Theory II

### Classes for the Honours Degree

You must have permission from the Chairperson of the Department to take classes in this category. (Tentative List)

ENGL 0451A Introduction to Literary Research:
A departmental (i.e., non-university and non-credit) technical class for honours and graduate students. It is planned to acquaint the student with certain research tools in the library that are most frequently used by students of English (bibliographies, catalogues, indices, digests, journals, dictionaries, microfilms), many of which the student is unlikely to stumble upon in his/her own research.

There will be a brief introduction to the history of printing and papermaking. Students will be taken on a tour of the printing shop (Dawson Room) and occasionally guest speakers will lecture on relevant topics. Successful completion of exercises and attendance at lectures one hour a week for the first term will constitute fulfillment of requirements for the class.

Format: Lecture 1 hour, first term only

\*ENGL 4251R Sixteenth-Century Prose and Poetry: This is a class in the prose and poetry of the English Renaissance from its beginnings to the 1590s. The major writers to be studied are More, Sidney, Spenser, and Shakespeare; brief selections from Wyatt, Surrey, Elyot, Ascham, Hooker, Marlowe and a few others will also be read.

Format: Seminar 2 hours

Enrolment: Limited to Honours students in

\*ENGL 4252R Shakespeare and the Drama of His Time: About fifteen plays by Shakespeare, some by choice of the class, are read in the context of representative plays by his earlier and later contemporaries, especially Marlowe and Jonson. Students may consult the professor for a list of plays and suggested preliminary reading.

Format: Seminar 2 hours

Enrolment: Limited to Honours students in

English

\*ENGL 4253R Old English: An introduction to the Old English language (700-1100 AD), followed by a study of some of the prose and minor poems, and, in the second term, of Beowulf. Students are also introduced to some aspects of Old English art and archaeology. Some knowledge of a classical or modern European language (preferably German) is desirable, though not essential, and an understanding of traditional grammatical terminology will be helpful. This class is not recommended, except in unusual circumstances, to those who are not thoroughly fluent in modern English.

Format: Seminar 2 hours

Enrolment: Limited to Honours students in

English

\*ENGL 4254R Restoration and

Eighteenth-Century Literature: The emphasis is on three great satirical authors (Dryden, Pope, and Swift), on a study of Restoration drama and on major works of Samuel Johnson. Since the literature of the period is related closely to the men and manners of the age, some time is spent on the contemporary climate of opinion revealed in the works of a number of writers representative of literary, political, social, and philosophical points of view: Hobbes, Halifax, Pepys, Rochester, Butler, Addison and Steele, Mandeville and Shaftesbury.

Format:

Seminar 2 hours

Enrolment: Limited to Honours students in

English

\*ENGL 4351R Middle English: An introduction to the language and literature of feudal and chivalric England, with the principal emphases being upon Chaucer's poetry and upon the Arthurian story. Through readings and study, the student should gain some historical sense of the language, of the late-medieval social milieu and of the especial flourishing of literature in the late-fourteenth century.

Format:

Seminar 2 hours

Enrolment:

Limited to Honours students in

English

\*ENGL 4352R Seventeenth-Century Poetry and Prose: A study of selected poetry and prose of the later Renaissance from the turn of the century to the Restoration. Of the poets, Donne and Milton are given special emphasis; poems by Jonson, Herbert, Vaughan, and Marvell are also studied. Prose works are by Bacon, Donne, Browne, and Milton. The study of Milton's poetry, especially Paradise Lost, occupies a major part of the second term.

Format:

Seminar 2 hours

Enrolment:

Limited to Honours students in

English

\*ENGL 4354R Nineteenth Century Novel: The novels of the period from Scott and Austen to Hardy are studied.

Format:

Enrolment:

Seminar 2 hours
Limited to Honours students in

Enrolment: Limited English

\*ENGL 4355R American Literature to 1900: This class deals with major writers of the 19th century, as well as works from the colonial period which raise important cultural questions.

Format: Seminar 2 hours

Limited to Honours students in

English

\*ENGL 4356R The Romantic Period: A close reading of the major poetry of Blake, Coleridge, Wordsworth, Byron, Shelley, and Keats. Attention is also given to their critical writings in prose, and

to the intellectual, cultural, and historical milieu in which they worked.

Format: Seminar 2 hours

Enrolment:

Limited to Honours students in

English

• ENGL 4357R Modern Canadian Literature: A study of Canadian fiction and poetry since the 1920's with emphasis on the changing form and content of Canadian writing.

Format: Cross-listed: Seminar 2 hours Canadian Studies

Enrolment:

Limited to Honours students

in English

•ENGL 4360C Old Norse: A broad survey of major Old Norse prose and poetic works in translation and an introduction to the comparative study of the very close relation of the early Norse and English languages and literature.

Format: Lecture 1 hour

Format:
Prerequisite:

One of ENGL 3218R, 4253R,

4351R or instructor's consent

\*ENGL 4453R Twentieth-Century English
Literature: Primarily for honours students and for
MA students in their make-up year. Each member
of the seminar writes two papers to serve as
starting-points for the class discussions. There are
no examinations, but regular attendance is
expected in the interests of effective debate.

Format: Seminar 2 hours
Enrolment: Limited to 1

Limited to Honours students in English

in English

\*ENGL 4455R Modern American Literature: In the first term, this class studies 20th-century American fiction. In the second term, modern American poetry is assessed. Classes are a combination of lectures and discussion. Format: Seminar 2 hours

Format: Enrolment:

Limited to Honours students

in English

ENGL 4457R Victorian Poetry: Poems by Tennyson, Robert Browning, Elizabeth Barrett Browning, Arnold and selected Pre-Raphaelites are studied in the context of the social and political, the religious and scientific ideas current in Victorian England.

Format: Seminar 2 hours

Limited to Honours students in

English

### French

Location:

1315 LeMarchant Street

Halifax, N.S.

Telephone:

(902) 494-2430

Chair

M. Bishop (494-2425)

**Undergraduate Advisors** 

M. Bishop (494-2425)

J. Brown (494-2430)

T. Gordon (494-2430)

**Professor** Emeritus

P. Chavy, Agrégé des Lettres (Paris), Chevalier de la Légion d'Honneur

**Professors** 

M. Bishop, BA, BEd (Manchester), MA (Manitoba), PhD (Kent, Canterbury)

J.W. Brown, AB (Miami), MA (Middlebury), PhD (Penn.)

B.E. Gesner, BA (Kings), BEd, MA (Dal), Dr. de 3e cycle (Toulouse, II)

W.T. Gordon, BA, MA, PhD (Tor.)

R. Kocourek, State Examination, PhD, CSc

(Charles U., Prague)

H.R. Runte, MA, MPh, PhD (Kansas) M. Sandhu, Licence ès Lettres (Montpellier), PhD

(Yale)

(CUNY)

**Associate Professors** 

B. Bednarski, BA (London), MA (Dal), PhD (Laval)

P. De Méo, BA, MA, PhD (UCLA)

M. Myers, DUEL, Licence ès Lettres, MA, Dr. de 3e cycle (Strasbourg)

I.Z. Oore, BA (Tel-Aviv), MA (Waterloo), PhD (Western Ontario)

N. Trèves, BSc (American U., Cairo), PhD (Rice) K. Waterson, BA (Long Island), MA (NYU), PhD

**Assistant Professors** 

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

T.P. Carter, BA (Princeton), MA, PhD (Brown)

The Department of French offers students not only the opportunity to develop fluency in classes backed up by excellent laboratory and ancillary facilities, but also the possibility of studying the literature and culture of France, French Canada and the other nations of the French-speaking world, and the linguistic structure and development of French.

Classes are available for beginners and for those with a background in the language who wish to improve and maintain any or all of the 96

following skills: speaking, listening, reading, and writing. Other classes are specially designed for students who are interested in teaching, translation, or other areas of language study. The role of French in Canada and in the Maritimes is stressed in classes in Acadian and Québécois literature and civilization. The literature of France and French-speaking nations is brought to life in classes organized around a theme, a genre, or a historical period.

The Department of French urges students to practise the language as much as possible. The Maisons Françaises are two houses on campus in which students may live with native speakers in a francophone environment. The French Club organizes activities including films, French meals, parties and plays in which all students may participate. Exchanges with Québec and individual student travel and study are encouraged. The Department offers in some years a class off campus in a francophone environment. Please consult the Department for information and see below: Aix-en-Provence.

A BA degree in French with Honours or with Honours in French and another subject combined may lead the student to a career in education, written or oral translation, or may provide the background for careers in many fields, including radio, television, law, social work, public relations, business, diplomacy, journalism and library science. Students considering French as an area of concentration in a BA degree course are invited to discuss the matter at any time (the earlier the better) with a member of the Department. The accent is on the particular needs and aspirations of the individual. An Honours degree is normally required for access to graduate studies: MA, MAT and PhD degrees may be pursued in the Department (see the Calendar for Faculty of Graduate Studies).

Major, Advanced Major or Honours students may, with the approval of the Department of French, take up to one year of work at a University in a francophone environment and receive certain credit at Dalhousie. Scholarships are available for students selected to participate in the Dalhousie/ Aix-en-Provence Year-Abroad Programme, for Honours or Advanced Major students.

The language requirement exemption test in French will be given on the Wednesday of Registration week. Students who would like to write this test should inform the Department of French of their intention in writing two weeks before. It is to be noted that passing this language requirement exemption test does not give a credit.

Students considering a career in teaching French are encouraged to discuss their goals and programme as early as possible with Professors DeMéo or Myers.

### **Degree Programmes**

### **BA** with Honours in French

This programme offers systematic, comprehensive and individualized study of French language; literature, linguistics and other programme elements both within and without the classroom. It is, therefore, an option which should be considered seriously by any student who, with career or personal objectives in mind, wishes to obtain a strong background in French and by those who plan to teach or earn a graduate degree in French.

Honours students are strongly encouraged to enrich their more traditional learning experience by living in one of the Maisons Françaises and by spending at least one summer in a French- speaking area. Majors or Honours students may, with the approval of the Department, take up to one year of work at a university in a francophone environment and receive certain credit at Dalhousie. Please consult the department for information on programmes available. Please consult the Chair of the Department.

Combined Honours students should consult the Chair before proceeding to see the Honours Advisor. Following is a description of the three different kinds of Honours programmes in French and the requirement for each:

### Concentrated Honours:

From 9-11 credits in French beyond the first year: "first year" does not necessarily mean FREN 1000-level classs; it refers to any course taken in the first year of study. The following seven courses are required: FREN 2040R, FREN 2201A/2202B, FREN 3020R, FREN 3040R, FREN 3000-level full credit in literature and/or culture; and, normally, two full credits at the FREN 4000-level. An additional grade is required either an Honours Essay or an Oral Presentation (see document entitled "Frend Honours Qualifying Examination" obtainable from the Honours Co-ordinator or the Departmental secretary).

#### II. Combined Honours:

From 11-13 credits in French and another subject; not fewer than 4 nor more than 9 may be chosen in either subject. Minimum requirements for the Combined Honours programmeme are as follows: FREN 2040R, FREN 2201A/2202B, FREN 3040F plus a minimum of one full credit in language, literature and/or culture at the 3000-level. An additional credit is required either an Honours Essay or an Oral Presentation (see document entitled "French Honours Qualifying Examination" obtainable from the Honours Co-ordinato or the Departmental secretary).

III. Honours Certificate:

The Honours Certificate is an option for continued study open to anyone who has previously completed a BA major programme in French. Normally, it consists of five full credits of course work plus one additional credit: either an honours essay or an oral interview based on class work and /or a specific topic. Requirements for the honours certificate are similar to those for the concentrated honours programme. but will vary according to individual circumstances.

### **RA Advanced Major Programme**

Students who may not be eligible for the Honours Programme are encouraged to enter the Advanced Major degree programme in French (from 6-9 credits in French beyond the first year, of which at least 3 must be beyond the 2000-

The following minimum programme is required: FREN 2040R, FREN 2201A/2202B; FREN 3040R; two full credits at the 3000-level; and one full credit at the 4000-level. Notice that students wishing to change to an Honours Programme may do so, if the quality of their work justifies it. Those who might wish to do so should also take FREN 3020R (required for Honours), and consult the Chair or the Honours Advisor.

### **BA Major Programme**

Students should consult the Chair or a Department Advisor about the choice of classes.

The following classes are required: FREN 2040R; FREN 2201A; FREN 2202B; FREN 3040R and one other full credit at the 3000-level. Normally, three full-credits are taken in the second year (and a minimum of two). Classes other than those required may be chosen freely in consultation with the Major Advisor, according to the students' desire to obtain a general knowledge of the field, or a greater concentration in specific areas such as Literature, Linguistics, French-Canadian Studies, etc.

Students wishing to change to an Honours Programme may do so during the second or third year of studies, given sufficient standing. Those wishing to do so, or to continue in Graduate Studies after obtaining a BA Major in French, should consult the Chair or the Honours Advisor.

### Classes Offered

Classes marked \* may not be offered every year. Please consult the current timetable on registration to determine if these classes are offered. First year classes (FREN 1000R, FREN 1001A, FREN 2000R, FREN 2001B, FREN 1020R. FREN 1040R) require a regular tutorial session in addition to

the three hour weekly class.

FREN 1000R Français pour débutants/Beginners French: This class, intended for students with little or no previous instruction in French, covers a sufficient range of basic linguistic structures and high-frequency vocabulary to enable students to engage in simple, everyday communication on a variety of subjects. Classes are conducted in French as much as possible with a view to developing competence in "real-life" communication, both oral and written. Work done in the three hours of class per week is supplemented with both oral and written exercises in the Dalhousie Learning Laboratory and with reading assignments, compositions, and written exercises to be completed outside of class. Students are also introduced to significant aspects of French, French-Canadian, and other francophone cultures. Upon completion of FREN 1000R, students wishing to complete the study of basic French language structures and to increase their written and spoken fluency should enroll in FREN 2000R. Students who have completed Grade 12 French within the last two years may not register for FREN 1000R. (They should register for FREN 1020R or FREN 1040R.)

Instructor: Staff

Format: Lecture 3 hours, language lab 3

hours

Enrolment: Limited to 30

FREN 1001A/FREN 2001B Français pour débutants: Niveaux I & II/Beginners French: Levels I & II: This class offers students the opportunity to do the work of FREN 1000R and FREN 2000R, normally a two-year programme, in one academic year. FREN 1001A and FREN 2001B each give one full credit. Neither is counted towards a Major in French, but completion of this work permits entry into the Major or Honours programmes. Students who have completed Grade 12 French within the last two years may not register for FREN 1001A/ FREN 2001B. (They should register for FREN 1020R or FREN 1040R).

Instructors: E. Gesner, T.P. Carter

Format: Lecture 5 hours, language lab 6

**Enrolment:** Limited to 30

FREN 1020R Révision de français oral et écrit/Spoken and Written French in Review: This is the usual first-year class for those students who have studied French throughout high school. Designed to develop proficiency in speaking and listening skills, as well as in reading and writing. Classes are taught only in French and involve much oral practice: discussions, exercises, etc. are based on a wide variety of reading and listening materials. Short written exercises and regular compositions reinforce this work. The basic structures of French are reviewed through

independent study and classroom practice.

Listening comprehension assignments are done in the Learning Laboratory in the Killam Library. It is assumed that students are familiar with the basic structures of French, although it is expected that students have not full control of them. Should a student wish to take both FREN 1020R and FREN 1040R, then only one (1) full credit would be allowed. Students who have completed Grade 12 French within the last 2 years must register for either FREN 1020R or FREN 1040R.

Instructor: Staff

Format: Lecture 3 hours, language lab 1-2

hours

Enrolment: Limited to 30

FREN 1040R Grammaire, vocabulaire et style/
French Grammar, Vocabulary and Style: The
class is given entirely in French. Main emphasis
will be on structural elements, vocabulary building
and correct expression, with consistent parallel
attention paid to spelling and pronunciation. The
manuals will include a grammar book, and a
selection of literary texts to be discussed. A
variety of tests and assignments will be used, such
as grammar exercises, dictations, translations and
compositions.

Instructors:

R. Kocourek, D. Lawrence, I.

Oore, M. Sandhu, N. Trèves
Format: Lecture/Discussion 3 hours

Prerequisite: Grade 12 French within the last 2

years or equivalent

Enrolment: Limited to 30 Exclusion: FREN 1020R

FREN 1060R Pratique de la lecture/French for Reading: Development of the ability to read contemporary French prose with ease and accuracy. Emphasis is on the acquisition of skills that facilitate reading. Students are encouraged to become familiar with the best French-English dictionaries and to use them judiciously, to learn large blocks of vocabulary by recognizing word families, and to grasp the meaning of unknown words from context wherever possible. Classroom work involves a grammar review, study and discussion of a wide variety of readings as well as correction of prepared translations and sight translations (from French to English only). FREN 1060R is given in English and is not, by itself, suitable for students who plan to major in French. It may, however, be taken by those with no prior training in French or as an additional first-year option for those taking FREN 1020R or FREN 1040R. This course satisfies the Bachelor of Arts Language Requirement.

Instructors: K. Waterson and staff
Format: Lecture 3 hours
Enrolment: Limited to 30

FREN 2000R Français pour débutants: Niveau II/Beginners French: Level II: No student may enrol in FREN 2000R without having first completed FREN 1000R or without the Chair's permission. This class continues the work begun in FREN 1000R, focusing on more advanced forms of expression including the vocabulary, verb forms and syntactic structures necessary for communication at a relatively high level of abstraction and complexity. As in FREN 1000R all classes are conducted as much as possible in French, with additional practice provided through the Dalhousie Learning Laboratory and through regular reading and writing assignments. Reading selections drawn from the press and the literature of French-speaking cultures continue to be a regular part of the work, in the interest of deepening and enriching the students' understanding of the people whose language they are studying. (Credit awarded for FREN 2000R may not be counted towards a Major in French but the completion of this work permits entry into the Major or Honours programmes.) Students who have completed FREN 1020R and FREN 1040R are not permitted to take FREN 2000R.

Instructor: Staff

Format: Lecture 3 hours, language lab 3-6

hours

Enrolment: Limited to 30

FREN 2001B: See FREN 1001A above.

Note: All classes above this level are given entirely in French.

FREN 2021A/FREN 2022B Études pratiques/Practice in Language Skills: Follows FREN 1020R or FREN 1040R or FREN 1000R/2000R. It is normally taken in the second year of study and provides the opportunity to practice and improve language skills already acquired. Sections approach language learning through different subjects (such as Acadian studies, African and Caribbean civilization, cinema, journalism, the occult, or the detective novel). All classes and assignments are entirely in French. Students must choose sections with different topics to earn credit for both A and B. However, it is not necessary to take both A and B and students may elect to study one semester only. Students should consult the current timetable, as the topics offered change each year.

Instructor: Staf Format: Lec

Format: Lecture 3 hours
Cross-listed: Canadian Studies
Enrolment: Limited to 30

Exclusion: FREN 2023A, FREN 2024B, FREN 2025A, FREN 2026B

\*FREN 2031A/B Interprétation/Simultaneous Translation: Practical introduction, given in the language lab, to oral English-French and French-English translating (interpreting) with emphasis on fluency, vocabulary building and comparative syntactico-stylistic analysis. Instructor:

H. Runte. Format:

Lecture 3 hours in language lab, supplementary lab hours

Enrolment: Limited to 30

\*FREN 2032A/B La phonologie et la communication orale(I)/Phonology and Oral Communication(I): Using widely varied texts and recordings, this class studies the basic sounds (phonemes) of French, and the essential non-phonemic features of the language (rhythm, stress, intonation, etc.) It helps students master French phonemes, understand the role of non-phonemic features in oral communication and use the latter to develop self-expression and audio-comprehension.

Instructor: K. Waterson

Format: Varied participatory activities, short

lectures, language lab

prerequisite: FREN 1020R, FREN 1040R or equivalent

Limited to 20 FREN 2030A/B

\*FREN 2033A/B La phonologie et la communication orale(II)/Phonology and Oral Communication(II): This class continues, with an increased emphasis on self-expression and communicative ability, the work of French 2032A/B.

Instructor: K. Waterson

Prerequisite:

Enrolment:

Exclusion:

Format: Varied participatory activities,

short lectures, language lab FREN 2032A/B or FREN 2030A/B or instructor's consent

Enrolment: Limited to 20

FREN 2040R Études pratiques de stylistique/ Intermediate Composition: These classes constitute a detailed and comprehensive review of grammar by means of various exercises including dictations, translations, compositions and summaries. They involve a study of written style and manner of expression.

Instructors: R. Kocourek, D. Lawrence, I.

Format: Oore, M. Sandhu
Lecture 3 hours
Limited to 30

FREN 2050A/B La Structure des dictionnaires français/Structure of French Dictionaries: This class is an introduction to the use of French and French-English dictionaries. Emphasis is on inguistic problems that are essential for dictionary users in comprehending texts and expressing ideas. Introductions to two first-rate French dictionaries will be studied. A reader of cultural or literary texts will serve as a source of questions to be raised in exercises, discussions, assignments, and lests.

Instructor: R. Kocourek

Format: Lecture 3 hours
Enrolment: Limited to 30

FREN 2201A/FREN 2202B Introduction à la littérature/ Introduction to French Literature: A survey of literature in French from the Middle Ages to the 20th Century, presenting selected works of prose, poetry and theatre from France, Quebec, Acadia and other francophone areas. Introduction to general notions of literary history and to the basic concepts involved in reading literary texts. Attention is paid to the development of both oral and written expression of ideas. FREN 2201A and FREN 2202B may be taken consecutively. Classes involve, principally, group discussion, and lecture.

Instrutors: M. Bishop, D. Lawrence, H.

Runte, N. Trèves
Format: Lecture 3 hours
Enrolment: Limited to 50

\*FREN 2203A/B Approches du texte littéraire/ Approaches to Literary Texts: An introduction to the critical reading of a selection of literary texts (various genres and periods) with an emphasis on Québec literature. The close analysis of short texts will lead to discussions of the broader nature of recurring images and myths as well as central themes.

Instructor: I. Oore

Format: Lecture/discussion 3 hours

Prerequisite: FREN 1020R, FREN 1040R or FREN 2000R

Cross-listed: Canadian Studies
Enrolment: Limited to 30

FREN 3000A/B Cours supérieur de français oral/ Advanced Oral French Workshop: Class discussions and oral presentations based on themes of contemporary concern. This class may be offered on or off campus in the summer in an intensive fashion. This class is intended to build vocabulary, perfect facility of expression (fluency) and style. Reading and research are necessary for the oral presentations.

Instructor: Staff

Format: Lecture/discussion 3 hours
Prerequisite: 2000-level French class
Enrolment: Limited to 30

FREN 3020R Linguistique/Linguistics: This class will interest future linguists, literary specialists and language teachers, as well as translators and public servants concerned with bilingualism. Its main objective is to improve and refine the students' understanding of the French language and to explain the major areas of its study. Culturally interesting literary excerpts will be used to observe and to analyse linguistic problems in texts. Each student will prepare two reports on linguistic topics. Assignments based on practical problems of pronunciation, spelling, grammar, vocabulary and meaning will complement the

syllabus.

Instructor: R. Kocourek Lecture 3 hours Format: 2000-level French class Prerequisite:

Limited to 25 Enrolment:

\*FREN 3025A/B Les Parlers acadiens: Introduction linguistique/Linguistic Introduction to Acadian Dialectology: An examination of the phonetic, morphosyntactic and lexical systems of various Acadian speech communities, with emphasis on the Acadian dialects of Nova Scotia. Frequent comparisons will be made between these dialects and both standard French and Québécois. Recorded and written materials are used.

E. Gesner Instructor: Format: Lecture 3 hours

Corequisite or permission of Prerequisite:

instructor Corequisite: **FREN 3020R** 

Cross-listed: Canadian Studies Enrolment: Limited to 20

FREN 3040R Stylistique/Advanced Composition: This class develops further the skills acquired in FREN 2040R. Through a variety of exercises, students are taught to express themselves in clear, accurate, idiomatic French, and to perform a number of tasks of a practical nature: writing reports, summaries, letters, etc. A good knowledge of grammar is essential.

M. Sandhu, D. Lawrence Instructors:

Lecture 3 hours Format: FREN 2040R Prerequisite: Limited to 25 Enrolment:

FREN 3081A/FREN 3082B Didactique du français langue seconde à l'école secondaire/Methods of Teaching French at the Secondary Level: Open only to students who have demonstrated adequate competence in French language and culture (passing a French language proficiency exam is required). Students taking this class are normally completing a BEd. Other students interested must consult the instructor. A consideration of foundations of second language teaching moves to a discussion of methodology, techniques, materials (including visual aids), and testing. Emphasis is on developing teaching strategies which enable students to use French as a tool for authentic self-expression, orally and in writing. Directed observation of experienced teachers and practice in the development of teaching skills are integral parts of the class. Evaluation is based upon class participation (microteaching, oral reports, contributions to discussions), written projects, lesson plans, and examinations.

Instructors: P. De Méo, M. Myers Lecture 3 hours Format: Corequisite: **FREN 3081A** Limited to 25 Enrolment:

\*FREN 3085B Didactique du français langue seconde à l'école élémentaire et en immersion/ Methods of Teaching French in the Elementary School and Immersion: This class focuses on specific methods and materials appropriate for the elementary-age child in the French core programme and/or immersion. Students taking this class are normally completing a BEd.

M. Myers Instructor: Lecture 3 hours Format:

FREN 3100R Civilisation de la France/Civilization of France: An attempt, through talks, reading. discussion and slide presentations, to understand and to suggest fruitful ways of studying, from an English-speaking Canadian point of view, what is essential in French culture and outlook. Instructors: M. Sandhu, J. Brown

Lecture/discussion 3 hours Format: 2000-level French class Prerequisite: Limited to 20 Enrolment:

\*FREN 3200A/B Appréciation de la littérature/ Literary Appreciation: An approach to the critical reading of various periods of French literature. The class offers discussion of representative works of major writers, centering either on genre, theme, or period and involving close textual analysis. It also includes some discussion of past and current theories of literature. See department for specific details in any given year.

Instructor: M. Bishop et al Lecture/discussion 3 hours Format: FREN 2201A/FREN 2202B Prerequisite:

Enrolment: Limited to 20

\*FREN 3250A/B Les femmes écrivains: du temps des cathédrales à celui des Editions des femmes/French Women Writers through the centuries: A chronological survey based on the study of literary texts by French Women Writers, this class will attempt to analyze the society of the time, the way it portrayed women and their role, and the overall condition of women. Emphasis will be given each time to a special period/authors within the context of the survey. Students taking the class as a Women's Studies class may write their essays and exams in English.

N. Trèves Instructor: Lecture/discussion 3 hours Format: Recommended: FREN 2201A/FREN 2202B Women's Studies Cross-listed: Limited to 20 Enrolment:

\*FREN 3300A/B La littérature médiévale/ Mediaeval French Literature: Textual analyses of selected works representing the major literary genres (epic, romance, theatre, poetry) from the chansons de geste to François Villon (most texts in modern French translations). The discussion of the origins and the development of a national French literature provide a convenient

introduction to critical approaches to literary texts.

Instructor: H. Runte

Format: Lecture/discussion 3 hours Prerequisite: FREN 2201A/FREN 2202B

Enrolment: Limited to 20

FREN 3400A/B La littérature du scizième siècle/ 16th-Century French Literature: Reliving the awakening, bloom and decline of the Renaissance period in literature and language through the works of Marot, Rabelais, Du Bellay, Ronsard. Montaigne and the poets of the baroque. The century's concern with the French language provides a convenient introduction to the study of the development of modern French.

N. Trèves Instructor:

Lecture/discussion 3 hours Prerequisite: FREN 2201A/FREN 2202B

Limited to 20 Enrolment:

FREN 3500A/B La littérature du dix-septième cicle/17th-Century French Literature: This class evamines representative works by three major seventeenth-century French dramatists: Corneille. Molière and Racine. It explores their vision of humanity and the world and assesses their contribution to French literature and the history of ideas.

Instructor: K. Waterson

Format: Lecture/discussion 3 hours FREN 2201A/FREN 2202B Prerequisite:

Enrolment: Limited to 20

FREN 3600A/B La littérature du dix-huitième sècle/18th Century French Literature: An introduction to the literature of the 18th century which includes works by such authors as Voltaire, Rousseau, Diderot and Marivaux. Each year the readings and class discussions will be centered on a different theme (for example: the hero, women, love, wealth and power).

Instructor: R. Bonnel

Format: Lecture/discussion 3 hours Prerequisite: FREN 2201A/FREN 2202B Enrolment:

Limited to 20

'FREN 3700A/B La littérature du dix-neuvième siècle/19th Century French Literature: An introduction to the main literary movements of the 19th century: Romanticism, Realism, Symbolism. Focus is on representative authors and/or texts belonging to one or more of these trends.

Instructor: J. Brown Format: Lecture/discussion 3 hours Prerequisite: FREN 2201A/FREN 2202B Enrolment: Limited to 20

FREN 3800A/B Théâtre et poesie du vingtième sicle/ French Theatre and Poetry of the 20th Century: Poetry and Theatre, 1900-1990. Study of modern poetry from Dada and Surrealism to the Work of contemporary poets such as Yves Bonnefoy, Jacques Dupin and Michel Deguy; and

of modern theatre from Jarry to Beckett, Ionesco and beyond.

Instructor: M. Bishop

Lecture/discussion 3 hours Format: Prerequisite: FREN 2201A/FREN 2202B

Enrolment: Limited to 20

\*FREN 3810A/B Prose et théorie littéraire du 20e siècle/ 20th Century Prose and Literary

Theory: Analysis of a broad selection of short prose by major novelists of the 20th century from Gide, Proust and Aragon but with emphasis upon the more recent work of Beckett, Sarraute, Simon. Duras, Le Clézio and Cixous. Parallel discussion will be centred upon the literary theory of critics such as Bachelard, Poulet, Starobinski, Barthes and Derrida.

Instructor: M. Bishop

Format: Lecture/discussion 3 hours Prerequisite: FREN 2201A/FREN 2202B

Enrolment: Limited to 20

FREN 3900A/FREN 3901B La littérature canadienne française/French-Canadian Literature: In-depth study of a few major works of

French-Canadian literature with emphasis on the period from 1945 to the present day. Each class deals with a specific genre (e.g. FREN 3900A Poetry, FREN 3901B Novel) and choice of genre may differ from year to year.

Instructors: B. Bednarski, I. Oore

Format: Lecture/discussion 3 hours Prerequisite: FREN 2201A/FREN 2202B

Cross-listed: Canadian Studies Enrolment: Limited to 20

\*FREN 3910A/B Études acadiennes/Acadian Studies: Critical investigation into the historical, socio-cultural, linguistic and literary significance of past and present Acadian writing. May follow Acadian Studies (FREN 2021A/2022B).

Instructor: H. Runte Format: Lecture/discussion 3 hours Prerequisite: FREN 2201A/FREN 2202B

Cross-listed: Canadian Studies Enrolment: Limited to 20

\*FREN 4001A Histoire du français - Moyen Age/History of French - The Middle Ages: Advanced research into selected topics in Old and Middle French - manuscript studies; paliography;

historical phonetics, morphology and syntax; the cultural-literary context of linguistic development; etc.

Instructor: H. Runte Format: Seminar 3 hours Prerequisite: 3000-level French class Enrolment: Limited to 15

\*FREN 4002B Histoire du français - epoque moderne/History of French - The Modern Period: Advanced research into selected topics - the emergence of a national language, the problem of

orthography, usage and the development of normative grammars, the evolution of vocabulary, epochal phenomena (Rhétoriqueurs, the Baroque, Préciosité, the Revolution, scientific French,

argot), etc.

Instructor: H. Runte

Format: Seminar 3 hours
Prerequisite: 3000-level French class

Enrolment: Limited to 15

\*FREN 4010A/B Grands linguistes du vingtième siècle/Great Linguists of the 20th Century: How did French-speaking linguists of the 20th century contribute to the understanding of the language? Interpretation of passages by six linguists (such as Saussure, Bally, Tesnière, Guillaume, Gougenheim, Martinet) will show how interesting questions were asked, and how new answers and methods enriched the field of language study. Class reports, discussions, assignments.

Instructor: R. Kocourek
Format: Seminar 3 hours
Prerequisite: 3000-level French class
Enrolment: Limited to 15

\*FREN 4011A/B Lexicologie/Lexicology: How can French vocabulary be studied and structured? What is its formation (derivation, composition, metaphor, borrowing, abbreviation, etc.), its meaning, its development? Class reports, discussions and lexical assignments are important components of this class.

Instructor: R. Kocourek
Format: Seminar 3 hours
Prerequisite: FREN 3020R
Enrolment: Limited to 15

\*FREN 4012A/B Aspects de la structure du français/Aspects of French Structure: Students will help select, from the many problems of French phonology, graphonomy, grammar, lexical formation and semantics, the ten subjects to be examinined in detail. Lectures and readings will be complemented by students' reports. Culturally relevant excerpts from literary masterpieces will be used for discussion and assignments.

Instructor: R. Kocourek
Format: Seminar 3 hours
Prerequisite: FREN 3020R
Enrolment: Limited to 15

\*FREN 4015R Cours supérieur de version/
Advanced Translation into English: Development
of awareness of the expressive resources of French
by dealing with problems and techniques of
translation into English. The texts of weekly
translation assignments, which account for 50% of
the final grade, progress from expository and
descriptive prose to poetry. Topics introduced
through lectures and oral class reports include
categories of translation, style, context and choice,
context and meaning, ambiguity, verb systems of
French and English, textual redundancy,

simultaneous interpretation, and translation of metaphors. Occasionally, alternate English translations of a French text are studied for revealing contrasts. Instructor:W.T. Gordon

Format: Seminar 3 hours
Prerequisite: FREN 3020R
Enrolment: Limited to 15

\*FREN 4041A/B Cours avancé de stylistique littéraire/Advanced Composition: This class presents an in-depth study of style. The class has as a goal to teach students to express themselves with elegance and refinement.

Instructor: Staff

Format: Lecture 3 hours
Prerequisite: FREN 3040R
Enrolment: Limited to 15

\*FREN 4300A/B Le roman courtois/Courtly Novels: A close literary analysis of mediaeval French Arthurian romances. Texts in bilingual (Old French/French) editions. Instructor: H. Runte.

Format: Seminar 3 hours

Prerequisite: 3000-level French literature class

Enrolment: Limited to 15

\*FREN 4301A/B La Poésie courtoise/Courtly Poetry: A stylistic and socio-cultural study of French courtly love poetry from the 9th to the 15th centuries. Early texts in modern French translations.

Instructor: H. Runte
Format: Seminar 3 hours

Prerequisite: 3000-level French literature class

Enrolment: Limited to 15

\*FREN 4400A/B Poésie de la renaissance: théorie et pratique/Renaissance Poetry: Theory and Practice: A seminar-style study of poetic theories and practices from the Rhétoriqueurs to the Pléiade and to Malherbe.

Instructor: N. Trèves
Format: Seminar 3 hours
Prerequisite: 3000-level French literature class
Recommended: FREN 3400A/B
Enrolment: Limited to 15

\*FREN 4401A/B La pensée philosophique, politique et morale de la renaissance/Philosophical, Political and Moral Thought of the Renaissance: An in-depth study of major currents of Renaissance thought: humanism, scientific awakening, the beginning of littérature engagée, and the emergence of the moralistes and philosophes.

Instructor: N. Trèves
Format: Seminar 3 hours

Prerequisite: 3000-level French literature class

Enrolment: Limited to 15

FREN 4500A/B L'aventure intellectuelle du grand siècle/The Intellectual Adventure of 17th-Century France: This class examines, at an advanced level, a major writer, movement, genre or theme in 17th-century French literature. As the focus may vary frequently please consult the professor for detailed information on the topic and format.

Instructor: K. Waterson
Format: Seminar 3 hours

Prerequisite: 3000-level French literature class
Enrolment: Limited to 15

\*FREN 4600A/B Le siècle des lumières: forme et philosophie/The Enlightenment: Form and Philosophy: An in-depth study of the French Enlightenment which treats some of the longer works by major authors and introduces the student to secondary authors whose works are also of significant literary, philosophical or historical value. The study is unified by an examination of recurring philosophical ideas and literary themes important to understanding the development of new genres and styles. Please consult the professor for information on the theme treated and the

Instructor: R. Bonnel
Format: Seminar 3 hours

Prerequisite: 3000-level French literature class

works to be studied in any given semester.

Enrolment: Limited to 15

•FREN 4700A La révolution romantique/The Romantic Revolution: Romanticism is viewed primarily as a rebellious and creative force which greatly contributed to the reshaping of traditional society. The origins, main themes and trends of the movement are studied with an attempt to show Romanticism as a European movement, the impact of which was felt in fields beyond the boundaries of literature. Classes are conducted as seminars; students are required to do a great deal of personal research, to prepare exposés and to participate in class discussions. The choice of texts depends largely on the students' previous experience: they include works by Mme de Staël, Chateaubriand, Lamartine, Hugo, Vigny, G. Sand and others.

Instructor: J. Brown
Format: Seminar 3 hours

Prerequisite: 3000-level French literature class

Enrolment: Limited to 15

\*FREN 4701B Le roman du dix-neuvième siècle/
The Nineteenth-Century Novel: Intensive study of
the work of a major novelist of the 19th century:
e.g., Stendhal, Flaubert, Balzac, Zola; a study of
his place in the development of the novel and of
his contribution to the genre. The class involves a
considerable amount of reading, regular reports,
and exposés.

Instructor: J. Brown
Format: Seminar 3 hours

Prerequisite: 3000-level French literature class
Enrolment: Limited to 15

\*FREN 4710A/B Du symbolisme au surréalisme/ From Symbolism to Surrealism: Analysis of the evolution of French literature from the various symbolist manners of Verlaine, Rimbaud, Mallarmé, Lautréamont and Laforgue, through the period of Jarry and Dada, to the aspirations and paradoxes of Surrealism viewed, principally, through the work of Breton, Eluard, Aragon and Desnos.

Instructor: M. Bishop
Format: Seminar 3 hours

Prerequisite: 3000-level French literature class

Enrolment: Limited to 15

\*FREN 4800A Le théâtre de Camus et de Claudel/The Theatre of Camus and Claudel: In all, eight plays are studied, four from each author. The works offer a contrast in philosophical content and reveal technical problems involved in their stage presentation.

Instructor: D. Lawrence Format: Seminar 3 hours

Prerequisite: 3000-level French literature class

Enrolment: Limited to 15

\*FREN 4801B Le Nouveau Roman/Anti-novels of the 20th Century: In this class we are mainly interested in fictional techniques: how the author creates his illusion. Each of the works selected for detailed study is important due to the author's rejection of conventional ideas regarding the form of the novel.

Instructor: D. Lawrence Format: Seminar 3 hours

Prerequisite: 3000-level French literature class

Enrolment: Limited to 15

\*FREN 4811A/FREN 4811B La poésie francophone de Perse et Char à Senghor et Césaire/Francophone Poetry from Perse and Char to Senghor and Césaire: Discussion of the works of five or six major francophone poets of the modern period, chosen from: Perse, Reverdy, Claudel, Char, Frénaud, Senghor, Tchicaya, Césaire, Glissant, Miron and others.

Instructor: M. Bishop
Format: Seminar 3 hours

Prerequisite: 3000-level French literature class

Enrolment: Limited to 15

\*FREN 4902A/FREN 4903B Écrivains québécois contemporains/ Contemporary Québec Writers: In depth study of one or more contemporary Québec writers.

Instructors: B. Bednarski/I. Oore
Format: Seminar 2 hours

Prerequisite: 3000-level French literature class

Cross-listed: Canadian Studies
Enrolment: Limited to 15

\*FREN 4904A/B Écrivaines québécoises/ Quebec Women Writers: This class will explore the condition of women as revealed in texts by Québec women writers. In any given year different writers and time periods will be covered, and a variety of genres may be included.

B. Bednarski/I. Oore Instructors:

Lectures/discussion 2 hourS Format: Recommended: FREN 2201A/2202B and at least

> one third-year literature class, preferably French Canadian

WOST 4250A/B; Canadian Studies Cross-listed:

Enrolment: Limited to 15

FREN 4994A/FREN 4995B, FREN 4996A/FREN 4997B, FREN 4998A/FREN 4999B: Recherches indépendantes/ Independent Research: May only be taken with the approval of the Chair.

Instructor:

Format: Independent study/seminar 3000-level French literature class Prerequisite:

Enrolment: Limited to 5

### German

Location:

1355 LeMarchant St.

Halifax, N.S.

Telephone:

(902) 494-2161

Chair

H.-G. Schwarz (494-2161/2162)

**Undergraduate Advisor** 

H.-G. Schwarz (494-2161/2162)

**Professors** 

F.W. Gaede, PhD (Freib.) (McCulloch Professor in German)

P. Michelsen, PhD. (Gott.)

H.-G. Schwarz, MA (Munich), PhD (McG)

**Associate Professor** 

D. Steffen, PhD (Gott.)

**Assistant Professor** 

E.A. Spence, BA (Hons), MA, PhD (UBC)

Lecturer

G. Josenhans

**Visiting Professor** 

K. Kanzog, Dr. phil. (Berlin), Dr. habil. (Munich), Prof. of German, University of Munich

### Introduction

German, the most widely used language in Central Europe, is spoken by approximately 100 million people as their native tongue in Austria, Germany, Switzerland and some parts of Eastern Europe. The cultural, economic, and scientific role of the German-speaking countries makes the knowledge of German indispensable to the study of most academic disciplines.

The departmental programme "German Studies" is the investigation of German culture and its place in the formation of the modern world. The programme concentrates on significant aspects of the cultural tradition of the German-speaking countries. From Luther to Nietzsche, Freud, and Marx, German writers have moved men and nations to change the course of the world. The literary and intellectual development of Germany culminated around 1800 in the epoch of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Europe, especially Greek culture. As scientists, historians, and politicians they described in their literary works, problems and questions of a universal nature. They became the first historians of literature and created the discipline of aesthetics. The universality of the authors of German classicism explains their present day relevance and makes the study of German important and attractive.

Major or honours students may, with the approval of the Department of German, take up to one year (5 full credits) of work at a University in a German-speaking country and receive credit at Dalhousie. The Department has exchange arrangements with the universities of Heidelberg and Munich.

### **Degree Programmes**

#### **BA** with Honours in German

Students considering an honours course are advised to consult the Department of German.

#### **Combined Honours**

It is possible for a student to take an honours degree combining German with another subject. Any student intending to take such a combined honours degree should consult with the two respective departments to arrange the details of such a programme.

### **Advanced Major**

The department is able to offer a major in the 20-credit programme. For further information refer to specific regulations for the 20-credit programmes on page 78.

BA

Students concentrating on German should take a minimum of four German classes beyond the 1000 level.

### Classes Offered

Note: Classes marked \* are not offered every year. Please consult the timetable on registration to determine if this class is offered.

### German Language Studies

Introductory Classes Offered

GER 1000R German for Beginners: GER 1000R is a seminar class for beginners only, and no previous knowledge is required. Its equivalent is two years of German in high school with a final mark of 75% or better. The class emphasizes the snoken language, and provides the student with a thorough knowledge of basic grammar. Language laboratory work and attendance of small conversation groups are required as are writing tutorials five or six times during the year. Passing this class fulfills the first year writing requirement.

Instructors: Staff

Format: Seminar 3 hours

Prerequisite: None

Limited to 20 per section. Enrolment:

GER 1010R German for Beginners: An introductory language class, using the same methods and goals as GER 1000R. This class does not fulfill the writing requirement for beginning students.

Instructors: Staff

Seminar 3 hours Format:

Prerequisite: None

**Enrolment:** Limited to 20 per section

GER 1050R German Reading Course for Beginners: Students acquire a knowledge of basic vocabulary and grammatical structures sufficient to understand newspapers and texts in the humanities and sciences. No previous knowledge of German is required. The class is taught in English. Attendance at writing tutorials is required five or six times during the year. For purposes of admission to advanced classes in German it is equivalent to GER 1000R. This class fulfills the writing requirement for first-year students.

Instructor: H.-G. Schwarz Format: Seminar 3 hours Prerequisite:

Enrolment: Limited to 20 per section

GER 1060R German Reading Course for Beginners: An introductory reading class using the same methods and goals as GER 1050R. This class does not fulfill the writing requirement for beginning students

Instructor: Format:

H.-G. Schwarz Seminar 3 hours None

Prerequisite: Enrolment:

Limited to 20

GER 1000R/1050R or GER 1010R/1060R Intensified German: lecture 6 hours, lab 2 hours. Either of these combinations is recommended for students who desire rapid progress in the German language.

#### Intermediate Classes

Intermediate classes are based on GER 1000R, high school German Grade 10, 11, 12 or an equivalent basic knowledge. A combination of GER 2000R and GER 2020R serves as an accelerated Intermediate German class and is designed for students who want to make rapid progress in the language.

GER 2000R Intermediate German: The main aim is to develop a certain degree of speaking fluency as well as reading and writing skills. Language Laboratory work is required. Small conversation classes once a week as an aid to speaking fluency are compulsory.

Instructors: G. Josenhans, E. Spence Format: Seminar 3 hours

Prerequisite: Any of GER 1000R, 1010R.

1050R, 1060R

Enrolment: Limited to 20

\*GER 2020R Exercises in Translation and Composition: English and German texts from various periods of different types will be translated. These translations lead to the discussion of specific difficulties of grammar and construction. Students must prepare translations or compositions for each class. Instructor: G. Josenhans.

Format: Seminar 2 hours

Prerequisite: GER 1000R, GER 1010R or

equivalent

Enrolment: Limited to 20

GER 3000R Advanced German: Translations. readings, essays and discussions will promote fluency in the language on the advanced level. Instructor: G. Josenhans

Format: Seminar 2 hours Prerequisite:

GER 2000R or equivalent **Enrolment:** Limited to 20

GER 3010A Advanced Translation I: German-English: German texts of various kinds are used to deal with techniques and problems of translating from German into English. The class includes discussion of such things as translation theories, elements of style and questions of ambiguity and textual redundancy.

Instructor: E. Spence Format:

Seminar 3 hours Prerequisite: GER 2000R or equivalent

**Enrolment:** Limited to 20

GER 3011B Advanced Translation II: English -German: English texts of various kinds are used to deal with the techniques and problems of

translating from English into German. The class includes discussion of such things as translation theories, elements of style and questions of ambiguity and textual redundancy.

Instructor: Format:

E. Spence Seminar 3 hours

GER 2000R or equivalent Prerequisite:

Limited to 20 Enrolment:

### Study of German Literature and Culture

\*GER 2150R Goethe's Faust: Instructor: H.-G. Schwarz

Lecture/discussion 2 hours Format:

Prerequisite: None

Limited to 20 Enrolment:

GER 2200R Introduction to German Literature: A study of texts representing major periods of German Literature. Special emphasis is on the interaction between literature, society and other forms of art. The class also serves as an introduction to literary criticism. The language of instruction is English; the texts are in German. E. Spence

Instructor:

Seminar 2 hours, tutorial 1 hour Format: Prerequisite:

GER 2000R or equivalent or a reading knowledge of German

Limited to 20 Enrolment:

\*GER 2300R In Pursuit of Freedom from Luther to Nietzsche: A study of major modern writers with special emphasis on Hegel's Philosophy of Right. This class is taught in English and uses English translations.

Instructor: Format:

D. Steffen Seminar 2 hours

A general introduction to Prerequisite:

literature, culture or philosophy

Limited to 20 **Enrolment:** 

\*GER 2400R German Art and Literature: This class gives an introduction to modern German Art and Literature. Special emphasis is on the interaction between art and literature, particularly the themes and styles shared by visual and literary expression during the various epochs of modernity.

Instructor: Format:

H.-G. Schwarz Seminar 2 hours

GER 2000R or equivalent Prerequisite:

Limited to 20 Enrolment:

\*GER 2450R Kant and the History of German Idealism: A study of Kant's relation to modern Rationalism and Empiricism, and an inquiry into the principles of Idealism.

Instructor:

D. Steffen

Seminar 2 hours Format:

GER 2000R or GER 2200R or Prerequisite:

King's Foundation Year

Limited to 20 Enrolment:

\*GER 3050R History and Theory of the German Novel: Representative works from the Baroque Age to the 20th Century are studied and the principles of the genre discussed.

Instructor: Format:

F. Gaede Seminar 2 hours

GER 2200R or GER 2400R Prerequisite:

Limited to 20 Enrolment:

\*GER 3100R German Literature and Thought from Reformation to Enlightenment: A study of German literature between the16th and 18th centuries as a direct reflection of the important religious, social and philosophical developments after the Reformation and during Absolutism.

F. Gaede Instructor: Format:

Seminar 2 hours **GER 2200R or GER 2400R** Prerequisite:

Limited to 20 Enrolment:

\*GER 3150R Goethe and the Enlightenment: A study of German literature and thought of the time which preceded and witnessed the great revolutions of the 18th century.

Instructor: Format:

D. Steffen Seminar 2 hours

**GER 2200R or GER 2400R** Prerequisite: Limited to 20 **Enrolment:** 

\*GER 3200R Goethe and Romanticism: A study of Goethe, Hölderlin, Kleist, and Novalis.

D. Steffen Instructor:

Format: Seminar 2 hours **GER 2200R or GER 2400R** Prerequisite:

Limited to 20 **Enrolment:** 

\*GER 3240R Literature of the 19th Century: A discussion of essential literary texts which throw a critical light on the growing forces of materialism and positivism.

Instructor: Format:

F. Gaede Seminar 2 hours

**GER 2200R or GER 2400R** Prerequisite: Limited to 20 Enrolment:

\*GER 3250R Modern German Literature: Modern authors as witnesses of the political catastrophes and social changes of our century: a study of the plays of B. Brecht and of selected prose texts of Fr. Kafka, Th. Mann and G. Grass.

F. Gaede Instructor:

Seminar 2 hours Format: **GER 2200R or GER 2400R** Prerequisite:

Limited to 20 **Enrolment:** 

\*GER 4100R Aesthetic Theory: An historical study of the development of literary theory.

F. Gaede Instructor: Format:

Seminar 2 hours **GER 2200R or GER 2400R** Prerequisite:

Enrolment: Limited to 20

\*GER 4200R Seminar on Hegel's Phenomenology of Spirit: The Phenomenology of Spirit, published in 1807, was Hegel's first major work. He intended to write an introduction to philosophy by demonstrating the necessity of the advance from the most immediate form of knowledge to absolute knowledge. To achieve this he had to write the Phenomenology as an introduction to his own philosophy.

D. Steffen Instructor: Seminar 2 hours Format:

**GER 2200R or GER 2400R** Prerequisite: Enrolment: Limited to 20

GER 4250R Studies in German Idealism: This seminar is specifically intended for students in the advanced major and honours degree programmes. The specific content of the seminar varies from year to year, but is always related to some aspect of Idealism.

•GER 4500A Special Topics Course I: This is an intensive research seminar dealing with selected topics to be announced.

•GER 4501B Special Topics Course II: This is an intensive research seminar dealing with selected topics to be announced.

### Greek

See under Classics.

### History

Location:

1411 Seymour Street Halifax, N.S.

Telephone: (902) 494-2011

### Chair

G.D. Taylor (494-2011)

**Undergraduate** Coordinator S. J. Brooke (494-2011)

### **Professor Emeritus**

P.B. Waite, MA (UBC), PhD (Tor), FRSC

### Professors

P. Burroughs, BA, PhD (Lond.), FR HistS M.S. Cross, BA, MA, PhD (Tor.) J. Fingard, BA (Dal), MPhil, PhD (Lond.), Dean, Faculty of Graduate Studies J.E. Flint, MA (Cantab.), PhD (Lond.), FR HistS, FRSC, McCulloch Professor in History N.G.O. Pereira, BA (Williams), MA, PhD (UC Berkeley)

L.D. Stokes, BA (Tor.), MA, PhD (Johns Hopkins) G.D. Taylor, BA, PhD (Penn.) M. Turner, BA, MA (Manc.), PhD (Lond.) J.B. Webster, MA (UBC), PhD (Lond.)

### **Associate Professors**

J.E. Crowley, AB (Princ.), MA (Mich.), PhD (Johns Hopkins) J.T. O'Brien, BA (Wisconsin), MA, PhD (Rochester) J.L. Parpart, BA (Brown), MA, PhD (Boston) D.A. Sutherland, BA (MtA), MA (Dal), PhD D.R. Woolf, BA (Queens), DPhil (Oxon.), FR HistS

### **Assistant Professors**

R. Bleasdale, BA, MA, PhD (UWO) S.J. Brooke, BA (Dal), MA (McGill), DPhil (Oxon.) G. Hanlon, MA (Tor.), Dr.de 3e cycle (Bordeaux) C.J. Neville, BA, MA (Carleton), PhD (Aberdeen)

### Introduction

(Research)

A sense of history is a primitive need felt by individuals and by groups. Just as people need to know who they are and how they arrived where they are, groups, races, classes, states and nations need a sense of their own past as part of their culture.

The academic study of history, therefore, is concerned to discover as much as possible of the reality of the past and to interpret human behaviour in its changes through time. It is a unique subject, scientific in the way it uses evidence, but still an art because the reconstruction of the past requires a disciplined imagination and an effective rhetoric for the communication of meaning.

The contemporary world is one of intensive specialization, in which the varieties of human knowledge have increased well beyond the capacity of any individual to command them all. These developments have reinforced the role of history as the foundation of a person's education, because history can never draw frontiers around itself to exclude any branch of human knowledge. although individual historians will want to select that portion of it especially relevant for them. History's field of study will always be the entirety of the human experience.

The subject of history does not have a monolithic body of knowledge. Historical understanding is a matter of interpretation, of offering explanations for events and movements which are subject to constant revision by scholars. Arguments, scepticism and controversy are thus the very stuff of history. The history student does not merely acquire a particular mass of information, but learns to think independently.

### History

A degree in history provides an appropriate background for students planning to enter professional careers in fields such as law, education and journalism, as well as those interested in pursuing graduate study in history or related social science and humanities disciplines.

Classes in the History Department are grouped numerically in several geographical, chronological, subject and other areas: for example, Canadian, American, British, African, Medieval and Early Modern European, Modern European, Women, Science and Technology, etc. Students are strongly encouraged to select a distribution of classs from different areas in order to experience the variety and richness of history.

Students who wish to build up a greater specialization in history than the minimum requirements outlined below may do so by taking classes of an historical nature given by the Departments of Classics, Economics, Music, Philosophy, Political Science, Spanish, Theatre, etc.

Students who wish to concentrate in a particular area of history should consider acquiring the appropriate language skills, especially if they intend to pursue graduate study in it.

### General and Honours BA

There are no prerequisites for entry into the programme at the 1000- and 2000-levels; however, some 2000-level classes may exclude first-year (freshman students. A first year history course is recommended for prospective majors or honours students but is not mandatory.

Students who wish to major in history in the three-year (15 credits) programme are urged to choose one or two 1000- or 2000-level history classes in their first year. They must take a minimum of four and preferably five, but no more than eight additional classes above the 1000-level, of which at least two must be beyond the 2000level.

Students who wish to pursue the Advanced Major (four years, 20 credits) programme must complete all the requirements for the three-year degree. In addition, they must take a minimum of two classes (one at the 3000-level and preferably HIST 4500 A/B, when offered, and HIST 4985A), for a total of at least six but not more than nine classes in history, above the 1000-level.

Students who wish to pursue an Honours Degree in history must also complete all the requirements for the three-year degree. In addition, they must take two required classes (HIST 4985A, HIST 4990R) and a further number of classes, preferably at the 3000- and 4000-levels, for a total of at least nine but not more than eleven classes above the 1000-level in history. It is also possible to complete a combined Honours Degree in history and another subject, in which case the student should consult the Undergraduate or Honours Coordinators in both Departments.

The following outline presents the minimum

departmental requirements for each programme and should be read in conjunction with the general requirements of the Faculty. Students who intend to major or honour in history should consult the department's undergraduate coordinator to have their plan of study approved preferably before entering the second year. First Year (all Majors and Honours students)

Required Classes: none.

Recommended Classes: at least one in history at the 1000 - or 2000 - level

Number of Electives: three or four. Second Year (all Majors and Honours students)

Required Classes: two or three in history from different groups at the 2000 - level.

· Number of Electives: two or three. Third Year (all Majors and Honours students)

· Required Classes: two in history at the 3000 - level.

Recommended Classes: at least one in history at the 2000 - or 3000 - level.

• Number of Electives: one or two.

Fourth Year (Advanced Majors only)

Required Classes: two in history, one of them at the 3000 - or 4000 - level.

Recommended Classes: HIST 4500A/B, HIST 4985A and one other in history at the 3000 - level.

Number of Electives: two or three.

Fourth Year (Honours Students only)

Required Classes: HIST 4985A, HIST

Recommended Classes: HIST 4500A/B and three in history at the 3000 - or 4000 - level.

Number of Electives: none.

### Classes Offered

Note: Classes marked \* are not offered every year. Please consult the current tiemtable on registration to determine if these classes are

HIST 1001A Medieval Europe: An introduction to the thousand years between the Barbarian invasions of the fourth, fifth and sixth centuries and the beginnings of modern Europe. Original sources in translation are used to illustrate the medieval world view. Students are acquainted briefly with a wide range of topics, political, cultural and social. Particular attention is paid to developing a basic appreciation of the richness of an age often characterised as "dark" and unknowable.

Instructor: C.J. Neville

Lectures/tutorials 3 hours Format:

Limited to 100 Enrolment:

Former HIST 1000R students **Exclusion:** 

HIST 1002A/B Renaissance to Revolution, 1500-1789: This course is designed to serve as an introduction to the major themes and events in

European history. Students will become acquainted with the importance of regional geography, and with the basic concepts and processes in social, religious, economic, political and cultural history.

G. Hanlon Instructor: Lectures 3 hours Format: Limited to 100

Enrolment: Former HIST 1000R students Exclusion:

HIST 1003A/B Modern Europe: From the French Revolution to the Cold War, 1789-1956: An introductory survey of the history of Europe from 1789 to 1956 Emphasis will be upon the major nolitical and intellectual developments in France. Germany and Russia, but other national areas as well as social and economic issues will also receive some attention.

Instructors: N.G.O. Pereira Lectures 3 hours Format: Enrolment: Limited to 100

Former HIST 1000R students Exclusion:

HIST 1050R The Modern World: Open the morning newspaper or tune in the evening news. Crises, conflicts and controversies parade before us in a seemingly random and inexplicable fashion. Where did the problems that confront us today originate? Can an understanding of the past provide guidelines for dealing with the complex issues of the present? Historians cannot foretell the future, but they can provide perspectives that relate the events of our own time to broader trends of political, economic and social development in the modern world. This class seeks to introduce students to history as an ongoing process, linking the present to the past. G.D. Taylor Instructor:

Format: Lectures 3 hours Enrolment: Limited to 300

HIST 1200R Canada: An Introductory Survey: An overview of the Canadian experience, from initial contact between natives and newcomers, to contemporary debate over such issues as abortion and free trade. Emphasis is placed on the theme of change and conflict in terms of the economy, society and politics.

Instructors: J. Fingard/D. Sutherland Format: Lectures 3 hours Cross-listed: Canadian Studies Enrolment: Limited to 100

'HIST 1300R History of the United States: This class surveys the broad contours of the American experience from the Jamestown settlement to the Reagan revolution. It examines the historical development in the United States of republican government, democratic society, and the constitutional conflicts decided by the Civil War. addition to such political concerns, the class Pays particular attention to the economic development of the United States, her unusual

racial and ethnic patterns, and her propensity for generating and absorbing reform movements. Students attracted to third and fourth year classs in the history of the United States should consider History 1300 early in their university career.

Instructor: J.T. O'Brien Format: Lectures 3 hours **Enrolment:** No Limit

HIST 1400R Europe and the Third World:

Passing this class fulfills the first year writing requirement; this class is therefore an introduction to university level work and provides training in study habits, analysis of problems and essay writing by examining six "units of study" in turn. Each unit is concerned with a major phenomenon in the history of European expansion overseas and its impact on non-European peoples, ranging from 16th century America to twentieth century nationalism and decolonization. For each unit there are lectures and tutorials and students write six essays, one per month in each unit. Instructors: J.E. Flint/J.B. Webster

Format: Lectures/tutorial 3 hours Limited to 90 Enrolment:

\*HIST 2001A Early Medieval Europe: An investigation of the period between the fourth and the twelfth centuries. Major themes of lectures and tutorials include the mingling and exchange of Roman traditions with the Barbarian cultures in the fifth and sixth centuries, the creation of the feudal states of Europe following the disintegration of the Carolingian Empire, the development of monasticism, church-state relations, the Gregorian Reform and the Investiture Contest, the rise of papal government, the twelfth-century Renaissance, peasant life and popular culture. Original sources in translation are used to familiarise students with the medieval world view.

C.J. Neville Instructor: Format: Lectures/tutorials 3 hours

Recommended: HIST 1001A Enrolment: limited to 80

\*HIST 2002B Later Medieval Europe: A study of the period beginning with the pontificate of the greatest of the medieval popes, Innocent III, and ending with the emergence of the early modern European states. After a preliminary introduction to the nature of medieval society at the end of the twelfth century attention is turned to a variety of themes, political, social, cultural, economic and religious. These include the Crusades, churchstate relations, heresy, peasant life and peasant rebellions, political thought, varieties of medieval law, architecture and literature, and the concept of decline, or the "autumn" of the Middle Ages. Students make use of original sources in translation.

Instructor: C.J. Neville

Format: Lectures/tutorials 3 hours Recommended: HIST 1001A or 2001A or both Enrolment: Limited to 80

\*HIST 2005A/B Renaissance and Reformation Europe, 1400-1559: A survey of the major themes. subjects and personalities in western European history from the high Italian Renaissance to the beginnings of the Protestant Reformation in the sixteenth century. Topics to be covered include the rise of the Italian city-states, Italian humanism, the arts, the emergence of centralized monarchies in northern Europe, religious sentiment and the reform movement. Although most areas of western Europe will be dealt with, the focus will be on Italy, France and Germany.

Instructor: D.R. Woolf

Format: Lectures/discussion 3 hours Recommended: HIST 1001A or HIST 1002A/B

Limited to 60 Enrolment:

Former HIST 2011A and first year **Exclusions:** 

students

\*HIST 2006A/B After Columbus: The Old World and the New, 1450-1650. The commercial and colonial expansion of Europe into the Americas. Topics of particular interest are the relations of Europeans and indigenous peoples, the ecological consequences of colonization, the use of unfree labor, the role of technology, the establishment of settler colonies, the effect of overseas communication on European culture, and the role of colonial expansion in the development of the world economy.

J.E. Crowley Instructor:

Format: Lectures/discussion 3 hours

Recommended: HIST 1002A/B Limited to 60 Enrolment:

**Exclusions:** Former HIST 2010A and first-year

students

\*HIST 2007A/B The Atlantic World: European Empires in the Americas, 1650-1800: The development of the European colonial societies after their initial settlement and the establishment of their staple economies in the sixteenth and seventeenth centuries. The topics of chief interest are the predominance of colonial trade in Europe's large-scale commerce, the role of the colonies in European conflicts, the renewal of exploration, the development of the colonies' internal economies, and their revolts against European rule.

Instructor: J.E. Crowley

Lectures/discussion 3 hours Format: Recommended: HIST 1002A/B, 2006A/B

Enrolment: Limited to 60

**Exclusions:** Former HIST 2013B and first-year

students

\*HIST 2008A/B The Rise of Absolutism, 1559-1715: A sequel to HIST 2005A/B, this class is a survey of the most important themes and topics in the history of western Europe from the midsixteenth century to the death of Louis XIV. Topics to be covered include: the Counter-Reformation; the Spanish hegemony; the Dutch Revolt; the Thirty Years' War; the "Crisis" of the mid-seventeenth century; the conflict between absolutist regimes and representative bodies; the beginnings of mercantilism; and the rise to world power of Louis XIV's France.

D.R. Woolf Instructor:

Format: Lectures/discussion 3 hours

Recommended: HIST1001A, 1002A/B

Limited to 60 Enrolment:

Former Hist 2012B and first-year **Exclusions:** 

students

\*HIST 2009A/B Enlightenment and Revolutionary Europe, 1715-1815: A comparison of France and Britain with respect to such topics as literary culture, the growth of manufactures, the role of the state in economic and social reform, the crisis of the Old Regime and the French Revolution, as well as the Napoleonic Empire and its wars.

Instructor: J.E. Crowley

Lectures/discussion 3 hours Format: Recommended: HIST 1002A/B, 2005A/B,

2008A/B

Limited to 60 Enrolment:

**Exclusions:** Former HIST 2012B and first-

year students

HIST 2020R Imperial and Soviet Russia: A survey of Russian history from the time of Peter the Great to the present. Emphasis is on themes of continuity in the process of modernization, as well as upon elements of discontinuity such as the Great Reforms of Alexander II, the Revolutions of 1917, the collectivization of the peasantry under Stalin, etc.

Instructor: N.G.O. Pereira

Lectures/tutorials 3 hours Format: Recommended: HIST 1001A or HIST 1002A/B or HIST 1050R or HIST 1400R

**Enrolment:** Limited to 90

**Exclusion:** First-year students (except with permission of instructor)

\*HIST 2022A/B Nineteenth Century European Intellectual History: A select survey of the thought and teachings of major figures in European intellectual history from the time of the French Revolution through the First World War. including Schiller, Hegel, Ricardo, Tocqueville, Fourier, Darwin, Marx, Bakunin, Nietzsche, Lenin, and Freud.

N.G.O. Pereira Instructor:

Format: Lectures/tutorials 3 hours Recommended: HIST 1001A or HIST 1002A/B

or HIST 1050R or HIST 1400R

Limited to 60 **Enrolment:** 

First-year students (except with **Exclusion:** 

permission of the instructor)

UIST 2021A/B Soviet Russia: Survey of Soviet pussia from 1917 to the present. Topics discussed will include the Revolution of 1917, the Civil War and War Commission, NEP. Collectivization, the Great Purges, WWII, and the Post-Stalin era.

Lecture/tutorial, 3 hrs Format:

Instructor: Prerequisite: None

Limited to 40 Enrolment: HIST 2020R Exclusion:

HIST 2030R Germany in the Nineteenth and Twentieth Centuries: Selected topics in the history of Germany during the past two centuries. including the growth of nationalism and liberalism. the role of Prussia, industrialization, Bismarck and the political parties, civil-military relations, the rise, rule and destruction of Nazism, and the postwar development of the Federal and German Democratic Republics.

Instructor: L.D. Stokes

Lectures/discussion 2 hours Format:

Recommended: HIST 1001A or HIST 1002A/B or HIST 1003A/B or HIST 1050R or

HIST 1400R

30 students per section, up to two Enrolment:

sections

First-year students Exclusion:

HIST 2040R Modern France, 1700-1990: The class covers the last three centuries of political, social, economic and cultural history in Europe's pre-eminent nation. More specifically we examine the transition from a traditional rural society with a precocious state, through the French Revolution and its political and social repercussions. Throughout the 19th and 20th centuries France, perhaps more than any other single nation, mirrors developments in all aspects of the contemporary Western world.

Format: Lectures/tutorial 3 hours Recommended: HIST 1001A or HIST 1002A/B or

HIST 1003A/B

G. Hanlon

Enrolment: Limited to 60

Instructor:

\*HIST 2060R Italy after the Renaissance: Why does the Western world's most advanced economy and culture enter into prolonged decline after 1620? Here we deal with the theme of "decadence" from which Italy has emerged only in the last half of the 20th century. The class explores how advantages became handicaps, how governments tried to stem a decline of which they were acutely aware, of how society reacted to crisis, and the roles of ideology in fashioning responses. The class will also focus on those aspects in which there was no decline. Instructor:

G. Hanlon Format: Lectures 3 hours

Recommended: HIST 1001A or HIST 1002A/B Enrolment:

Limited to 60

\*HIST 2062A/B Italy from the Risorgimento to Fascism, 1848-1945: Selected topics in the history of nineteenth and twentieth century Italy, including the role of Piedmont in the creation of the national state, regionalism and modernization, the political weaknesses of liberal Italy, and the origins, rule and fall of the Fascist regime.

Instructor: L.D. Stokes

Format: Lectures/discussion 2 hours Recommended: HIST 1001A or HIST 1002A/B

or HIST 1003A/B or HIST 1050R or HIST 1400R

Enrolment: 30 students per section, up to 2

sections

**Exclusion:** First-year students

\*HIST 2081R Twentieth Century Europe in Literature, Art and Film: A survey of contemporary European history that employs representative works of literature, art, architecture and film as well as traditional published records and monographic accounts to introduce students to major events of the twentieth century: the two world wars, the Russian Revolution, the political systems of Italian Fascism, German Nazism and Soviet Communism, the Holocaust and others.

Instructor: L.D. Stokes

Lectures/discussion 3 hours Format:

(audio-visual facilities as needed)

Recommended: HIST 1001A or HIST 1002A/B or HIST 1003A/B or HIST

1050R or HIST 1400R

**Enrolment:** 30 students per section, up to

two sections

Exclusion: First-year students

\*HIST 2101A Medieval England: This class examines some of the major social, political, economic and cultural themes in English history from the departure of the Roman legions in the fifth century to the Wars of the Roses in the fifteenth. Major topics of study include the development and maturation of the English church, the impact of the Norman Conquest on Anglo-Saxon government and society, the development of the common law system, English monasticism, constitutional struggles in the later medieval period, war with France and Scotland. In an effort to understand and appreciate more fully the culture of medieval England detailed consideration is given to contemporary sources, in translation.

Instructor: C.J. Neville

Enrolment:

Format: Lectures/tutorials 3 hours

Recommended: HIST 1001A or HIST 2001A or

HIST 2002B Limited to 80

HIST 2104A/B England under the Tudors, 1485-1603: An introduction to the major events, personalities and developments in the political, social and economic history of sixteenth-century England. Issues to be studied include: the

formation of a national state; the beginnings of inflation; the Reformation and dissolution of the monasteries; the mid-Tudor "crisis"; and the achievements of the Elizabethan age.

Instructor: D.R. Woolf

Format: Lectures/tutorials 3 hours

Recommended: HIST 1001A/B or HIST 1002A/B

Enrolment: Limited to 60

Exclusions: HIST 2102B, HIST 2103R, and

first-year students

HIST 2105A/B England under the Stuarts, 1603-1688: This sequel to HIST 2104A/B studies the principal events of the seventeenth-century English history, with reference to developments in Scotland and Ireland. Among the topics to be discussed: the character of Stuart kingship; the crisis of the aristocracy; the fear of catholicism at home and abroad; the causes and course of the civil war 1642-49; the importance of parliament; the Cromwellian Regime; the Restoration; and the Revolution of 1688.

Instructor: D.R. Woolf

Format: Lectures/tutorials 3 hours

Recommended: HIST 1001A/B or HIST 1002A/B

Enrolment: Limited to 60

Exclusions: HIST 2102B, HIST 2103R, and

first-year students

HIST 2111A Modern Britain to 1884: A survey of the political, economic and social development of Britain from the Seven Years War to the mid-Victorian era. Among the topics considered are the impact of foreign revolutions and wars on domestic politics, the industrial revolution and the evangelical revival, the nature of social classes and movements of popular protest.

Instructor: S. Brooke

Format: Lectures/tutorials 3 hours

Enrolment: Limited to 60

HIST 2112B Modern Britain from 1884 to the Present: A survey of the political, economic and social development of Britain from the mid-Victorian era to the present. Among the topics considered are the fortunes of the country's major political parties, the experience of Britain in two world wars, the growth of the welfare state and Britain's decline as an industrial and world power. Instructor:

S. Brooke

Format: Lectures/tutorials 3 hours

Recommended: HIST 2111A
Enrolment: Limited to 60

HIST 2131A The Rise of the British Empire: A survey of British expansion overseas from Tudor times to the heyday of British imperialism before World War I. Among the themes considered are the motives and character of British imperialism, changing British attitudes and policies towards the empire, colonization and conquests and contacts with non-European peoples.

Instructors: P. Burroughs/J. Flint

Format: Lectures/tutorials 3 hours
Recommended: HIST 1400R

Enrolment: Limited to 60

HIST 2132B The Fall of the British Empire: A survey of the decline of British imperialism and international commitments since the First World War. Among the themes considered are the impact of global war on the empire, the transformation of empire into commonwealth, colonial revolts and independence movements, decolonization and the legacy of imperialism at home and abroad.

Instructors: P. Burroughs/J. Flint
Format: Lectures/tutorials 3 hours
Recommended: HIST 1400R, 2131A
Enrolment: Limited to 60

\*HIST 2151A/B Scotland from the Late Middle Ages to Culloden: A survey of major themes in Scottish history from the fifteenth century to the Jacobean era. After a general introduction to Scotland's geographical and cultural inheritance. students will proceed to a review of such topics as crown-magnate relations in the late Middle Ages, religious life in pre-Reformation Scotland, the coming of the Reformation, the evolution of the Reformed Kirk, Highlanders vs. Lowlanders, the problem of the Borders, the unions of 1603 and 1707, education and poor law in early modern Scotland, the Scottish Revolution, and the Jacobite rebellions. Tutorial discussions will be based on prepared readings. Throughout the class emphasis will be placed on recent reinterpretations of traditionally held views with respect to these so-called "dark ages" in Scottish

history. Instructor:

C.J. Neville

Format: Lectures/tutorials 3 hours

Enrolment: Limited to 60

\*HIST 2152A/B Scotland since 1745: A survey of major themes in the history of "North Britain" from the last Jacobite rebellion of 1745 to the present. Topics to be dealt with include the Scottish Enlightenment, the Age of Improvement, radicalism and repression, the Clearances and emigration to North America, agitation for parliamentary reform, Scottish Chartism, Walter Scott and Scottish Romanticism, Scottish cities in the Victorian era, Scottish socialism, Scotland in the Depression, the Second World War, the ascendancy of Labour, Scottish nationalism, North Sea oil, and the legacy of underdevelopment.

Instructor: D.A. Format: Lea

D.A. Sutherland Lectures/tutorials, 3 hours

Enrolment: Limited to 60

\*HIST 2202B Canada's Industrial Revolutions, 1850-1950: A study of Canada's transition from a pre-industrial society to a leading industrial nation. Principal themes for discussion include urbanization, the rise of the factory and mass

production, the impact on home and family, the revolution in transportation and communications, weapons development, and patterns of consumption. Special attention is given to the role of technology.

Instructor: R. Bleasdale

Format: Lectures/tutorials 3 hours
Recommended: HIST 1200R or equivalent

introductory class in Canadian

history

Enrolment: Limited to 60
Cross-listed: Canadian Studies

HIST 2211A Social History of Canada before 1870: This class examines the social history of pre-Confederation Canada through such topics as social control, violence and protest, women and domestic life, regionalism and marginal peoples, and the transformation of the economy.

Instructor: M.S. Cross

Format: Lecture/tutorial 2 hours (evening)

Enrolment: Limited to 60
Cross-listed: Canadian Studies

Exclusion: Former HIST 2210R students

HIST 2212B Social History of Canada Since 1870:
This session surveys the development of Canadian society from Confederation to the present.

Among the themes considered are social classes, the role of women, how people worked and how they lived, conflicts such as rioting and rebellions, and specific case studies such as Indian-white relations, the Winnipeg general strike and the troubles of industrial Cape Breton.

Instructor: M.S. Cross

Format: Lecture/tutorial 2 hours (evening)
Enrolment: Limited to 60

Cross-listed: Canadian Studies

Exclusion: Former HIST 2210R students

HIST 2221A Rough Justice: Order, Disorder and Canadian Popular Culture to the 1890s: This class investigates the character of popular culture, the diversions, recreations and forms of community control engaged in by Canadians, and the attempts by authorities and the law to bring order to the culture. Topics range widely over the broad scope of popular culture, from sports, drinking and prostitution to religious organisation. Study of the mechanisms and institutions for imposing order includes the criminal law, industrial discipline, and more respectable forms of cultural activity.

Instructors: R. Bleasdale/M. Cross
Format: Lectures/tutorials 3 hours
Limited to 60
Cross-listed: Canadian Studies

Cross-listed: Canadian Studies
Exclusions: Former HIST 324

Former HIST 3241A, HIST 3242B, HIST 3280A, HIST 3281B

students

HIST 2222B Rough Justice: Order, Disorder and Canadian Popular Culture, 1890s to the Present: This class continues the study of Canadian popular culture described in HIST2221A, from the turn of the century to the present. Instructors: R. Bleasdale/M. Cross

Format: Lectures/tutorials 3 hours

Enrolment: Limited to 60
Cross-listed: Canadian Studies

Exclusions: Former HIST 3241A, HIST

3242B, HIST 3280A, HIST

3281B

HIST 2230R Canada in the Twentieth Century: A survey of the roots of contemporary Canada, which studies the origins of our current issues and problems by focusing on Canadian political developments, as well as on economic and social structures, French-English relations and provincial and regional disparities.

Instructors: R. Bleasdale/ Staff

Format: Lectures/tutorials 3 hours

Enrolment: Limited to 60 Cross-listed: Canadian Studies

Recommended: HIST 1200R or an equivalent

introductory class in Canadian history

HIST 2270R The Atlantic Provinces: survey of Maritime and Newfoundland history from the beginnings of European penetration to the "triumph of Canadianization." Attention is given to the interaction of environment and culture which has given rise to a durable but nevertheless vulnerable regional character. The class seeks to

define internal patterns of social change and social conflict while simultaneously placing regional development within a broader national and international context.

Instructors: J. Fingard/D. Sutherland Recommended: HIST 1200R or an equivalent

introductory class in Canadian

history

Cross-listed: Canadian Studies
Enrolment: Limited to 60

\*HIST 2331A/B Colonial and Revolutionary
America, 1600-1800: Early American history from
the British invasion of North America through the
establishment of settler colonies to the imperial
crisis and its republican outcome.

Instructor: J. Crowley
Format: Lectures 3 hours
Recommended: HIST 1300R
Enrolment: Limited to 60

\*HIST 2332A/B Nineteenth Century America: In 1800 slightly more than 5 million persons lived in the United States, farmed for a living, and owned land, but by 1900 a majority of the country's 76 million inhabitants neither owned nor farmed their own lands. Clearly much changed in nineteenth century America: the nation's western boundary

shifted from the Mississippi to the Pacific; cities and factories altered her landscape; her slave system, the world's largest, was destroyed in the first great industrial war of our time; and by 1900 she was the most powerful industrial producer on the globe. The nature and consequences of these and other major developments are the subjects considered in this class.

Instructor: J.T. O'Brien

Format: Lectures/tutorials 3 hours

Recommended: HIST 1300R Enrolment: Limited to 60

**Exclusion:** Former HIST 2330R and first

year students.

\*HIST 2333A/B Twentieth Century America: This class traces the political and economic history of the United States from the turn of the century to the Reagan era. Particular emphasis is placed on broad trends of change in those years: the growth of large private and public bureaucracies and their impact on traditional values; the continuing influence of racial and ethnic divisions on American politics; the role of the media on political organizations and practices; and the growing interconnections of foreign policy, military commitments and economic resources in the years since the Second World War. Instructor:

G.D. Taylor Format: Lectures/discussion 3 hours Recommended: HIST 1300R or a similar survey

> class in U.S. history Limited to 60

Exclusion: Former HIST 2330R students

Enrolment:

\*HIST 2334A/B The United States, Canada and the World: As neighbours, interlinked by geography, economic patterns and (to some extent) common political and cultural traditions, Canada and the United States have had a close though not always smooth relationship over the past two hundred years. But that relationship has often been shaped by broader changes in international political, military and economic affairs, and - particularly in the twentieth century -U.S. foreign policies that affect Canada are determined by events and concerns far removed from North American shores. This class traces the history of Canadian-American relations in the context of these broader trends in United States foreign policy, and global political and economic developments.

Instructor: G.D. Taylor

Format: Lectures/discussion 3 hours Recommended: A survey class in U.S. or Canadian

History

Enrolment: Limited to 60 Cross-listed: Canadian Studies

Exclusions: Former HIST 3330R, HIST 3331A

and HIST 3331B students

\*HIST 2335A/B Modern American Culture: Hollywood, Super Bowl, Babe Ruth, Fred Astaire the Blues, Scarlett O'Hara, hot dogs, West Side Story, Maltese Falcon, Stevie Wonder: do any of these terms or names sound familiar? It's likely vou know about all or most of them, and it is also likely that millions around the world know them too. For good or ill, American popular culture has had a worldwide impact. This class will explore in an historical fashion the development of several different forms (such as sports, movies festivals, drama, jazz, R & B music) of American popular culture. Readings and discussions will be supplemented by films, fiction, and music.

Instructor: J.T. O'Brien

Format: Lectures/tutorials 3 hours

Recommended: HIST1300R Enrolment: Limited to 60

First-year students Exclusion:

\*HIST 2370A/B Age of Imperialism 1870-1970: Deals with the last hundred years of the activities of the imperial powers, their impact on the world their rivalries among themselves and the resistance they provoked on every continent. Different forms of conquest are discussed and illustrated. the shifting power balance among the imperial powers is traced, and the growth of national resistance movements and their ideologies investigated. The class gives particular emphasis to the United States as the most important imperial power of the period, to its role in Latin America and to the ideologies which inform resistance movements.

M. Turner Instructor:

Lectures/discussion 3 hours Format:

Enrolment: Limited to 60

### \*HIST 2381A/B Latin America:

Underdevelopment and Revolution: Outlines key developments in Latin America from the independence wars to the present - the growth of nationalism, the impact of British and American capital and the development of the anti-imperialist struggle - in relation to Argentina, Brazil, Chile, Peru, Central America and Cuba.

Instructor: M. Turner

Lectures/discussion 3 hours Format:

Enrolment: Limited to 60

Exclusion: Former HIST 2380 and HIST

2382B students

\*HIST 2410A/B Tropical Africa Before 1800: A study of some of the major themes of African pro-colonial history through an examination of the interim politics and development of African states and societies in tropical Africa. It will focus on the impact of immigration, slavery and islamic penetration on African society.

Instructor: J. Webster

Lecture/tutorial 3 hours Format:

Enrolment: Limited to 60 Recommended: HIST 1400R

HIST 2421A/B Colonial Africa: Examines the history of Africa from the period of European colonial rule (1884) to the emergence of colonial and the states in the 1960s. The class will analyze the material basis of colonial society; culture, class and social change during the colonial period; issues around changing gender roles; and the nationalist struggle and decolonization.

Instructor: J.L. Parpart

Lectures/tutorials 3 hours Format:

Recommended: HIST 1400R Limited to 60 Enrolment:

HIST 2422A/B Independent Africa: A study of Africa from the early 1960s to the present. The class will examine neo-colonial myths and realities, class, party and state in Africa, economic development and underdevelopment, and the quest for national stability during the current crisis. The class will look at the impact of structural adjustment on women's and men's lives and the current struggles in Southern Africa.

J.L. Parpart

Lectures/tutorials 3 hours Format:

Recommended: HIST 1400R Limited to 60 Enrolment:

HIST 2501A/B The Middle East to the First World War: Begins with the historical geography and the linguistic and cultural divisions of the region. Examines the emergence of Islam, its basic doctrines, and the Islamic view of politics and history. With this background concentration is then on the nineteenth century, looking at the impact of European influences, the problem of "reform" in the Turkish and Iranian empires, the British occupation of Egypt, revolutions of the early twentieth century, the origins of Zionism and the impact of the First World War.

J.E. Flint Instructor:

Format: Lectures/discussion 3 hours Prerequisite: Completion of first year university

Recommended: HIST 1400R Enrolment: Limited to 60 Exclusion: First-year students

HIST 2502A/B The Middle East since the First World War: Begins with the impact of British and French imperial designs after 1918, the Balfour Declaration on Palestine, the creation of new Arab states and the Republic of Turkey. This leads to an examination of secular reform versus Islamic traditionalism, Arab nationalism, rise of the oil industry and the impact of the Second World War, the emergence of the State of Israel, the revolutions in Egypt and Iraq, the rise of OPEC, the fall of the monarchy in Iran and the nature of Khomeini's Islamic Revolution. Instructor

J.E. Flint

Format: Lectures/discussion 3 hours Prerequisite: HIST 2501A/B Enrolment: Limited to 60

Exclusion: First-vear students

\*HIST 2800R History of India: This class will examine the period from the late 18th century and the beginnings of British rule to the present day. The principal themes include: religion and social structure over two centuries of profound political and economic change; the modernization of the Indian economy: the rise of nationalism and national political organizations; and India's place in the world affairs.

Instructor: Staff

Format: Lectures/discussion 3 hours

Recommended: HIST 1400R Enrolment: Limited to 60 HIST 2801A/B **Exclusion:** 

\*HIST 2995A/B History of Modern Medicine. 1800-1950: This class examines the state of medicine in 1800, 1850, 1900 and 1950, and the transition of American and Canadian medicine from a low status, ineffective, poorly trained group of competing sects to what it is today. For each of the four periods the emphasis is on medical training, the diagnostic and therapeutic capabilities of physicians, their views on disease etiology, their attempts to control the size and quality of the profession and to prohibit the entry of women, and the scientific background to their views.

Instructors: J. Farley

Format: Lectures/discussion 3 hours

Enrolment: Limited to 60

**Exclusion:** Former HIST 2295A/B students

Crosslisted: **BIOL 3404A** 

\*HIST 3001A/B Medieval Civilization: Each year one or more particular topics are chosen, broad enough to be used as central themes in the context of which medieval civilization may be closely examined; for instance, monasticism, universities, peasants and popular culture. Such topics are studied in some depth, where possible using original sources in translation, and recent periodical literature and/or monographs. Students master the basic work in certain areas, but are also encouraged to develop particular topics more thoroughly. Class discussions are used to unravel contentious or difficult aspects. Students are expected to contribute to such discussions and to write one or two well argued and documented papers. Some prior knowledge of medieval European history is essential.

Instructor: C.J. Neville Format: Seminar 2 hours

Prerequisite: HIST 2001A or HIST 2002B or

**HIST 2101A** 

Recommended: HIST 1001A **Enrolment:** Limited to 15

**Exclusions:** Former HIST 3000R and HIST

3002B students

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\*HIST 3002A/B The Medieval Church: This class does not attempt to provide a chronological survey of the development of the Western church, but is an advanced seminar dealing with topics which have no strict chronological limits. Subjects of study include monasticism, heresy, education and the universities, town and cathedral, lay-clerical conflict, and "popular" concepts of religion. Each year one or more topics are examined in detail, with the help of original documents in translation, and using recent periodical literature and/or monographs. Students prepare and present one or two well-researched papers, and class discussions are used to explore related materials and readings in greater depth. Some prior knowledge of medieval European history is essential.

Instructor: C.J. Neville Format: Seminar 2 hours

Prerequisites: HIST 2001A or HIST 2002B or

**HIST 2101A** 

Recommended: HIST 1001A Enrolment: Limited to 15

Former HIST 3021A and 3022B **Exclusions:** 

\*HIST 3003A/B England in the Later Middle Ages: Beginning around the reign of Edward I (1272-1307), attention is given to political, institutional, religious and social aspects of English history prior to the Tudors. This period includes the deposition of two reigning monarchs, the Scottish Wars of Independence, the Hundred Years' War, the Black Death, Wycliffite heresy and the Lollards, and the so-called "Wars of the Roses". It is therefore of exceptional interest and variety. Each year one or more topics of study are chosen for detailed consideration, where possible making use of original sources (in translation), and with the help of recent periodical literature. Class discussions are used to explore particularly difficult or controversial questions, and all students write one or two well argued and documented papers. Some knowledge of English medieval history is essential.

C.J. Neville Instructor: Format: Seminar 2 hours Prerequisite: HIST 2101A

Recommended: HIST 1001A or HIST 2001A or

**HIST 2002B** Enrolment: Limited to 15

Former HIST 3009A, HIST 3007B **Exclusions:** and HIST 3010R students

\*HIST 3004A/B Crime and Society in Post-Conquest England: This class explores the development of the criminal law in England between 1066 and 1500. After some introductory lectures by the instructor on the legacy of Anglo-Saxon legal notions and the creation of the royal system of justice known as the "eyre", attention is given to a study of the development of a more sophisticated hierarchy of courts: the local tribunals presided over by justices of the peace

and sheriffs, itinerant sessions headed by the iustices of assize, and the central court of King's Bench. The origins and elaboration of particular offences, including treason, felony (murder, rape. arson, burglary and larceny) and trespass are examined. Emphasis is placed on the social aspects of crime in medieval England, and extensive use is made of recent periodical literature dealing with crime and its effect in this period.

C.J. Neville Instructor: Format: Seminar 2 hours

HIST 2101A or HIST 2001A or Prerequisite:

**HIST 2002B** 

Recommended: HIST 1010A, HIST 2104A

Enrolment: Limited to 15

**Exclusions:** Former HIST 3009A, HIST 3007B and HIST 3010R students

\*HIST 3005A/B The Early Modern Mind: European Thought and Culture, 1450-1700: The purpose of this class is to provide students who have an interest and some background in early modern European history with more advanced study of the major issues and themes in European cultural history from the advent of printing to the dawn of the Enlightenment. Students will discuss writings by seminal authors such as Bacon, Montaigne, Bayle and Descartes, in addition to secondary works. The emphasis throughout will be not only on "high culture" but also on its relationship to society as a whole and to popular customs and rituals. Topics to be discussed include the impact of print, utopian thought, the witch craze, urbanization and civic consciousness, the writing of history, aspects of the scientific revolution, and the growth of religious toleration and scepticism.

Instructor: D.R. Woolf Seminar 2 hours Format:

Prerequisite: One class in medieval or early

modern European history Recommended: HIST 2005A/B, HIST 2006A/B,

HIST 2008A/B **Enrolment:** Limited to 16

Exclusion: Former HIST 3011B students

\*HIST 3007A/B Pre-industrial European Society, 1650-1800: The transition from traditional to modern society in Europe, including such topics as peasant society and the commercialization of agriculture, the relations of elite and popular culture, the development of a consumer society, demography and family life, and the liberal critique of privilege.

Instructor: J.E. Crowley Seminar 2 hours Format:

Prerequisite: One 2000-level class in early modern European history.

Limited to 20 Enrolment:

HIST 3040R Culture and Behaviours in early modern France, 1550-1750: This class explores the characteristics and complexities of elite and popular culture between the wars of religion and the Enlightenment. Emphasis is placed on the traditional universe of Early Modern civilization and the process it underwent in a variety of domains: religion, education, sociability, deviance, social organization, etc.

G. Hanlon Instructor: Seminar 2 hours Format:

Any European Medieval or Early Prerequisite: Modern history or literature

Limited to 25

Enrolment:

HIST 3051R Fascist and National Socialist Movements in Europe, 1900-1945: The origins. ideologies, social composition, leadership, rise to power and rule of the two principal fascist and national socialist movements, those of Mussolini's Italy and Hitler's Germany, as well as similar nhenomena in other European countries between the world wars, are studied comparatively to distinguish them from Soviet communism and other varieties of authoritarianism and totalitarianism.

L.D. Stokes Instructor: Format: Seminar 2 hours

One 2000-level class in European Prerequisite:

or modern British history

Recommended: HIST 2030R, HIST 2062A/B,

HIST 2081R, HIST 2020R, HIST 2022A/B, HIST 2040R

**Enrolment**: Limited to 20

Exclusion: Former HIST 3051A/B

\*HIST 3052R Europe and World War Two: Selected topics on the origins, course and aftermath of the Second World War as this involved Europe, including Nazi foreign and occupation policies, strategic and political decision-making by the Allied and Axis powers, national resistance movements, and the wartime origins of the Cold War.

Instructor: L.D. Stokes Format: Seminar 2 hours

Prerequisite: One 2000-level class in European

or modern British history Recommended: HIST 2030R, HIST 2062A/B, HIST 2081R, HIST 2020R, HIST

2040R Enrolment: Limited to 20

Exclusion: Former HIST 2052A/B or HIST

3052A/B students

\*HIST 3055R The Holocaust: The Destruction of the Jews of Europe, 1933-1945: The destruction of most of European Jewry by Nazism and its helpers during the Second World War is studied in the context of centuries-old religious anti-Semitism, nineteenth century Jewish emancipation and the emergence of racist ideology, the political and social situation of Jews in eastern and western

Europe after World War I, "legal" and bureaucratic persecution of German Jews culminating in mass killing at Auschwitz and other death camps, the response of bystander nations to the perpetration of genocide, and finally the creation of the state of Israel in relation to the Holocaust.

Instructor: L.D. Stokes Seminar 2 hours Format:

One 2000-level class in European Prerequisite: or modern British history

Recommended: HIST 2030R, HIST 2062A/B, HIST 2501A/B, HIST 2502A/B,

HIST 2020R, HIST 2040R

**Enrolment:** Limited to 20

Exclusion: Former HIST 1990R (section 07)

students

\*HIST 3072A The Rise of Modern Science: The modern world has been fundamentally altered by science and technology. In what ways? How has this come to be? This class, designed for students in the Arts as well as in the Sciences, examines these questions by looking at the origins of modern science in the sixteenth and seventeenth centuries, its growing popularity in the eighteenth century, and the rise of the scientific profession and science-based industry in the nineteenth and twentieth centuries.

J. Farley (Biology)/R. Ravindra Instructors:

(Comparative Religion) Lectures/tutorials 3 hours

**Enrolment:** No Limit

Format:

**BIOL 3402A, PHYS 3402A,** Cross-listings:

COMPREL 3502A

\*HIST 3090A Soviet Society: Some basic institutions of Soviet society are considered in their historical context, with special attention to the role of the Party and Marxism-Leninism, official culture and literature, the workings of the economy, and social stratification.

Instructor: N.G.O. Pereira Seminar 2 hours Format:

Prerequisite: Reading knowledge of Russian ( at least two years of language

study) and some Russian history Recommended: RUSS 1000R, RUSS 2000R

**Enrolment:** Limited to 20

\*HIST 3092A Soviet Topics: Topics to be studied and researched will vary from year to year. They may include the sources of Bolshevism/Leninism, the doctrine of peaceful coexistence, the position of national minorities, the role of literature (official and samizdat) and the press, the Cult of Personality, Khrushchev's "Thaw", Glasnost and Perestroika.

N.G.O. Pereira Instructor: Format: Seminar 2 hours Prerequisite: One 2000-level class in history Recommended: HIST 2020R, HIST 2022B, HIST

2030R, HIST 2040R, HIST

2062A/B

Enrolment: Limited to 18

\*HIST 3105A/B The English Civil War: Society, Religion and Politics, 1603-1660: An advanced class on one of the most tumultuous and eventful periods in British history, that leading up to and including civil war and revolution 1642 to 1660. Select primary sources will be used in addition to secondary works. Topics to be studied include the social structure of early Stuart England; the Church and its critics; foreign policy; radical politics; the military course of the war; religious sectarianism; and the impact of the war and its aftermath on the populace.

Instructor: D.R. Woolf Format: Seminar 2 hours

Any second year class in British Prerequisite:

history

Enrolment: Limited to 20

Exclusion: The former History 3104R Recommended: HIST 2105A/B, HIST 2106A/B; HIST 2005A; HIST 2008B

\*HIST 3106A/B England in the Age of Industrial Revolution: This class examines in some depth major themes in English history from the reign of George III through the Victorian era, including the British response to revolutions in America and France, the Napoleonic wars, the movement for Parliamentary reform, and the growth of industrialization.

P. Burroughs Instructor: Format: Seminar 2 hours

One 2000-level class in English Prerequisite:

Recommended: HIST 2111A/2112B, HIST

2131A/2132B

Enrolment: Limited to 20

\*HIST 3112A/B England, 1867-1914: This class examines in some depth major themes in English history from the Great Reform Act through the outbreak of World War I, including the rise of the Labour movement, women's emancipation, controversies over censorship, tariff policies, imperialism and competition with Germany.

Instructor: S. Brooke 2 hours Format:

Prerequisite: One 2000-level class in English

history.

Recommended: HIST 211A/2112B, HIST

2131A/2132B, HIST 3106A/B

Enrolment: Limited to 25

\*HIST 3113A Britain in the Age of the First World War, 1914-39: This seminar class examines in depth major themes in modern British history from the first World War to the outbreak of the second, including the experience and impact of

war, the problem of Ireland, the rise of labour women's struggles, the great depression and the appeasement of the dictators in the 1930s.

Instructor: S. Brooke Format: Seminar 2 hours

A 2000-level class or instructor's Prerequisite:

permission

HIST 2111A/2112B, HIST Recommended: 2131A/2132B, HIST 3106A/R

HIST 3112A/B

Enrolment: Limited to 30

\*HIST 3114B Britain from the Second World War to Thatcher, 1939-1979: This class examines in depth major themes in British history from the outbreak of the Second Warld War to the emergence of the 'Thatcher Phenomenon', including the war experience, the post-war labour governments and the welfare state, the affluence of the 1950s and 1960s, Suez, the immigrant experience, and social and economic decline in the 1970s, ending with the election of Margaret Thatcher in 1979.

S. Brooke Instructor: Seminar 2 hours Format:

A second year history course or Prerequisite:

instructor's permission Recommended: HIST 2111A/2112B, HIST

2131A/2132B, HIST 3106A/B, HIST 3112A/B, HIST 3113A

Limited to 30 **Enrolment:** 

\*HIST 3115A Socialism and Working-Class Politics in Britain, 1880's-1980's: The last century in Britain has witnessed two intertwined developments: the full participation of the working-class in politics and the rise to power of a socialist party, the Labour party. This class will cover three aspects of that history: the development of working-class culture and politics (in particular through the union movement); the shaping of socialist ideology in Britain; and the emergence and development of the Labour party. It will embrace social, economic, and intellectual history, covering such topics as the "New Unionism" of the 1880's, working-class culture in Britain; the General Strike; the Labour governments of 1945-51, and, throughout, the arguments over ideology.

Instructor: S.I. Brooke Format: Seminar 2 hours

Enrolment:

Prerequisite: One 2000-level class in English

history Limited to 30

Recommended: HIST 2111A or HIST 2112B

\*HIST 3220A/B Youth Culture in Canada, 1950's to 1970's: The 1950's and 1960's were decades of often startling social change throughout North America in general and Canada in particular. This class will attempt to understand these changes and their impact on our society. The primary focus of the investigation is the popular

youth culture of the time, the culture of "sex, drugs and rock n' roll." The class will look at economic and social factors underlying youth culture, at some of the major thinkers who influenced it (such as Marshall McLuhan and Herbert Marcuse), and the responses of authority to youth culture.

M.S. Cross Instructor:

Format:

Seminar 2 hours or lecture/tutorial

3 hours

Prerequisite: One previous history class

Recommended: HIST 2220R Cross-listed: Canadian Studies Limited to 40 Enrolment:

HIST 3225A/B Crime, Punishment and the Criminal Law in Canadian Society: This class examines crime and the criminal law as they relate to broader changes within society and the economy of New France, British North America. and Canada. Moving from the nineteenth century through to the 1980's, it analyses the shifting patterns of crime; the changing definitions of crime and punishment; the social, economic, political, and ideological significance of the criminal law; and the influence of Britian, the United States, and France on legal developments.

Instructor: R. Bleasdale Seminar 2 hours Format:

Prerequisite: One previous history class Recommended: HIST 2221A and HIST 2222B

Cross-listed: Canadian Studies Enrolment: Limited to 20

\*HIST 3230A Labour and Community in Nineteenth-Century Canada: The experience of Canadian workers during the transition to an industrial capitalist society. Topics include preindustrial work patterns, new forms of discipline and the employment relationship, varieties of collective protest and organization, and changes in the structure of the family and community.

Format: Seminar 2 hours Prerequisite: One previous history class Cross-listed: Canadian Studies

R. Bleasdale

Enrolment: No Limit

Instructor:

HIST 3231B The Canadian Working Class: The Twentieth Century Experience: The development of the Canadian working-class movement from 1896 to the present. Topics include the degradation of work, the question of international unions, labour in politics, women and trade unions, the role of the state in industrial relations, and working-class culture in mass society.

Instructor: R. Bleasdale Format: Seminar 2 hours Prerequisite: One previous history class

Cross-listed: Canadian Studies Enrolment:

No Limit

\*HIST 3245A French Canada: Given in English for English-speaking students, this class traces the development of French-Canadian society through the study of political and social developments. While the emphasis is on developments in Quebec, French-Canadians in the Maritimes. Ontario and the West will also be studied. Instructors: Staff

History

Format: Seminar 2 hours One class in history Prerequisite: **Enrolment:** Limited to 25 Cross-listed: Canadian Studies

Exclusion: Former HIST 2240A students

\*HIST 3250A Canada Within the Empire: An examination of the political, commercial and cultural relations of Canada with Britain from conquest to nationhood, the changing attitudes of Canadians and Englishmen to the developing empire and to the United States, and the interplay of imperial policies and colonial conditions.

Instructor: P. Burroughs Format: Seminar 2 hours

One class in Canadian, British Prerequisite: Imperial or modern British

history.

Canadian Studies Cross-listed: Enrolment: Limited to 15

\*HIST 3255B The Age of MacDonald and Laurier: A seminar comprehending the society and politics of Canada from Confederation to the First World War. Themes of particular importance are imperialism, nationalism, and racism; the clash of nationalism; the opening of new frontiers; politics and ideology.

Instructor: Staff

Format: Seminar 2 hours

Prerequisite: A survey of Canadian history

Cross-listed: Canadian Studies Enrolment: No Limit

\*HIST 3260B West by North: History of the Canadian West and North: This seminar will explore the history of social and political developments in the Canadian West and North. Instructors: Staff

Format: Seminar 2 hours Prerequisite: One class in history **Enrolment:** Limited to 25 Cross-listed: Canadian Studies

Exclusion: Former HIST 2250A/B students

\*HIST 3272A/B Themes in the History of Atlantic Canada: This class provides students an opportunity to broaden their knowledge of historical trends in the region through archival research based on specific selected themes, which vary from year to year.

Instructor: Staff

Prerequisite: One class in Canadian history

Cross-listed: Canadian Studies Enrolment: Limited to 15

HIST 3273A Nova Scotia: Pre-Confederation: An exploration of character and circumstances in the history of provincial society, from the era of European "invasion" to the debate over entry into British American union.

Instructors: D. Sutherland/J. Fingard

Seminar 2 hours Format: One class in History Prerequisite: Limited to 25 Enrolment: Cross-listed: Canadian Studies Former HIST 3270R Exclusion:

HIST 3274B Nova Scotia: Post-Confederation: An exploration of the transformation of provincial society in response to the onset of Canadianization and industrialization.

D. Sutherland/J. Fingard Instructors: Seminar 2 hours Format:

Prerequisite: One class in history Recommended: HIST 3273A

Limited 25 Enrolment: Cross-listed: Canadian Studies Former HIST 3270R Exclusion:

\*HIST 3286A/B The Urban Experience in Canada: The rise of the city stands as one of the most crucial changes to have taken place in our collective past. This class explores the reasons for and the impact of urbanization within Canada. Emphasis is on developments from the mid nineteenth century to the present.

Instructor: D. Sutherland Seminar 2 hours/week Format: One class in history Prerequisite: Canadian Studies Cross-listed: Limited to 25 Enrolment:

\*HIST 3292A/B Wealth and Power in North America: Business enterprises have played a major role in shaping the social and political as well as economic development of the United States and Canada over the past two hundred years - perhaps more so than in most other modern nations. This class explores the growth and significance of business in the history of these two countries. Among the topics covered are: entrepreneurship, technical innovation and economic growth; the rise of big business and management organization; the convoluted and controversial linkages of business and government; and the emergence of multinational enterprises and their impact on Canadian-American relations.

G.D. Taylor Instructor: Seminar 2 hours Format:

One class in Canadian or U.S. Prerequisite: history, or an appropriate class in

a related discipline.

Recommended: A survey class in U.S. or Canadian

history

Limited to 30 **Enrolment:** Cross-listed: Canadian Studies

Former HIST 3291A and HIST Exclusion:

3291B

\*HIST 3302A/B Technology and History in North America: The effects of technology on our lives are ever-present, from debates over acid rain and nuclear reactors to promises of a glowing future for Canada through "high-tech" enterprises and supercomputers. The continuing impact of technical innovation has been a central feature of the history of Canada and the United States going back even to the period before the Industrial Revolution of the nineteenth century The harnessing of science and technology to industrial and military uses in our own time has fuelled both rapid economic growth and controversies over the benefits and costs of technological changes for the household, the workplace, the environment, politics and society in North America.

Instructor: G.D. Taylor Seminar 2 hours Format:

One class in Canadian or U.S. Prerequisite:

history, or an appropriate class in a related discipline.

Recommended: A survey class in U.S. or

Canadian history Canadian Studies Cross-listed: Limited to 30 Enrolment:

\*HIST 3341A/B The American Revolution: Topics of particular interest are the popularization of politics, the social conflicts related to neutralism and Loyalism, the development of a national political economy and constitutional tradition, and the cultural changes associated with republican government and egalitarian ideology.

J.E. Crowley Instructor: Seminar 2 hours Format:

One 2000-level class in U.S. Prerequisite: history, or HIST 2131A/B

Limited to 20 Enrolment:

\*HIST 3350A/B Family and Community in North America, 1600-1900: The family in North American society, from when the family was a model for social relations to the time when it was idealized as a private refuge. Among the topics considered are the role of the family in rural and urban communities, the demographic transition from high fertility and mortality, the reduction of the family's economic and educational autonomy, the role of ideology in shaping sex roles and childbearing; and the relations of family and community according to ethnic group, class and economic setting.

J.E. Crowley Instructor: Seminar 2 hours Format:

One second-year class in Prerequisite: American or Canadian history

A class in the sociology or social Recommended:

anthropology of the family Women's Studies 3300A/B

Cross-listed: Limited to 20 Enrolment:

HIST 3360A/B Enslavement and Emancipation: Afro-Americans in the U.S. South to 1900: This class examines slavery as a system of racial subordination and economic exploitation. Attention is given to the social, familial, and cultural life of the slaves, the role of slavery in shaping southern nationalism and national racial beliefs, and to reconstruction after the Civil War.

J.T. O'Brien Instructor: Seminar 2 hours Format:

HIST 1300R or one second-year

U.S. history class Recommended: HIST 2332A/B

Enrolment: Limited to 25

HIST 3361A/B The American Civil War and Reconstruction: The Civil War, occasioned by the formation of the Southern Confederacy and the Union government's refusal to recognize the existence of a separate southern nation, was a nivotal moment in the history of the United States. This class will examine the causes of the war, the forces behind slave emancipation, the military fortunes of the two combatants, and the efforts undertaken by the victorious society, to alter the polity of the defeated South.

Instructor: J.T. O'Brien Seminar 2 hours Format:

Prerequisite: HIST 1300R or second-year U.S. history class

Recommended: HIST 2332A/B Enrolment: Limited to 25

\*HIST 3366A/B Industry, Unionism, and Workingmen in the United States, 1873-1940: America's rise to industrial pre-eminence shot forward after the Civil War. By 1900 she had the most productive industrial economy in the world, as well as one of the world's bloodiest labour histories. The growth of unions, however, proceeded much more slowly. Indeed, unionization of mass production industries was not achieved until late in the 1930s with the spread of the CIO and the revitalization of the AFL. This class examines the fitful history of American unions from the beginning of the depression of the 1870s to the end of the Great Depression of the 1930s.

Instructor: J.T. O'Brien Format: Seminar 2 hours

Prerequisite: HIST 1300R or one second-year U.S. history class

Recommended: HIST 2332A/B, HIST 2333A/B, HIST 2334A/B

Enrolment: Limited to 25

'HIST 3368A/B From Roosevelt to Reagan: The United States since 1929: This class examines in depth some of the major features of American Political and economic history in the period since the Great Depression. Some of the major themes covered are: the rise and fall of the new Deal coalition; the impact of the media on politics; the

emergence of the "Imperial Presidency" and conflicts with Congress; the "military-industrial complex" and the growth of the Sunbelt; and controversies over the relationship between government and business in the context of global economic competition.

Instructor: G.D. Taylor Seminar 2 hours Format:

HIST 1300R or an equivalent Prerequisite:

introductory class in U.S. History

Recommended: Any 2000-level class in U.S.

history

Limited to 30 Enrolment:

\*HIST 3370A/B Marxism in the Third World:

Revolutionary movements in the twentieth century characteristically use Marxist ideology. This class outlines characteristically used Marxist thought and investigates its uses by revolutionary movements and societies outside Europe. Case studies will be drawn from Latin America, Asia and Africa.

Instructor: M. Turner Format: Seminar 2 hours

One previous class in history Prerequisite:

Limited to 20 Enrolment:

\*HIST 3380A/B Chattel Slaves and Wage Slaves: Plantation production in the last three hundred years has depended on various forms of labour, slave, contract and wage, sometimes working in conjunction. This class will investigate the interaction of economic and technical change on the workers' legal status and on the forms of labour protest and methods of control used throughout the history of plantations. Studies will focus on the Caribbean and comparisons will be made with adjacent areas of the Americas.

Instructor: M. Turner Format: Seminar 2 hours Prerequisite: One second-year Arts class

Limited to 20 Enrolment:

\*HIST 3390A/B The Caribbean:

Underdevelopment and Revolution: Caribbean wealth and Caribbean revolutions have made the islands a focus of imperial rivalries for more than three centuries. This class deals with the impact of twentieth century imperialism and the emergence of nationalism and socialism. Particular attention is paid to Cuba.

Instructor: M. Turner Format: Seminar 2 hours Prerequisite: One second-year Arts class

**Enrolment:** Limited to 20

\*HIST 3440A/B African History from Oral Tradition: For students who have a keen interest in African history, the class concentrates upon a restricted geographic area and considers myths of origin, allegory and symbolism in oral traditions, how political leaders become national deities through ancestor worship and how feminist

movements of the past have been handled by male

chroniclers.

Instructor: J. Webster Format: Seminar, 2 hours

Any 2000-level class on African Prerequisite:

history

Recommended: HIST 2410A/B Enrolment: No limit

\*HIST 3451A/B South Africa to 1860: Examines the history of South Africa before the coming of the mineral revolution. Themes include the nature of Khoi and San societies, the expansion of Bantu-speakers, Dutch settlement and administration of the Cape area, the rise of the Zulu, Shaka's empire and the mfecane, the British takeover from the Dutch, the impact of the humanitarian movement and the Great Trek, African states and kingdoms in the nineteenth century and the formation of the Boer Republics.

Instructor: Staff

Format: Seminar, 2 hours

Prerequisite: HIST 2131A/2132B, HIST 2421A/B, HIST 2422A/B or

permission of instructor.

**Enrolment:** Limited to 20

Former HIST 3450R students Exclusion:

\*HIST 3452A/B South Africa since 1860: The class examines not only the changes in race relations and politics, but also the effects of mining and other industries on rural and urban societies after the discoveries of diamonds and gold. Themes will include British policies and the "imperial factor", the growth of Afrikaner and African nationalism, the Boer War and unification, the development of apartheid and South Africa's relations with the wider world.

Instructor:

Staff

Format: Seminar, 2 hours

Prerequisite: HIST 2421A/B. HIST 2422A/B. HIST 3451A/B, HIST 3461A/B,

HIST 3462A/B

Recommended: HIST 3451A/B, HIST 2131A,

**HIST 2132B** 

**Enrolment:** Limited to 20

Former HIST 3450R students **Exclusion:** 

\*HIST 3461A/B Women and Development in Africa: This class examines the economic, political and social roles of African women from precolonial to modern times. It analyzes women not as objects, but as actors who participate in the political and economic processes which affect their lives. The class will examine development and feminist theory in the light of recent debates over women and development issues.

J.L. Parpart Instructor: Format: Seminar 2 hours

Prerequisite: A core class in either International

Development Studies or Women's Studies or a class on Africa in the History Department or permission

of the instructor.

Cross-listed: Women's Studies 3310A/B

Limited to 20 Enrolment:

\*HIST 3462A/B Distortion or Development: African History: An examination of economic change in tropical Africa, with particular attention to the question of economic development and underdevelopment. From the premercantilist period to the current crisis.

Instructor: J. Parpart Format: Seminar 2 hours HIST 2422A/B Prerequisite: Limited to 25 **Enrolment:** 

\*HIST 3610A/B Women in Capitalist Society: the North American Experience: An examination of the impact of industrialization and urbanization on "woman's sphere" in society and of the emergence of various strains of feminism in the nineteenth and twentieth centuries.

Instructor: Judith Fingard

Seminar 2 hours Format:

Prerequisite: One class in Canadian or American history or in Women's

Studies.

Women's Studies 3305A/B. Cross-listed:

Canadian Studies

**Enrolment:** Limited to 25

\*HIST 3612A/B Women in Socialist Countries: Investigates the progress made towards the achievement of equal status for women in societies dedicated in principle to equality for all. Case studies will range from Cuba to China.

Instructor: M. Turner Format: Seminar, 3 hours

Prerequisite: One second-year Arts class Cross-listed: Women's Studies 3330A/B

**Enrolment:** Limited to 20

\*HIST 3750A/B History of Seafaring: An examination of our maritime heritage with the cooperation of the staff of the Maritime Museum of the Atlantic. Within the context of these overlapping periods - the age of discovery, the age of sail, and the age of steam - the focus is on the development of merchant and naval fleets; the roles of the state, capital, and labour; and the features of seafaring culture. Special emphasis is given to the shipping industries and maritime traditions of this region.

J. Fingard Instructor:

Format: Lecture/Discussion 2 hours One class in history or Prerequisite:

permission of the instructor Canadian Studies

Cross-listed: **Enrolment:** No Limit

HIST 4500A/B Advanced Major Seminar in History: This seminar is specifically intended for students in the Advanced Major and Honours degree programmes in History. The specific

content of the seminar varies from year to year, but generally involves examination of a subject in history in some depth, and may include an historiographical, comparative or interdisciplinary dimension.

Staff Instructor:

Seminar 2 hours

Format: Completion of all requirements for Prerequisite: the 15-credit B.A. degree in

History.

Enrolment:

No Limit

HIST 4985A/B The Varieties of History: Historiography in the Twentieth Century: This class, intended for Honours and Advanced Major students in History, will begin with a brief survey of the writing of history from the Middle Ages to the nineteenth century, and then proceed to an examination of the major schools, approaches, and sub-disciplines within the historical profession in the twentieth century. Topics to be covered include the following: the nature of historical knowledge, historical "relativism", Marxism, the "Annales" school, oral history, psychohistory, quantitative history, Feminism and others. No background in statistics is required. Classes will meet weekly to discuss assigned readings and each student will investigate an historian or historical school of his/her choice for a term paper.

Instructor: D.R. Woolf Seminar 2 hours Format: Prerequisite: Required for all fourth-year

Honours students in history and open to suitably qualified Advanced Major and third-year students by permission of the instructor.

Recommended: A class in modern intellectual history or PHIL 2540R

**Enrolment:** Limited to 16

HIST 4990R Honours Essay in History: All history Honours students and those in combined Honours programmes in which history is their principal subject must write a substantial essay on a topic to be chosen in consultation with the undergraduate coordinator and an individual faculty supervisor.

Instructor: Staff

Enrolment:

Format: Honours Essay Prerequisite:

Completion of all requirements for the 15-credit major in History, admission into the Honours

Programme. No Limit

### **Humanistic Studies in** Science

Attention is drawn to the following classes, offered in several departments. All of these classes are concerned with the humanistic aspects of scientific thought and its development.

Classes marked \* are not offered every year. Please consult the timetable on registration to determine if these classes are offered.

### History of the Sciences

\*Biology 3402A/Physics 3402A/History 3072A, Comparative Religion 3502A, The Rise of Modern Science: J. Farley (Blology and History). R. Ravindra (Physics, Comparative Religion).

\*Biology 3403A/B A History of Biology: J. Farley.

\*History 2295A/B The History of Modern Medicine: J. Farley.

\*History 3075A/B History of Tropical Medicine:

Biology 4664B/Oceanography 5331B, History of Oceanography: E.L. Mills.

Psychology 4580 History of Psychology: J.W. Clark.

Philosophy of the Sciences \*Philosophy 2410A Philosophy of Psychology: T.

\*Philosophy 2420B Philosophy of Biology: R.

Biology 3410B Man in Nature: K.E. von Maltzahn.

\*Comparative Religion 3531 Mystical Consciousness and Modern Science: R. Ravindra.

\*Comparative Religion 3503A/B Nuclear Bombs Survival and Morality: R. Ravindra.

# International Development Studies

Location:

Multidisciplinary Centre

1444 Seymour Street

Halifax, N.S.

Telephone:

(902) 494-3814

### Coordinator:

Dr. A.M. Sinclair (494-2026/3814)

### **Undergraduate** Advisor:

Dr. J.H. Barkow (494-6593); then consult Coordinator

### **Emeritus Professors**

K.A. Heard, (Political Science)
P. Ruderman, (Health Administration)

### **Faculty**

J.H. Barkow (Sociology and Social Anthropology)
M.E. Binkley (Sociology and Social Anthropology)
Associate Dean, Faculty of Arts and Social
Sciences

A. Dowdall (English)

J. Flint (History)

A. Hanson (Resource and Environmental Studies)

J.E. Holloway (Spanish)

P.B. Huber (Economics)

N.W. Jabbra (Sociology and Social

Anthropology)(on leave)

L. Kasdan (Sociology and Social Anthropology)

J.M. Kirk (Spanish)

B. Lesser (Economics)

T.J. Li (Sociology and Social Anthropology)

V. Li (English)

D.F. Luke (Political Science) (on leave 1991-92)

J.J. Mangalam (Sociology and Social

Anthropology)

E. Mann Borgese (International Ocean Institute)

R.I. McAllister (Economics)

L. McIntyre (Community Health and

Epidemiology)

A. O'Malley, Adjunct (Sociology, SMU)

J.L. Parpart (History)

R. Ravindra (Comparative Religion)

T.M. Shaw (Political Science)

A.M. Sinclair (Economics)

C.T. Sinclair-Faulkner (Comparative Religion)

K. Sullivan (Education)

A.D. Tillett (Lester Pearson Institute)

M. Turner (History) (on leave 1991)

H. Veltmeyer, Adjunct (Sociology, SMU)

J.B. Webster (History)

M. Welton (Education)

### Introduction

"The interest in preserving peace and abolishing hunger needs no further reasoning. But the interest in mutual survival <u>must</u> also be linked

to the overriding issues of energy and the environment and the risk of self-destruction, ...there <u>are</u> growing mutual interests.... development in the South also serves people in the North." - Brandt Commission, <u>North-South:</u> a Programme for Survival, page 20.

Changes in the international system including those in the Third World increasingly affect us all. In association with Saint Mary's University, Dalhousie offers an interdisciplinary programme in International Development Studies This intercampus, interdisciplinary, international degree programme focuses on comparative examples of and explanations for change economic, environmental, strategic, social and political - in the Third World. In its major and honours degree programmes it brings together a set of established Dalhousie disciplinary offerings in this growing field and combines them with three new intercampus classes - one for each year of study - in International Development Studies. These are designed to juxtapose and integrate empirical and conceptual materials drawn from several disciplinary and theoretical traditions represented in the field to provide a coherent yet diverse introduction to the contemporary world of

development.

The concentrations within IDS at Dalhousie are Africa, Comparative Religion, Economics, History, Latin America, Political Science, Sociology & Social Anthropology, and Spanish; at Saint Mary's University the focii are Anthropology, Asia, History, Latin America, Political Science, and Sociology. Aside from general enlightenment about other societies and Canada's relations with them, IDS is intended to provide undergraduates with a good grounding in interdisciplinary international studies to prepare them for subsequent more specialised or professional graduate training. The first generation of IDS major and honours students has proceeded to such masters programmes or employment with official or non-governmental aid agencies in Canada or the Third World. The parallel student organisation on both campuses - The International Development Association - organises a series of events each year, including seminars, displays and

For a full listing of Saint Mary's University faculty and classes in IDS, please consult the current Saint Mary's University academic calendar. IDS core and other classes are usually available each summer through the "Halifax Summer School in International Development". Halifax is the Maritime regional centre for official and nongovernmental organisations active in international development and the IDS programme encourages links with them, especially in terms of development education, international exchanges and data resources; for example, in addition to university and city libraries there are resource collections at Deveric downtown and at the International Education Centre at Saint Mary's

University. The latter publishes a monthly international Network listing of metro events on the Third World. Finally, the resources of the Lester B. Pearson Institute for International Development at Dalhousie University are available to IDS students.

### Degree Programmes

The Regulations for the major (regular and advanced) or honours BA degree in International pevelopment Studies require:

- Completion of appropriate first-year classes in at least two of the major participating social science or humanities disciplines (that is, Comparative Religion, CREL 1000R, CREL 2000R; Economics, ECON 1100R, History, HIST 1050R, HIST 1400R; Political Science, POL 1100R, POL 1103R, POL 1501R; Sociology and Social Anthroplogy, SSA 1000R, SSA 1050R, SSA 1100R; or Spanish, SPAN 1100A/B, SPAN 1110A/B).
- (2) For the honours degree, at least nine and no more than eleven International Development Studies classes from the following approved list (see regulation 11.4), of which:
  - a) three must be IDS 2000R, IDS 3000R and IDS 4010R;
  - a minimum of two classes in at least two established disciplines within International Development Studies;
  - c) at least five must be at the 3000 level or above;
  - d) class selection must be approved by one of the programme coordinators.
- (3) For the 20-credit advanced major, at least six and no more than nine from the following approved list (see regulation 11.3), of which:
  - a) three must be IDS 2000R, IDS 3000R and IDS 4010R (the last without the honours essay requirement);
  - a minimum of two classes in at least two established disciplines within International Development Studies;
  - c) at least three must be at the 3000 level or above;
  - at least one class each from the three groups, Humanities, Social Sciences, and Life and Physical Sciences, listed at the beginning of the calendar;
  - a language class from among those listed in the Regulations at the beginning of the calendar, normally French or Spanish.
- (4) For the 15-credit major, at least four and no more than eight International Development Studies classes from the following approved list (see regulation 11.1), of which:

- a) two must be IDS 2000R and IDS 3000R:
- b) a minimum of one class in at least two established disciplines within International Development Studies;
- c) at least two must be at the 3000 level or above.

All IDS students are encouraged to acquire competence in statistics, methods, and languages through appropriate classes as relevant to their degree, focus and career.

The International Development Studies degree at Dalhousie is administered by a programme committee consisting of one faculty member from each major department with a substantial teaching or research interest in the field chaired by the coordinator. A joint Dalhousie-Saint Mary's University International Development Studies Committee organises the joint IDS offerings.

### Classes Offered at Dalhousie University

Descriptions of International Development Studies Core Classes

IDS 2000R Introduction to Development Studies: This class will introduce students to the scope and nature of international development studies. Its main emphasis will be on various theories of social change in the Third World and on the lines of research associated with these theories. Students will review the contributions that various disciplines have made to international development studies and examine ways in which these complement and compete with each other in the explanation of changing conditions and societies in less developed countries. Normally offered also in summer.

Format: lectures and tutorials
Prerequisites: Two first year classes as indicated above under (1)

Limited to 60

IDS 3000R Seminar in Development Studies: In this class students will begin to apply some of the theoretical perspectives and analytical tools of development studies to a selected problem of development in one particular region of the world: selected regions include Southern Africa, Tropical Africa, North Africa and the Middle East, South-East Asia, South Asia, the Caribbean and Latin America. Political and policy implications of case studies will be discussed. Presentations of student work will be preceded by presentations by faculty associated with the international development studies programme. Normally offered also in summer.

Format: Seminar
Prerequisites: IDS 2000R
Enrolment: Limited

**Enrolment:** 

IDS 3100A/3101B Special Topics in International Development Studies: staff. A half-year reading class on a particular aspect of international development taught only by special arrangement between individual IDS major or honours students and individual instructors associated with the programme. Available in summers as well as regular sessions.

Individual tutorial Format: Prerequisites: IDS 2000R

**IDS 3200C International Development Studies** Through Canada World Youth: structured tutorial before and after Canadian World Youth (CWY) assignments. This class is intended for CWY participants who wish to earn academic credit related to their work in the Third World. It consists of predeparture tutorials and post-return paper preparation based on an agreed research topic. IDS faculty will attend CWY orientations. CWY registrants will receive supervised readings in development studies, and directions for field observations. They will be required to keep a journal of their observations and to prepare a research proposal for which they will collect materials while in the Third World. On returning to Canada they will communicate regularly with their advisor as they prepare a brief report on their field experience and an original research paper for evaluation.

Format: Individual tutorial with selected

IDS faculty

None, although high Prerequisite:

school/university global studies is

desirable

Limited to current CWY Enrolment:

participants

N.B.: Consult Dr. H. Veltmeyer,

Sociology Department, Saint Mary's University, for details

about this class.

IDS 4010 Honours Essay Practicum in International Development Studies: Advanced seminar in theory and methodology leading to preparation and defence of honours essay.

Format: Seminar

Prerequisites: IDS 2000R and IDS 3000R **Enrolment:** Limited to IDS honours, advanced

major, and qualifying year students

IDS 4001A/IDS 4002B/IDS 4003C and IDS 4100R Special Topics in International Development Studies: (see IDS 3100A/IDS 3101B) Prerequisite: IDS 3000R

IDS 4210R Gender and Development: The class will discuss the subject of gender and development in developing countries and in Canada. It aims to help students develop their theoretical understanding, research skills, and policy analysis in this new field of study. It will focus on issues such as education, work, health, the role of the

state, and empowerment. Students taking the class at the graduate level will be expected to attain a higher level of achievement and may be required to do additional assignments.

Format: Seminar.

IDS 3000R or equivalent Prerequisite: Enrolment: Limited to 25 students Cross-listing: SMU-IDS 622.1,623.2 & SOC

422.1, 423.2

Listing of International Development Studies Approved Disciplinary Classes (See respective disciplinary sections of the calendar for class descriptions and prerequisites. Note: Classes marked \* are not offered every year. Please consult the current tiemtable on registration to determine if these classes are offered. Note that some classes may require permission of the instructor).

\*BIOL 4650B Resource Systems and Economic Development

Comparative Religion

\*CREL 2001A/B Judaism

\*CREL 2002A/B Christianity

\*CREL 2003A/B Islam

\*CREL 2011A/B Hinduism

\*CREL 2012A/B Chinese and Japanese Religions

\*CREL 2013A/B Buddhism

\*CREL 3014A/B Love and Death in World Religions

\*CREL 3015A/B Myths, Symbols and Rites \*CREL 3531R Mystical Consciousness and

Modern Science

\*CREL 3502A/B The Rise of Modern Science

#### **Economics**

\*ECON 2238A Industrial Revolution in Europe \*ECON 2239B European Economy in Historical Perspective

\*ECON 2241A/B Comparative Economic Systems: National Economics

ECON 2250R Applied Development Economics \*ECON 3317B Poverty and Inequality

\*ECON 3330A/B International Trade ECON 3333A/B Theories of Economic

Development \*ECON 3336B Regional Development

ECON 3350A/B Social Cost Benefit Analysis \*ECON 3432R Regional Economics

\*ECON 4431A/B International Payments

\*ENGL 2211R Commonwealth Literature

GEOL 2410B Environmental and Resource Geology

Health Services Administration MHSA 6370B International Health HIST 2131A The Rise of the British Empire uIST 2132B The Fall of the British Empire \*HIST 2334A/B The United States, Canada and

\*HIST 2370A/B Age of Imperialism 1870-1970 HIST 2381A/B Latin America:

underdevelopment and Revolution HIST 2421A/B Colonial Africa

\*HIST 2422A/B Independent Africa

\*HIST 2501A/B The Middle East to the First World War

\*HIST 2502A/B The Middle East Since the First World War

HIST 3390A/B The Caribbean:

Inderdevelopment and Revolution

HIST 3440 A/B African History from Oral

\*HIST 3451A/B South Africa to 1860

\*HIST 3452A/B South Africa since 1860

\*HIST 3461A/B Women and Development in

\*HIST 3612A/B Women in Socialist Countries

### Political Science

POL 2300R Comparative Politics

POL 2500R World Politics

\*POL 3302A/B Comparative Development Administration

POL 3303A/B Human Rights and Politics

POL 3315A/B African Politics

POL 3340A/B Approaches to Development \*POL 3360A/B Politics in Latin America

POL 3531A/B The UN in World Politics

POL 3535A/B The New International Division of

POL 3540A Foreign Policies of African States POL 3544A/B Political Economy of Southern

\*POL 3585B Politics of the Environment \*POL 3590R The Politics of the Sea

### Sociology and Social Anthropology

\*SSA 2100R Ecology and Culture

SSA 2190R Gender Roles in Cross-Cultural

'SSA 2370A/B Peoples and Cultures of the World

\*SSA 2380A/B Peoples and Cultures of the World

\*SSA 2390R Social Anthropology of the Middle

\*SSA 2400R Medicine and Health Across

\$\$\$A 2600R Food and Nutrition Across Cultures

\$\$A 3060A/B Social Change and Development SSA 3205R Ethnicity, Nationalism, and Race

SSA 3210R Continuity and Change in Rural

\*SSA 3230A/B Psychological Anthropology

SPAN 2069A/B Central America to 1979

\*SPAN 2070A/B Area Studies on Mexico and Central America

\*SPAN 2109A/B Cuba from Colonial Times to

\*SPAN 2110A/B The Cuban Cultural Revolution \*SPAN 2130A/B Latin American Dictators in the

\*SPAN 2210A/B The Novel of the Mexican

\*SPAN 2230A/B Contemporary Latin American Prose, Part I

\*SPAN 2240A/B Contemporary Latin American Prose, Part II

\*SPAN 3070A/B Contemporary Latin American

### Classes Offered at St. Mary's University

N.B. A 300-level class at SMU is 2000-level at Dalhousie, 400-level is 3000 and 500 is 4000. A full year class is designated by .0; a Fall half class by .1; and a Winter half class

IDS 320.0 Development Studies Through Canada World Youth

IDS 420.1(.2) Special Topics

IDS 421.1(.2) Special Topics

IDS 422.0 Special Topics

IDS 450.0 Directed Studies IDS 451.0 Directed Studies

IDS 452.1(.2) Directed Studies

IDS 455.1(.2) Directed Studies

IDS 470.1(.2) Environment & Development

IDS 500.0 Honours Essay

IDS 510.0 Seminar in International Development

IDS 520.1(.2) Research Methodology

IDS 530.1(.2) Contemporary Development Planning

ANT 201.0 Women: A Cultural Perspective

ANT 300.0 Culture and Society ANT 310.0 Applied Anthropology: Culture,

Change and Development

ANT 315.0 Peasant Society and Culture ANT 320.0 World Ethnography

ANT 325.0 Ethnology: Oceania

ANT 335.0 Psychological Anthropology ASN 410.2 Special Topics on Japan

\*ECO 310.1(.2) Development Economics

ECO 312.1(.2) History of Economic Thought ECO 313.1(.2) International Finance

ECO 315.1(.2) Comparative Economic Systems

ECO 323.1(.2) Soviet-Type Economies ECO 410.1(.2) Issues in Economic Development

ECO 414.1(.2) International Trade

FIN 476.1(.2) International Financial Management

GEO 302.0 Geography of World Affairs GEO 330.1(.2) Geography of China

GEO 370.0 Geography of Southeast Asia

HIS 209.0 East Asia

HIS 316.0 Africa in the 19th Century, Intrusion and Conquest

HIS 317.0 Africa in the 20th Century, Colonialism and Independence

HIS 322.0 South Africa

HIS 323.0 China Before 1800

HIS 341.0 China and Japan in the 20th Century

HIS 342.0 China in Revolution 1840 to Present

HIS 375.0 Modern Latin America

HIS 380.0 Latin America in the 20th Century

\*HIS 385.0 The Third World Since 1500

HIS 391.0 East Asia and the West

HIS 511.0 Modern East Asia, Selected Problems

in Modernization

MGT 488.1(.2) International Business

Management

MKT 375.1(.2) International Marketing PHI 325.1(.2) Ethical Issues in International

Development

POL 305.0 International Relations

POL 322.1(.2) Politics of International Trade

\*POL 340.0 The Politics of the Developing Areas POL 341.0 Government and Politics in East Asia

POL 418.0 International Law

POL 553.0 International Studies Seminar

REL 312.1(.2) Jesus and Liberation

REL 341.1(.2) Political Theology: East and West

REL 347.1(.2) Ecology and Religion

SOC 319.0 Reform and Revolution in Latin

SOC 331.1(.2) Modernization and Aging

SOC 333.0 Social Movements SOC 380.0 Third World Urbanization

\*SOC 385.1(.2) Problems of Development

\*SOC 386.1(.2) Sociology of Developing Societies

SOC 387.1(.2) Women and Development

SOC 403.0 Revolution and Change: A Case Study: Cuba

SOC 417.0 Religious Movements

SOC 420.0 Comparative Regional Development

SOC 422.1 Gender and Development: Theory and

SOC 423.2 Gender and Development: Policy

SOC 425.0 Corporate Power and the World Economy

SOC 429.0 Rural Society

Core Classes in specific disciplines which should be taken before others in these disciplines.

### Latin

See under Classics.

### Linguistics

Various departments offer classes in linguistics or in some aspect of linguistic study in the broad sense: Classics (several classes in Greek and Latin), English (\*ENGL 3201R The English Language, \*ENGL 3202R History of the English Language, ENGL 4253R Old English, ENGL 4351R Middle English), French (\*FREN 2050A/R Structure of French Dictionaries, \*FREN 3020R Linguistics, \*FREN 3025A/B Linguistic Introduction to Acadian Dialectology, \*FREN 4010A/B Great Linguists of the 20th Century FREN 4001A and FREN 4002B History of the French Language, \*FREN 4015R Advanced Translation into English, \*FREN 4011A/B Lexicology, \*FREN 4012A/B The Structure of French: Comparisons with English), German (various classes), Philosophy (PHIL 3300A/B Philosophy of Language, \*PHIL 4510A/B Topics in the Philosophy of Language, and other relevant classes in logic and on the work of Frege, Russell or Wittgenstein, for example.), Psychology (2190 Language and the Brain, 3150 Introduction to Hearing and Speech Mechanisms, 3190 Psychology of Language), Russian (RUSS 4000R The Structure of Contemporary Standard Russian, RUSS 4950A/B, RUSS 4960A/B, RUSS 4990R Russian Special Topics), Sociology and Social Anthropology (\*SSA 3080R Linguistics and Anthropology). Further information about these classes will be found under the departmental listing. It should be noted that some of the classes listed may not be offered in the current year.

### **Medieval Studies**

The period commonly called the Middle Ages (approximately AD 400-1500) offers a unique opportunity to study Western culture as a whole. Indeed, any attempt to study a part of this period in isolation leads to a conviction that such an investigation can never be satisfying and that the walls between disciplines must be broken down and the literature seen in relation to the philosophy, the philosophy in relation to the history, and the history in relation to the languages. No matter what the vernacular tongue of any geographical area, there was one common language throughout Europe and one church, and the study of these leads inevitably to a consideration of palaeography, art, architecture and music.

The field is a very large one and could become a fascinating and rewarding area for certain types of students - those who like to immerse themselves in their work and who feel that university studies need not involve storing knowledge in separate pigeon holes because their language classes have nothing in common with the social sciences they are required to take. The regulations for the Honours degree permit a structured programme to be set up in Medieval Studies which cuts across traditional departments lines while allowing considerale freedom in choice of classes. This programme is suspended.

### Music

Location:

Telephone:

Dalhousie Arts Centre, 5th floor

University Ave.

Halifax, N.S.

(902) 494-2418

W.H. Kemp (494-1142)

Student Advisors

Ray Byham (494-2418) - Years III-IV, BMus D. Farrell (494-2418) - Years I-II P. Perron (494-2418) - MusEd

professor

w.H. Kemp, MusBac, MusM (Tor.), AM (Harv.), pphil (Oxon.) (Theory and History)

**Associate Professors** 

R.D. Byham, BM, MM (Ill. Wesleyan), (History and Keyboard Skills), Assistant Dean (Students) P. Djokic, BMus, MMus (Juilliard), (Violin) D.M. Farrell, BA (St. Norbert Coll.), MMus, PhD (Wisc.), (Theory and Composition) E. Gonnella-Welch, Dipl of Art (Dundee Coll. of Art), LRAM (Royal Academy Lond.), (Voice) J. Morris, BA (DePauw), (Voice) P.A. Perron, BMus (McG), MMusEd (Holy Names College), (Music Education) D.P. Schroeder, AMus, BA, MA (Western Ontario), PhD (Cantab.), (Theory and History) L. Stodola, BMus (Chic.), MMus (Juilliard), J.S. Tittle, BS (Kent State), MM, DMA (Wisc.), (Theory and Composition) C. van Feggelen. (Guitar and Lute) D.F. Wilson, BFA (Carn. Inst. Tech.), MMus

### Senior Instructor

T. Zonneveld, Dipl. (Teach.), Dipl. (School Mus.), Dipl. (Performance), (Royal Conservatory, The Hague), (Piano)

(Roch.), PhD (Case W.R.), (History)

Part-Time Faculty

N. Babineau (mus.ed. string studies) T. Hill, MA (Calif., Davis), (mus.ed. band studies)

D. MacDonald, BMusEd (Dal), Dipl Mus (Paris) MMA (McGill) (organ and church music) D. Palmer (jazz studies)

**Applied Skills Instructors** 

Flute: P. Creighton; E. DuBois, BMus (Rochester), MMus (Emporia State)

Oboe: Suzane Lemieux

Clarinet: J. Rapson

Bassoon: I. Rothwell

Recorder: P. Evans

Saxophone: D. Palmer

Horn: M. Lee

Trumpet: J. Stern, BMus, MMus (New England

Conservatory)

Trombone and Tuba: H. Schoales

Cello: S. Walt

String Bass: L. Turofsky, BMus (Tor.)

Percussion: J. Faraday Harpsichord: TBA

### Staff Piano

Accompanist: H. Murray, B.A. Hons. Mus., L.R.C.T. (Tor.) A.R.C.C.O Technician: F. Haines

The resources of the Music Department provide a thorough discipline to those whose demonstrated talent and specific pre-university training qualify them for specialization in music studies. Certain classes and ensembles are available to the non-specialist student who wishes to increase both musical awareness as a listener

and involvement as a performer. In the Bachelor of Music Programme, the Department offers training to the prospective professional musician: performer, composer, theorist, historian or critic. Future teachers instructing in the elementary and secondary school classroom are provided with methods, skills and field experience in the Bachelor of Music Education Programme. In our society today there are many vocations in which a working knowledge of various aspects of music is a desirable part: librarianship, media programming and production. arts management, recreational and therapeutic work, to name only a few. A carefully chosen BA (General) or combined Honours programme could furnish a basic equipment for further studies in preparation for such professions. The truly contemporary listener, too, must acquire style-specific tools, if there is to be an informed response to the musical experience.

Thus the University's Music Department is ready to serve many needs within a general standard of excellence. Crafts and skills, history, practice and appreciation are presented in studies flexible enough to be useful to each student's identity as a musical person.

### Classes for Non-Majors

Classes offered as arts electives for non-majors are as follows:

MUS 1000R Listening to Music MUS 1001A Materials of Music MUS 1002B Introductory Music Theory MUS 2007R Guitar and Lute MUS 2008R Modern Guitar MUS 2087R Electronic and Experimental Music

\*MUS 2011R History of Opera

\*MUS 2012R Music and Psychology

\*MUS 2013R The Evolution of Jazz

\*MUS 2021R Music and Literature

Music

year. Please consult the current timetable on registration to determine if this class is offered.

Note: Classes marked \* are not offered every

### Degree Programmes in Music

#### Admission

Students wishing to enrol in a degree programme offered by the Department of Music must fulfill the following admission requirements:

- (a) satisfy the requirements for admission to the Faculty of Arts and Social Sciences
- demonstrate their proficiency as instrumental or vocal performers in an audition-interview
- demonstrate knowledge of the basic rudiments of music theory (equivalent to Grade II Theory of the Royal Conservatory of Music of Toronto) and aural dictation: each assessed by written diagnostic tests as part of the audition-interview.

Applicants will be notified in writing as to their acceptance into one of the programmes in music. Applicants who, in the estimation of the Auditioning Committee, show considerable musical talent but are in need of more emphasis on preparatory skills will be required to take some foundational classes. Applicants with severe background deficiencies will be advised to prepare again through private instruction before reapplying.

When making application for admission to the University, prospective music students should request the supplementary application form for the Department of Music.

Application to the Department should be received by the end of February; audition procedures should be completed by March 31 to ensure admission and scholarship considerations. Any subsequent applications should be made no later than June 1 and will be subject to enrolment quotas. All audition procedures should be completed by June 30. Late applications may be considered at the discretion of the Department, but no auditions will be given after August 25.

Students wishing to transfer from another institution into the Second or Third Year of their chosen Music programme must take validation examinations in history, theory, aural and keyboard skills, and their applied major instrument before transfer of credits can be considered. Failure to pass an examination will necessitate enrolment in the appropriate First or Second Year class. Validation examinations must be written at the same time as the audition-interview. Transfer applications are subject to the deadlines stated in the preceding paragraph.

Note: All students entering the First and Second Years of Music Studies are required to register in the Bachelor of Music programme.

Upon successful completion of the two-year core curriculum, students may either proceed to the Third Year of the BMus or transfer to the BMusEd or BMusEd/BEd programmes.

### **Foundational Classes**

These offerings are designed for certain prospective music majors who, in the opinion of the faculty, are in need of a more prolonged exposure to non-major levels of performance. music literature, and skills in musicianship. Students admitted at this level are considered in the University Exploration category, and may take a maximum of three credit classes.

### Curriculum

MUS 0070C Foundational Aural Perception (non-credit) MUS 0071C Foundational Keyboard Skills (non-credit) MUS 0100R Foundational Applied Skills (non-credit) MUS 1000R Listening to Music MUS 1001A Materials of Music MUS 1002B Introduction to College Music Theory

1 Music Ensemble (non-credit) Required Writing Class (from another department - see list of writing classes, page 70)

### Special Notes:

- Music classes MUS 1000R, MUS 1001A, and MUS 1002B, although credit classes, may not be counted toward the BMus, BMusEd, or BA degree with a major in Music; however, they may be counted as electives in other BA or BSc Degree Programmes.
- All students registered in the Foundational Classes shall not enrol in the First Year Classes of the Bachelor of Music Core Curriculum until all prerequisites for those classes are completed.

### Standard for Foundational Classes

Note: The foundational music classes and the required writing class must be taken in the same academic year.

### Minimum grades:

MUS 0070C C+ MUS 0071C C MUS 0100R B MUS 1000R C MUS 1001A C MUS 1002B C Writing Class C

Each Elective C

### Bachelor of Music (BMus)

The BMus is a four-year programme with sixteen out of twenty classes in music. Upon successful completion of the second year, students may choose to concentrate in performance, music history and literature, or composition.

### Common Curriculum

First Year: MUS 1000-level Applied Skills; MUS 1350A History of Music I (Introduction); MUS 1351B History of Music II (Baroque); MUS 1201A Theory I, first term; MUS 1202B Theory I. second term; MUS 1270C Aural Perception I; MIJS 1271C Keyboard Skills I; and an Arts and Social Sciences or Science Elective, one full credit Writing Class Elective). second Year: MUS 2000-level Applied Skills: MIS 2350A History of Music III (Classic); MUS 2351B History of Music IV (Romantic); MUS 2201C Theory II; MUS 2160C Conducting; MUS 2270C Aural Perception II; MUS 2271C Keyboard Skills II; and an Arts and Social Sciences or

### science Elective, one full credit. Concentration in Performance

Third Year: MUS-3000 level Applied Skills; MUS 3350A History of Music V (Medieval and Renaissance); MUS 3351B History of Music VI (Contemporary Music); MUS 3280C Counterpoint; MUS 3282C Orchestration; MUS 3199C Recital; Music Elective, one half credit; and an Arts and Social Sciences or Science Elective, one full credit. Fourth Year: MUS 4000-level Applied Skills; MUS 4199C Area Graduation Requirement (Recital); MUS 4280C Advanced Harmony and Counterpoint; MUS 4281C Form and Analysis; Music Elective, 11/2 credits; and an Arts and Social Sciences or Science Elective, one full credit. Note: Church Music Option - Organ majors may complete a curriculum in church music by successful achievement in the following classes taken in the Third and Fourth Years: MUS 4271C, MUS 4370C, MUS 4198C, and PT 2105 offered at the Atlantic School of Theology and taken through letter of permission.

### Concentration in Composition

Third Year: MUS 3000-level Applied Skills; MUS 3350A History of Music V (Medieval and Renaissance); MUS 3351B History of Music VI (Contemporary Music); MUS 3280C Counterpoint; MUS 3282C Orchestration: MUS 3210R Composition; and an Arts and Social Sciences or Science Elective, one full credit. Fourth Year: MUS-4000 level Applied Skills; MUS 4280C Advanced Harmony and Counterpoint; MUS 4281C Form and Analysis; MUS 4210R Composition; MUS 4299C Area Graduation Requirement (Composition); Music Elective, one half credit; and an Arts and Social Sciences or Science Elective, one full credit.

Concentration in History and Literature Third Year: MUS 3000-level Applied Skills; MUS 3350A History of Music V (Medieval and Renaissance); MUS 3351B History of Music VI (Contemporary Music); MUS 3280C Counterpoint;

MUS 3282C Orchestration: MUS 3310R Music in Canada; and an Arts and Social Sciences or Science Elective, one full credit. Fourth Year: MUS 4000-level Applied Skills; MUS 4280C Advanced Harmony and Counterpoint; MUS 4281C Form and Analysis; MUS 4368A & MUS 4369B Special Studies; MUS 4399C Area Graduation Requirement (Thesis); Music Elective, one half credit; and an Arts and Social Sciences or Science Elective, one full credit.

#### **Standards**

All students wishing to enter third year required Music classes other than MUS 3350A and MUS 3351B in the BMus programme must successfully complete their MUS 2000-level Applied Skills and MUS 2201C, MUS 2270C and MUS 2271C and achieve an overall average of B in the music classes of the first and second years, including a minimum standing of C in each of MUS 1201A, MUS 1202B and MUS 2201C, and a minimum of B in each of their MUS 2000-level Applied Skills, MUS 1270C and MUS 2270C. Students failing to demonstrate the required standards in MUS 2270C must repeat the class, but, with the permission of the Department, those with an otherwise satisfactory academic achievement may do so concurrently with their third year curriculum, within the five full classes or as an approved overload.

Students wishing to enter the concentration in performance must achieve an average of B+ in their MUS 1000- and MUS 2000-level Applied Skills; in history and literature, an average of B+ in MUS 1350A, MUS 1351B, MUS 2350A and MUS 2351B and demonstrate acceptable writing ability; in composition, submit one or more original pieces for assessment by the composition

Students in the BMus programme must maintain a minimum standing of B in each of the music classes of the third and fourth years.

Students who at the end of the third year have not obtained at least five credits of B or better in their music classes above the 1000 level will not be admitted to the fourth year without the explicit recommendation of the Department and the prior approval of the Committee on

Students must achieve a minimum standing of C in each of their Arts and Social Sciences or Science electives.

### Bachelor of Music Education (BMusEd)

The BMusEd programmes combine instrumental or vocal instruction; theoretical, aural and keyboard skills; historical knowledge; and the methods and repertoires needed by the music teacher in the elementary and secondary school classroom. Observation and field experience in classroom settings constitute an important part of

the programmes. Students will choose between curricula in Classroom Music or Instrumental Music.

#### Common Curriculum

First Year: MUS 1000 level Applied Skills; MUS 1350A History of Music I (Introduction); MUS 1351B History of Music II (Baroque); MUS 1201A Theory I, first term; MUS 1202B Theory I, second term; MUS 1270C Aural Perception; MUS 1271C Keyboard Skills; and an Arts and Social Sciences or Science Elective, one full credit (Writing Class Elective).

Second Year: MUS 2000-level Applied Skills; MUS 2201C Theory II; MUS 2270C Aural Perception II; MUS 2271C Keyboard Skills II; MUS 2350A History of Music III (Classic); MUS 2351B History of Music IV (Romantic); MUS 2160C Conducting; and Education, equivalent of one full class.

#### Classroom Music

Third Year: MUS 3000-level Applied Skills; MUS 3400R Elementary Methods; MUS 3470C Field Experience: MUS 3161C Advanced Choral Technique; MUS 3350A History of Music V (Medieval and Renaissance); MUS 3351B History of Music VI (Contemporary Music); and Education, equivalent of one full class. Fourth Year: MUS 4000-level Applied Skills; MUS 4400C Secondary Methods; MUS 4470C Field Experience; MUS 4482A Choral Arranging; Education, equivalent of one class; and the equivalent of one and one-half full credit electives in Music, Music Education, or Arts and Social Sciences or Science.

#### **Instrumental Music**

Third Year: MUS 3000-level Applied Skills; MUS 3350A History of Music V (Medieval and Renaissance); MUS 3351B History of Music VI (Contemporary Music); Either MUS 3480C Band Instruments or MUS 3481C String Instruments; Education, equivalent of one full class; MUS 3400R Elementary Methods; and MUS 3470C Elementary Field Experience.

Fourth Year: MUS 4000-level Applied Skills; MUS 4400C Secondary Classroom Teaching Methods; MUS 4470C Secondary Classroom Field Experience; MUS 3282C Orchestration; MUS 4480C Band Instruments II; Either MUS 4481C Band Methods and Field Experience or MUS 4483C String Methods and Field Experience; one-half credit elective in Music or Music Education; and Education, equivalent of one full

### **Bachelor of Music Education/Bachelor** of Education

The BMusEd/BEd is a five-year integrated programme combining training in Classroom Music or Instrumental Music (as described in the BMusEd degree) with additional training in either elementary classroom teaching or a second teachable subject appropriate for secondary school. The programme includes methods and field experience classes in both Music and in the second teaching area. The BMusEd/BEd programme leads to certification by the Nova Scotia Department of Education. For details of the BMusEd/BEd students must consult with the Department's Music Education Programmer.

#### Standards

All students wishing to enter third year required Music classes other than MUS 3350A and MUS 3351B in either the BMusEd or BMusEd/BEd programme, must successfully complete their MUS 2000-level Applied Skill MUS 2201C, MUS 2270C and MUS 2271C and achieve an overall average of B in the music classes of the first and second years, including a minimum standing of C in each of MUS 1201A MUS 1202B and MUS 2201C, and a minimum of B in each of their MUS 2000-level Applied Skills. MUS 1270C and MUS 2270C. Students failing to demonstrate the required standard in MUS 22700 must repeat the class, but, with the permission of the Department, those with an otherwise satisfactory academic achievement may do so concurrently with their third year curriculum, within the five full classes or as an approved

In order to qualify for the award of a BMusEd or BMusEd/BEd degree, candidates must have obtained a minimum overall average of B in their music and music education classes above the 2000 level and maintain a minimum average of B in both their education and teachable subject Arts and Social Sciences or Science classes.

With special permission, a student in the BMusEd or BMusEd/BEd programme may give a graduation recital instead of a final jury exam.

#### Teacher Certification in Music

A student possessing an appropriate undergraduate degree in Music from a recognized university may enrol in a selected group of six full classes which may lead to certification by the Nova Scotia Department of Education.

In an audition- interview, an applicant must pass a written exam in theory, a keyboard proficiency test and an ear training exam (sight-singing and dictation) equal to the final examination standards in MUS 2201C (Theory II), MUS 2271C (Keyboard Skills) and MUS 2270C (Aural Perception II). Failure to demonstrate satisfactory standards in any of these areas will require the student to enrol in the appropriate class(es) in addition to the six classes listed below. The applicant must also demonstrate basic musicianship in his or her chosen performance idiom. All examinations must be taken at the time of the audition-interview. All audition procedures should be completed by June 30; no audition will be held after August 25.

The programme of study shall be formulated in a personal interview with a designated member of the music education faculty of the university's Department of Music and approved by the Department's Committee on Studies.

The programme will normally include:

MUS 3400R Elementary Music Methods MIJS 3470C Elementary Music Field Experience MUS 4400C Secondary Music Methods MIJS 4470C Secondary Music Field Experience Elective in Music or Music Education (one half credit)

#### Education

Special Education (One full credit) Educational Foundations (Two full credits including a half class in each of Sociology. Philosophy, History, Psychology of Education.)

Since the normal maximum number of classes that may be taken in any academic year is 5, students are advised to take the remaining full credit (usually two half-classes in education) in summer school prior to or following the actual year of study. Students are cautioned to consult the School of Education for the prospective availability of required education classes in summer school and to note the regular summer school tuition costs apply to those classes.

To complete successfully the programme of study, the candidate must obtain a minimum overall average of B in his/her music and music education classes above the 2000 level, and a minimum average of B in the Education classes.

### Bachelor of Arts (Major in Music)

The BA (General) with a major in music is a three year programme, subject to the regulations described in the section Arts and Science: General Faculty Regulations (Item 3) and Degree Programmes (Item 5). Students are required to complete MUS 1350A, MUS 1351B, MUS 1201A and MUS 1202B, MUS 1270C, MUS 1271C and their MUS 1000 level Applied Skills before entering the third year. Other classes, to a maximum total of 6 full credit classes, may be selected in consultation with the Department to suit a student's individual needs and interests. Music Education classes are not considered applicable to this degree. Students in the BA (General) programme enroled in Applied Skills classes are required to pass jury examinations.

Students wishing to transfer from another institution into this programme may be required to enrol in an Applied Skills Class at the First-Year level, depending upon the standard of their performance proficiency demonstrated in the audition-interview.

### Classes Offered

### Studies in Music History

MUS 1350A History of Music I: An introductory survey of music of the Classical and Romantic periods. Available to non-music majors with permission of the instructor.

Instructor: D. Wilson Format: Lecture 3 hours

A basic knowledge of musical Prerequisite:

notation and terminology equivalent to Grade II Conservatory standards.

MUS 1351B History of Music II: A study of the history of the music of the Baroque period (c. 1600-1750) with an emphasis on the development of style and performance practices.

Instructor: D. Wilson Format: Lecture 3 hours Prerequisite: MUS 1350A

Co-requisites: MUS 1202B, MUS 1270C, MUS

1271C

MUS 2350A History of Music III: A detailed study of music from the second half of the 18th and early 19th centuries.

Instructor: D. Schroeder Format: Lecture 3 hours

Prerequisites: MUS 1202B, MUS 1350A

Co-requisite: MUS 2201C

MUS 2351B History of Music IV: A detailed study of music from the 19th and early 20th centuries.

Instructor: D. Schroeder Format: Lecture 3 hours

MUS 1202B, MUS 1350 Prerequisites:

Co-requisite: MUS 2201C

\*MUS 3310R Music in Canada: An historical survey of music in Canada with emphasis on the socio-economic factors essential to the successful transplantation and growth of European musical culture in Canada. The class gains practical experience in research skills as they pertain to the specialized area of Canadian music. Students must prepare research and analytical reports on both historical and contemporary topics.

Instructor: W.H. Kemp Format: Lecture 3 hours

Prerequisite: Permission of the Department

\*MUS 3311R History of Opera: An historical and analytical survey of operatic compositions from 1600 to the present day; opera as drama; changing tastes in operatic productions; operetta and musical comedy.

Instructor: Staff

Format: Lecture 3 hours

Prerequisite: Permission of the Department \*MUS 3312R Music and Psychology: The interrelationship of music and psychology, as it relates to and informs the listener, student, educator and professional musician. Topics include a) the perception of tones as a foundation for the appreciation of musical experiences, music as passing time and as information; b) musical taste and aesthetics from a psychological point of view; c) the social psychology of music; d) theories of learning and of behaviour as appropriate to musical training and performance; e) the diagnostic and evaluative testing of musical aptitude and ability; f) the function of music in therapy and in special education. A rudimentary knowledge of musical notation is a prerequisite to this study; no previous classes in Psychology are necessary.

Instructor: Format:

W.H. Kemp Lecture 3 hours

Prerequisite: Permission of the Department

\*MUS 3313R The Evolution of Jazz: A survey of the historical and social background of jazz and its musicians. The evolution of jazz styles is illustrated in live performances as well as on recordings. A knowledge of musical notation is not a prerequisite to this class.

Instructor: Format:

D. Palmer Lecture 3 hours

MUS 3350A History of Music V: A detailed study of the development of Western music in the Medieval and Renaissance periods with an emphasis on the development of style and performance practices.

Instructor: Format:

D. Wilson Lecture 3 hours

Prerequisites: MUS 1202B, MUS 1350A, or

permission of the Department

MUS 3351B History of Music VI: The main trends in 20th century "serious" music, with particular emphasis on "new" musical practices.

Instructor: S. Tittle Format: Lecture 3 hours

Prerequisite: MUS 1350A, MUS 2351B

MUS 3361A History of Dance: The class will explore the development of dance from the Basse dances of the Middle Ages, through the birth of ballet to the dances of today; it will include an introduction to dance notation as well as the practical and theoretical aspects of historical dance.

Instructor:

P. Richards Lecture 2 hours

\*MUS 3370C Performance Practice: The principles of performance practice in 18th and 19th-century music will be discussed in the context of treatises, contemporary accounts, manuscripts and early editions. Areas to be covered include instruments, ornamentation, dance-related music,

and problems of interpreting expression markings

D. Schroeder Instructor:

Seminar 2 hours Format:

MUS 1350A, MUS 1351B, MUS Prerequisites: 2350A, MUS 2351B

MUS 4366A & MUS 4366B

Topics in Music

This is an intensive study of selected topics to be

announced. Instructor:

Staff

Seminar 2-3 hours Format:

MUS 1350A, MUS 1351B, MUS Prerequisites: 2350A, MUS 2351B

MUS 4367A & MUS 4367B

Topics in Music History

This is an intensive study of selected topics to be announced.

Instructor: Format:

Staff

Seminar 2-3 hours

Prerequisites:

Mus 1350A, MUS 1351B, MUS 2350A, MUS 2351B.

MUS 4368A & MUS 4369B Special Studies: Individually directed research and writing under the supervision of an appropriate member of the Department.

Instructor:

MUS 2350A, MUS 2351B, MUS Prerequisites: 3350A and MUS 3351B

Studies in Music Literature

Study in depth of the history and repertoire of specific performance idioms.

\*MUS 3352A Chamber Music, to 1800:

Format:

lecture 3 hours Staff

Instructor:

\*MUS 3353B Chamber Music, 19th and 20th Centuries:

Format:

lecture 3 hours

Instructor:

Staff \*MUS 3354A Keyboard Music to 1750:

Format: lecture 3 hours Instructor: R. Byham

\*MUS 3355B Piano Literature, 19th and 20th

Centuries: Format: Instructor:

lecture 3 hours R. Byham

\*MUS 4370C The Organ and its Literature:

Format: Instructor:

lecture 2 hours D. MacDonald

MUS 4399C Area Graduation Requirement

Theory and Related Skills

MIS 0070C Foundational Aural Perception: pesigned for students with no experience in sightsinging or dictation, or for students needing extra and intensive exposure to these skills; may not be taken without co-related classes MUS 0071C. MIJS 1001A, and MUS 1002B. Includes scales. modes, two-part (duet) reading, elementary dictation. A non-credit class.

Instructor: Format:

Staff Lab 2 hours

MIS 0071C Foundational Keyboard Skills: Designed for students with no experience in using the keyboard as a proficiency tool. Includes work in basic harmonization, cadences, introductory improvisation, scale building. Not a class in piano lessons or piano repertoire. May not be taken without MUS 1001A, MUS 1002B, and MUS 0070C. A non-credit class.

Instructor: Format:

R. Byham Lab 2 hours

MUS 1001A Materials of Music: An introduction to University music studies for prospective music majors recommended by audition to foundational level classes in music: also open to non-majors. A knowledge of music reading and rudiments is presumed. Extensive work in rudiments applied to all aspects of music learning; the phenomenon of the tonic-melodic, harmonic and formal; modes, pentatonic scale formation, dissonances, 2-part writing to encompass these; non-tonal formations; acoustics. Note: auditioned students will be advised to take a year of private studies if their preparedness falls below the introductory level.

Instructor: Format:

D.M. Farrell Lecture 2 hours

MUS 1002B Introductory Music Theory: Also open to non-majors. Rhythm and phrase structures, "musica ficta" and elementary modulation in two- and three-part writing. Comparison of tonality, atonality, modality, and chromatic tonality, exploration of chord building triadic and otherwise, simple (bar) chording; elementary diatonic harmony previewing the start of MUS 1201A; four-part writing as an immediate transition to MUS 1202B.

Instructor: D.M. Farrell Lecture 2 hours Prerequisite: MUS 1001A

MUS 1201A & MUS 1202B Music Theory I: thorough knowledge of musical rudiments is presumed. The class MUS 1201A begins with a survey of musical phenomena in general, subsequently of tonal music in particular. The material in this survey is immediately applied to two- and three-part writing, stressing both the harmonic and contrapuntal dimensions. In the second term, MUS 1202B (prerequisite MUS

1201A), there is a concentration upon a complete grounding in the traditional four-part writing skills. This culminates in the study of the dominant seventh and elementary modulation.

Instructor: S. Tittle

Format: Lecture 3 hours Prerequisites:

Permission of the Department, plus Royal Conservatory of Toronto Grade II Theory equivalent or MUS 1001A/MUS

1002B

MUS 1270C, MUS 1271C Co-requisites:

MUS 1270C Aural Perception I: A class designed to correlate with MUS 1201A and MUS 1202B. Melodic, harmonic, rhythmic, textural and stylistic factors are visualized, performed and dictated systematically. Lab work in ear-training and sight-singing is done three times per week. Each student is a member of a small working section.

Instructor: T. Zonneveld Format: Lab 3 hours

Co-requisites:

Permission of the Department; Prerequisite:

MUS 0070C or equivalent MUS 1201A & MUS 1202B,

MUS 1271C

MUS 1271C Keyboard Skills I: The development of basic skills in sight reading, score reading and harmonized accompaniment at the keyboard.

Instructor: R. Byham Format: Lab 2 hours

Prerequisite: Permission of Department; MUS

0071C or equivalent

MUS 2201C Music Theory II: A continuation of Theory I, covering the study of complex modulation, altered chords and chromatic harmony. Emphasis is placed upon concepts of functional tonality by means of both written exercises in four-part harmony and analysis of Classic and Romantic compositions.

Instructor: D. Schroeder Format: Lecture 2 hours

Prerequisites: MUS 1201A & MUS 1202B, MUS 1270C, MUS 1271C

Co-requisites: MUS 2270C, MUS 2271C

MUS 2270C Aural Perception II: This class provides further practice in melodic and harmonic dictation and sight-singing; it correlates with MUS 2201C. A special component deals with solmization skills in sight reading.

Instructor: L. Stodola Format: Lab 2 hours

Prerequisites: MUS 1201A & MUS 1202B, MUS 1270C, MUS 1271C

Co-requisites: MUS 2201C, MUS 2271C Instructor: R. Byham
Format: Lab 2 hours

Prerequisites: MUS 1201A & MUS 1202B, MUS

1270C, MUS 1271C

Co-requisites: MUS 2201C, MUS 2270C

\*MUS 3270C Aural Perception III: Advanced sight-singing and dictation. Singing music of all periods on solfa syllables and letter names with emphasis on contemporary music. Dictation of modulating excerpts in four-part chorales. Chromaticism, modality, whole-tone and contemporary music are studied along with musical examples of more rhythmic complexity. Also included: singing and dictation of atonal compositions, advanced chords, sing and play exercises.

Instructor: P. Perron
Format: Lab 2 hours

Prerequisites: MUS 2201C, MUS 2270C, MUS

2271C

MUS 3280C Counterpoint: Prerequisite: MUS 2201C. The development of skills in polyphonic architecture in two- and three-voice 16th century contrapuntal style using canonic techniques. An introduction to 18th century counterpoint: inventions, canons, and fugal expositions, etc.

Instructor: D. Farrell
Format: Lecture 2 hours
Prerequisite: MUS 2201C

MUS 3282C Orchestration: A survey of the development of the orchestra and the orchestral instruments with an introduction to acoustics. Technique in the deployment of instrumental combinations is emphasized through practical exercises in scoring for a medium-sized orchestra common in the 20th century.

Instructor: S. Tittle
Format: Lecture 2 hours
Prerequisite: MUS 2201C

MUS 4280C Advanced Harmony and Counterpoint: The application of acquired harmonic and contrapuntal technique to various instrumental and vocal textures and forms; chorale

prelude and fugue.
Instructor: W. Kemp
Format: Lecture 2 hours

Prerequisites: MUS 2201C and MUS 3280C

MUS 4281C Form and Analysis: Analytic study of the form and content of selected compositions in various styles and idioms.

Instructor: W. Kemp
Format: Lecture 2 hours

Prerequisites: MUS 2201C, MUS 2350C, MUS

2351B and MUS 3280C

### Composition

MUS 2287R Electronic and Experimental Music Introduction to the experimental Sound Studio. Recording, mixing, and tape manipulation techniques; analysis and composition of tape music; voltage control concepts, synthesizer theory and practice. Composition and live performance with electronics; group improvisation with both studio and personal resources. Design and execution of live performance situations which may include verbal, visual and other theatrical elements.

Instructor: S. Tittle Format: Lab 3 hours

Prerequisite: Interview with Instructor

MUS 3210R, MUS 4210R Composition I, II: Particular works are analyzed to serve as a springboard for original composition by the student. Students' works are evaluated in small group discussions and in individual tutorial sessions.

Instructor:
Prerequisites:

S. Tittle, D.M. Farrell
Permission of the Department, an
interview with the instructor, and
the submission of a folio of
original compositions for
assessment by the composition
faculty.

\*MUS 4271C Bass Continuo, Service Playing and Accompaniment: This class is designed to teach elementary principles of basso continuo and realization of figured bass as well as the practical study of the role of the organ in worship. Students will gain experience in continuo playing through ensemble participation. Topics for study in service playing include solo and anthem accompaniment, hymn playing, and examination of various forms of service music.

Instructor:
Format:

Staff
Lab 2 hours

Prerequisite: Departmental consent and an interview with the instructor

MUS 4282A Choral Arranging: See MUS 4482A, Music Education.

Instructor: D.M. Farrell Format: Lecture 2 hours

MUS 4299C Area Graduation Requirement (Composition)

### Performance

Note: The various levels of applied study indicate the year of study in the Department and are not intended solely as an indication of relative standard. Term gradings are based upon progress as well as upon the actual performing standard displayed in the jury examination.

Classes offered in all band and orchestral instruments, guitar and lute, piano, organ,

harpsichord, recorder, voice. Normally all students receive a one hour weekly individual lesson in their major performance idiom. In addition to the one-hour lesson, and appropriate to the idiom, group instruction in technique and repertoire may be a required part of all sequences of Applied Skills classes.

Applied Skills classes are designated as follows: MUS 1101R, MUS 2101R, MUS 3101R, MUS 4101R: Voice I, II, III, IV MUS 1102R, MUS 2102R, MUS 3102R, MUS 4102R: Guitar I, II, III, IV MUS 1103R, MUS 2103R, MUS 3103R, MUS 4103R: Piano I, II, III, IV MUS 1104R, MUS 2104R, MUS 3104R, MUS 4104R: Organ I, II, III, IV MUS 1105R, MUS 2105R, MUS 3105R, MUS 4105R: Violin I, II, III, IV MUS 1106R, MUS 2106R, MUS 3106R, MUS 4106R: Viola I, II, III, IV MUS 1107R, MUS 2107R, MUS 3107R, MUS 4107R: Cello I, II, III, IV MUS 1108R, MUS 2108R, MUS 3108R, MUS 4108R: Double Bass I, II, III, IV MUS 1109R, MUS 2109R, MUS 3109R, MUS 4109R: Flute I, II, III, IV MUS 1110R, MUS 2110R, MUS 3110R, MUS 4110R: Oboe I, II, III, IV MUS 1111R, MUS 2111R, MUS 3111R, MUS 4111R: Clarinet I, II, III, IV MUS 1112R, MUS 2112R, MUS 3112R, MUS 4112R: Bassoon I. II. III. IV MUS 1113R, MUS 2113R, MUS 3113R, MUS 4113R: Saxophone I, II, III, IV MUS 1114R, MUS 2114R, MUS 3114R, MUS 4114R: French Horn I, II, III, IV MUS 1115R, MUS 2115R, MUS 3115R, MUS 4115R: Trumpet I, II, III, IV MUS 1116R, MUS 2116R, MUS 3116R, MUS 4116R: Trombone I, II, III, IV MUS 1117R, MUS 2117R, MUS 3117R, MUS 4117R: Tuba I, II, III, IV MUS 1118R, MUS 2118R, MUS 3118R, MUS 4118R: Percussion I, II, III, IV MUS 1119R, MUS 2119R, MUS 3119R, MUS 4119R: Lute I. II. III. IV MUS 1120R, MUS 2120R, MUS 3120R, MUS 4120R: Harpsichord I, II, III, IV MUS 1121R, MUS 2121R, MUS 3121R, MUS 4121R: Recorder I, II, III, IV

MUS 4150R Advanced Applied Skill: By special permission of the Department a student may enrol in a fifth year of an applied skill, subject to enrolment quotas and budget.

MUS 0100R Foundational Applied Skills: By special recommendation some music majors may be advised by the Auditioning Committee to begin individual lessons at a level prerequisite to 1000-level Applied Skills classes.

MUS 2160C Conducting:

Instructor: P. Djokic Format: Lab 2 hours

Co-requisites: MUS 2201C, MUS 2270C, MUS

2271C

MUS 3161C Advanced Choral Techniques: Study of the distinctive features of conducting choral ensembles with emphasis on rehearsal technique, score preparation, interpretation and group methods of building vocal tone. Practical experience in conducting. Usually offered every second year.

Instructor: D. Wilson
Format: Lab 2 hours

Prerequisites: MUS 2201C, MUS 2270C, MUS

2271C, MUS 2260C

MUS 4198C Church Music Internship: This class is reserved for students in the Fourth Year of the BMus Organ and Church Music Programme. Under the guidance of the liturgical and musical staff of the Atlantic School of Theology, students will prepare and perform Services pertaining to the principal church denominations. In the second term, students will be assigned to a minimum of three representative city churches, for observation and practice of the Service, supervised by the Department in collaboration with the city church musicians and clergy participating in the programme.

Instructor: D. MacDonald, Staff Coordinator Prerequisite: Permission of the Department

MUS 3199C Recital: Required of all third year Bachelor of Music students whose concentration is in Performance.

MUS 4199C Area Graduation Requirement (Recital)

#### Music Education

Prerequisites for all classes: permission of the Department, and an interview with the designated member of the Music Education faculty.

### **Core Classes**

MUS 3400R Elementary Classroom Teaching Methods: An introduction to the development of a music programme at the elementary level. Emphasis is on how to teach song materials, movement and creativity, reading and writing skills and what to listen for in music. The educational philosophies of Kodaly and Orff are examined in some detail. Solmization, hand signs, rhythm names and body co-ordination are some of the skills to be developed.

Instructor: P. Perron
Format: Lecture 3 hours

MUS 3470C Elementary Classroom Field Experience: Students must spend a minimum of 100 hours in various elementary schools during the school year practice teaching (75%) and observing master teachers (25%). This consists of one morning per week during the university year and a three week period in April-May. P. Perron Instructor:

MUS 3480C Band Instruments: A practical introduction to the principal band instruments. Group instruction is offered in flute, oboe or bassoon, saxophone, trumpet or French horn, trombone and tuba, and percussion. This class normally is restricted to students majoring in wind, brass or percussion instruments.

Instructor: Format:

J. Stern, Staff Coordinator Lab 2 hours

MUS 3481C String Instruments: A practical introduction in group lessons to the instruments of the string orchestra. This class normally is restricted to students majoring in a string instrument.

Instructor:

N. Babineau, Staff Coordinator

Format: Lab 2 hours

**MUS 4400C Secondary Classroom Teaching** Methods: An introduction to the development of a music programme at the secondary level. Emphasis is on how to teach a general music class exploring the use of song materials, music theory, movement and creativity and listening skills.

Instructor: Format:

P. Perron Lecture 1 1/2 hours

MUS 4470C Secondary Classroom Field Experience: Students must spend a minimum of 100 hours in various secondary school classrooms during the school year practice teaching (75%) and observing master teachers (25%). This consists of one morning per week during the university year and a three week period in April-May.

Instructor: P. Perron

MUS 4480C Band Instruments II: A continuation of MUS 3480C.

Instructor:

J. Stern, Staff Coordinator

Lab 2 hours Format:

MUS 4481C Band Methods and Field Experience: A survey of the literature for band, band methods for schools and purchase and maintenance of band instruments; supervised band leadership practice in the school setting.

Instructor: T. Hill Lab 2 hours Format: MUS 3460A Prerequisite:

MUS 4483C String Methods and Field Experience: A survey of literature and string methods for schools and purchase and maintenance of string

instruments; supervised string teaching practice in the school setting.

N. Babineau Instructor: Format: Lab 2 hours

MUS 3481C or permission Prerequisites:

MUS 4490A/B Orff Method and Practice, Level One, Basic: An introduction to Carl Orff's Music for Children designed for the elementary school classroom teacher and music specialists; the material is also suitable for those using music in the pre-school, recreational or studio setting. Emphasis is on how to apply the four principal elements of the Orff approach - speech, movement, rhythm and melody - to the teaching of basic musical concepts (beat, rhythm, simple metre, pentatonic scale, fundamental Bourdon. phrasing, form and notation). Creative procedures and teaching methods are explored using song. Orff instruments and the recorder. Instructor: Staff

Format: Lecture and Practicum Prerequisite: Permission of the Department

MUS 4491A/B Orff Method and Practice Level Two. Intermediate: A continuation of MUS 4490A/B at the intermediate level. Emphasis is on the acquisition and practice of procedures and methods of the Orff approach using increasingly developed musical materials and constructs (complete scale repertoire, melodic formuation, harmonic relationships and chordal formations, cross-rhythms and irregular metres, rondo and antiphony). Advanced training is given in instrumental technique (recorder, hand drum, mallets, etc.). The Orff approach is applied to ways of musically interpreting and improvising children's speech, recitation, poetry, and drama.

Instructor: Staff

Format: Lecture and Practicum

Prerequisite: MUS 4490A/B or a similar class in Basic Orff; an interview with

the Department.

#### **Electives**

MUS 4462A Guitar in the Classroom: Introductory guitar instruction including vocal/choral accompanying methods and techniques for the school classroom setting, tablature reading and finger-style playing, development of skills in a variety of accompaniment and rhythmic figurations. Practical applications will be available in MUS 3470C/4470C.

Instructor: Format:

C. van Feggelen Lab 2 hours

MUS 4471A/B/C Field Projects: Under supervision, students design a project that results in an in-depth study of the theoretical and practical aspects of a particular area of music education. The project entails library research as well as working with specialists in the field.

MUS 4482A Choral Arranging: Arranging for the school choral ensemble.

Instructor:

D. Farrell Lecture 2 hours Prerequisite: MUS 3282C

### classes Available to Non-Majors

MIS 1000R Listening to Music: Designed for the interested listener who desires to acquire an informed response to musical experiences. A knowledge of musical notation and terminology is not a prerequisite except for Foundational Music students assigned to this class.

The class includes a survey of the evolution of music from primitive cultures to the modern age; music in contemporary society; music in non-Western civilizations; music and image; music and the related arts; the art and psychology of

W.H. Kemp Instructor: Lecture 3 hours Format:

MIS 2007R Guitar and Lute: For students with a serious interest in classical guitar and lute playing and for whom it is not possible to provide individual instruction. Basic playing technique and the history of fretted instruments.

Instructor: Format:

C. van Feggelen Lab 2 hours

Prerequisite: Personal interview with Instructor

MUS 2008R Modern Guitar: A class for students with a serious interest in preparing for studio guitar playing and including jazz, folk, rock and accompanying idioms. Class instruction and ensemble playing in improvisation, score reading, chording and arranging.

Instructor: Format:

C. van Feggelen Lab 2 hours

Prerequisite: Interview with Instructor

\*MUS 2021R Music and Literature Since the Enlightenment: An interdisciplinary class open to students not majoring in Music. There is no prerequisite. The discussion of music in this class assumes little or no musical background and literary works will be read in translation. About twelve major works (or smaller groups of works) will be considered. About half of these will focus on how different media can converge or digress on the same subject. Most of the remaining works will be large symphonic works which owe a clear debt to specific literary works or more general literary influences.

Format:

Instructor: D. Schroeder Lecture 2 hours

The following classes, previously described, are also available:

MUS 1001A Materials of Music MUS 1002B Introductory Music Theory

MUS 2087R, MUS 2287R Electronic and **Experimental Music** \*MUS 2011R, \*MUS 3311R History of Opera \*MUS 2012R, \*MUS 3312R Music and Psychology

\*MUS 2013R, \*MUS 3313R The Evolution of

#### **Ensembles**

Participation in both large and small ensembles is required of all students whose major field of study is music in each of the years of the degree programmes. Details of specific participation requirements are available in the Department of Music.

Membership in the various ensembles is open to the University and the community by audition.

Following is a list of the ensembles sponsored by the Department of Music:

MUS Dalhousie Chorale (W.H. Kemp): I. 0151, II. 0251, III. 0351, IV. 0451, V. 0551, Found. 0051.

MUS Dalhousie Chamber Choir (W.H. Kemp): I. 0152, II. 0252, III. 0352, IV. 0452, V. 0552, Found. 0052.

MUS Dalhousie Community Concert Band (E. Fralick): I. 0153, II. 0253, III. 0353, IV. 0453, V. 0553, Found, 0053,

MUS Dalhousie Chamber Orchestra (P. Djokic): I. 0154, II. 0254, III. 0354, IV. 0454, V. 0554, Found, 0054

MUS Dalhousie Jazz Band (D. Palmer): I. 0155, II. 0255, III. 0355, IV. 0455, V. 0555, Found.

MUS Dalhousie Brass Ensemble (Staff): I. 0156, II. 0256, III. 0356, IV. 0456, V. 0556, Found.

MUS Dalhousie Musica Antiqua (D. Wilson): I. 0157, II. 0257, III. 0357, IV. 0457, V. 0557, Found.0057.

MUS Dalhousie Percussion Ensemble (J. Faraday): I. 0158, II. 0258, III. 0358, IV. 0458, V. 0558, Found, 0058.

MUS Dalhousie Opera Workshop (J. Morris): I. 0159, II. 0259, III. 0359, IV. 0459, V. 0559, Found. 0059.

MUS Guitar Ensemble (C. van Feggelen): I. 0160, II. 0260, III. 0360, IV. 0460, V. 0560, Found. 0060

MUS Small Ensembles (staff coaches): I. 0161. II. 0261, III. 0361, IV. 0461, V. 0561, Found. 0061.

MUS Accompanying: I. 0162, II. 0262, III. 0362, IV. 0462, V. 0562, Found. 0062.

MUS Chebucto Orchestra (by invitation, and Department permission): I. 0163, II. 0263, III. 0363, IV. 0463, V. 0563, Found. 0063.

MUS Nova Scotia Youth Orchestra (by invitation, and Department permission): I. 0164, II. 0264, III. 0364, IV. 0464, V. 0564, Found. 0064.

MUS Scotia Wind Ensemble (by invitation, and Department permission): I. 0165, II. 0265, III. 0365, IV. 0465, V. 0565, Found. 0065.

### **Philosophy**

Location:

1400 Henry Street

Halifax, N.S.

Telephone: (

(902) 494-3810

### Chair

S.A.M. Burns (494-3811)

### **Undergraduate Advisors**

N.C. Brett (494-3811) S.A.M. Burns (494-3811) S. Sherwin (494-3810)

T. Tomkow (494-3811)

#### **Emeritus Professor**

D. Braybrooke, BA (Harv.), MA, PhD (Corn.), FRSC

#### **Professors**

S.A.M. Burns, BA (Acad.), MA (Alta.), PhD (Lond.)

R.M. Campbell, BA (Harv.), PhD (Corn.)
W.F. Hare, BA (Lond.), MA (Leic.), PhD (Tor.),
(Major appointment in Education Dept.)
R.M. Martin, BA (Col.), MA, PhD (Mich.)
R.P. Puccetti, BA (Ill.), MA (Tor.), Docteur de
l'Université de Paris (Sorbonne)
P.K. Schotch, PhD (Waterloo)
S.B. Sherwin, BA (York), PhD (Stanford)

### **Associate Professors**

N.C. Brett, BA (New Hampshire), MA, PhD (Waterloo)

D. MacIntosh, BA (Queens), MA (Waterloo), PhD (Tor.)

T. Tomkow, BA (SFU), PhD (Cantab.)

T. Vinci, BA (Tor.), MA, PhD (Pitts.)

#### **Adjunct Professors**

M. Fry, BA (Vind.), MA (Dal), BLitt (Oxon.), DCL (Vind.)

A. Kernohan, SB (MIT), MSc (Tor.), MA (Dal), PhD (Tor.)

### **Visiting Professors**

W. Barthelemy, BA (Wright), MA (Man.), PhD (Waterloo)
S. Wein, PhD (Waterloo)

### Beginning in Philosophy

There are many different ways of beginning in philosophy. The Dalhousie Philosophy Department offers three sorts of classes for beginners: (1) general survey introductions, which will give you a taste of a variety of questions and answers; (2) introductions to special areas; (3) logic, which is the study of the theory and techniques of good reasoning. Students wishing to major in philosophy are encouraged to begin with Introduction to Philosophy (either PHIL 1000R or 1010R or 2040A or 2050B) in which a wide range of philosophical issues is discussed. But any student in any year may begin philosophy with a class that has no prerequisites. These include the 1000-level classes and many of the classes at the 2000-level. Any of these classes provides the student with a good introduction to philosophical thinking. Choose the class that best suits your interests - it's not necessary to start with a general survey. Some 2000-level classes have prerequisites which can be met either by a philosophy class or a class in another relevant discipline. The King's College Foundation Year satisfies the requirement of a previous philosophy class. Classes at the 3000-level and beyond usually have further requirements. See the class descriptions below.

### Degree Programmes

### **BA** with Honours in Philosophy

Students wishing to specialize in philosophy should take an honours degree, the normal preparation for graduate study in philosophy. An honours degree will include an honours qualifying essay and the equivalent of at least ten full-year classes in philosophy, including: (a) at least two half-year classes (or the equivalent) in "Logic;" (b) at least two half-year classes (or the equivalent) in "History of Philosophy;" (c) at least six half-year classes (or the equivalent) at the 3000-level or above; (d) at least two half-year classes (or the equivalent) at the 4000-level. Students should contact the department for instructions regarding the honours qualifying essay.

### BA with Advanced Major in Philosophy

In their final fifteen classes, students must include at least six full-year classes in philosophy beyond the 1000-level (two half-year classes may be substituted for a full-year class) including: (a) at least one "Logic" class (half or full-year);

(b) at least one full-year "History of Philosophy" class (or two half-year classes); (c) at least three full-year classes (or equivalent in half-year classes) at the 3000-level or above.

### RA with Major in Philosophy

In their second and third years, students must take at least four full-year classes in philosophy beyond the 1000-level (two half-year classes may be substituted for a full-year class) including: (a) at least one "Logic" class (half or full-year); (b) at least one "History of Philosophy" class (half or full-year); (c) at least two full-year classes or four half-year classes at the 3000-level or above. All students planning to take a general degree in philosophy should first talk to an undergraduate advisor in the department.

Note: Two half-year classes at a certain level or in a certain area are considered the equivalent of one full-year class at that level or in that area. In the class descriptions to follow, "one class" unqualified will mean "one full-year class or two half-year classes." Also note that only classes whose titles begin with "Logic" or "History of Philosophy" may be used to satisfy the logic and history of philosophy requirements for a BA with major or honours in philosophy.

### Classes Offered

Note: Many classes are listed as being Exclusionary to one another. This means that students may not take both classes so designated. The class numbers designate classes which, prior to 1984-85, were numbered without the last digit (zero), e.g., the present class PHIL 2130R was previously called Philosophy 213. The prerequisite and exclusionary designations below should be interpreted accordingly. Detailed descriptions are available from the department on request.

Note: Classes marked \* may not be offered every year. Please consult the current timetable on registration to determine if these classes are offered.

#### 1000-Level

PHIL 1000R Introduction to Philosophy: An introduction to a variety of philosophical problems, such as the relation of mind to body, freedom of the will, the foundation of morality, the existence of God, the nature of personal identity, and the possibility of knowledge based on reason and experience. Sections differ somewhat in approach and requirements. Consult the department to find out which ones especially suit you. This class does not satisfy the Faculty Writing Requirement. Instructor: Staff.

Format:

rmat: Lecture/discussion 2 hours

Prerequisite: None Enrolment: 100 **Exclusion:** 

PHIL 1010R, PHIL 1020R, PHIL 2000R, PHIL 2040A and PHIL

2050B

PHIL 1010R Introduction to Philosophy: See description for PHIL 1000R. This class does satisfy the Faculty Writing Requirement.

Instructor: Staff

Format: Lecture/discussion 2-3 hours

Prerequisite: None Enrolment: 50

Exclusion: PHIL 1000R, PHIL 1020R, PHIL

2000R, PHIL 2040A and PHIL

2050B

PHIL 1090A/B How to Win an Argument: This class is devoted to developing the practical skills involved in evaluating reasoning and producing convincing arguments. Note this class does not count toward satisfying the logic requirement for the major or honours programme.

Instructor: T. Tomkow

Format: Lecture/discussion 2 hours

Prerequisite: None, for first year students only.

Enrolment: 100

Exclusion: PHIL 2150A/B

PHIL 1100A/B Legal Thinking: Examination of controversial legal cases leading to increased understanding of the nature of law and the techniques of practical moral reasoning.

Instructor: N. Brett

Format: Lecture/discussion 2 hours

Prerequisite: None Enrolment: 100 Exclusion: None

\*PHIL 1111R Logic: Elementary Symbolic Logic: An introduction to an artifical language constructed so as to make the operations of reasoning more precise. Meets logic requirement for majors only if taken in first year.

Instructors: P. Schotch, R. Martin
Format: Lecture/discussion 2-3 hours

Prerequisite: None Enrolment: 100

Exclusion: PHIL 1112A/B, PHIL 2110R and

**PHIL 2130A** 

\*PHIL 1112A/B Logic: Elementary Symbolic Logic: An abbreviated version of PHIL 1111R. Meets logic requirement for majors only if taken in first year.

Instructors: P. Schotch, R. Martin

Format: Lecture/discussion 2 hours

Prerequisite: None Enrolment: 100

Exclusion: PHIL 1111R, PHIL 2110R and

**PHIL 2130A** 

#### 2000-Level

\*PHIL 2030R Death and the Mind: An enquiry into the nature of death, the possibility of survival, immortality and reincarnation and the relevance of belief in an afterlife to the way we live our lives.

Philosophy

R.P. Puccetti Instructor:

Lecture/discussion 2 hours Format:

None Prerequisite: Enrolment: 50 None Exclusion:

\*PHIL 2040A/2050B Introduction to Philosophy I and II: See description for PHIL 1000R above. A student may take either or both half-year classes. Neither class satisfies the Faculty Writing Requirement.

Instructor: Staff

Lecture/discussion 2 hours Format:

Prerequisite: None 100 Enrolment:

PHIL 1000R, PHIL 1010R, PHIL **Exclusion:** 

1020R and PHIL 2000R

PHIL 2070R Ethics and Politics: This class, formerly known as Justice, Law and Morality (Concepts Version), is complementary to PHIL 2270R (Politics and Ethics). Hobbes is the only author treated in both classes. The class may be taken for credit before, after, or concurrently with the other class. Either class satisfies the minimum requirement in political philosophy for an Honours degree in Political Science. In the first term, the natural law view of justice, expressed by St. Thomas confronts the savage realism of Hobbes' Leviathan. The concept of justice has had a mixed career since Hobbes' time. In Locke's and Hume's doctrines it is narrowly tied to the defence of property. Sometimes, as with the utilitarianism of Bentham and Mill, it has appeared redundant, and Marx held that it would be superseded. In our own time, a major effort has been made by John Rawls to restore justice to the central place in ethics. His theory is considered at length at the end of the second term, after examining Lon Fuller's equally contemporary account of the moral dimensions of law.

Instructor: Staff

Discussion 2-3 hours Format:

Prerequisite: None, one year of university work

in Arts and Social Sciences is recommended as preparation, though first-year students can

succeed.

Enrolment:

PHIL 2070R under its old title, **Exclusion:** 

Justice, Law & Morality:

Concepts Version

POL 2401R Cross-Listed:

\*PHIL 2080R Ethics in the World of Business: Business practices are sometimes in accord with moral principles, sometimes at odds with them.

Where in business is it easiest to be scrupulous? Where is it hardest? Could things be changed for the better, and, if so, what would be involved?

Staff Instructor:

Lecture/discussion 2-3 hours Format:

None Prerequisite: 70 Enrolment: **Exclusion:** None

PHIL 2081A/B/C Ethics in the World of Business. See description for 2080R.

Instructor:

Format: Lecture/discussion 2-3 hours Prerequisite:

None

Enrolment: 70 Exclusion: None

\*PHIL 2100A/B Logic and Knowledge: An introduction to logic, theory of knowledge, and some basic concepts used in contemporary philosophy, through the use of the notion of "possible worlds".

R.M. Martin Instructor: Format: Lecture Prerequisite: None Enrolment: No limit Exclusion: None

PHIL 2130A Logic: Deduction: A systematic introduction to the operations of formal deductive logic. The same topics are covered as in PHIL 1111R, but at a quicker pace, with considerable attention devoted to the relation between artificial and natural language and to the philosophical problems that arise from the study of reasoning. No previous study of logic is presupposed.

Instructor: Format:

P.K. Schotch

Lecture/discussion 2 hours None

Prerequisite: Enrolment:

**Exclusion:** 

PHIL 1111R, PHIL 1112A/B and

PHIL 2110R

PHIL 2140B Logic: Logical Theory I: An introduction to metalogic, with special attention to the soundness and completeness of formal systems, and to the philosophical evaluation of non-classical logics.

P. Schotch Instructor:

Lecture/discussion 2 hours Format: Prerequisite: PHIL 1111R, PHIL 1112A/B or

**PHIL 2130A** 

50 **Enrolment:** None Exclusion:

PHIL 2160A/B Philosophical Issues of Feminism: An examination of various approaches to feminism, and of practical and theoretical issues

associated with feminism, such as abortion, pornography, sexual harassment, and economic equality.

Instructor:

S. Sherwin

Lecture/discussion 3 hours Format:

prerequisite: None Enrolment: 70 Exclusion: None

Cross-Listed: Women's Studies 2500A/B

PHIL 2175A Introduction to Philosophy of gducation: A lecture/discussion class dealing with a broad range of philosophical questions about education including the use of slogans, multiculturalism, teacher education, and the role of the teacher. Students may also take PHIL

2180B. W. Hare Instructor:

Lecture/discussion 2 hours Format: Prerequisite: Not open to first year students

Enrolment: Exclusion: none

Cross-Listed: **EDUC 4221A** 

PHIL 2180B Issues in Philosophy of Education: An introductory level, lecture/discussion class dealing with some fundamental issues in philosophy of education, including indoctrination, open-mindedness and bias-free teaching. Open to students who have taken PHIL 2175A or EDUC 4221A.

W. Hare Instructor:

Lecture/discussion 2 hours Format: Not open to first-year students Exclusion:

Enrolment:

Cross-Listed: EDUC 4222B

\*PHIL 2200R Philosophy of Religion: An introduction to the philosophy of religion. examining such questions as: Why is religion so difficult to define? Is it rational to believe in a divine being? Can religious experiences be validated?

Instructor: R. Puccetti

Lecture/discussion 2 hours Format:

Prerequisite: None Enrolment: Exclusion: None

PHIL 2260A/B Philosophy of Art: Examines questions such as: What is art? Can judgements of artistic value be rational and objective? Can fear of fictional objects be real fear? Can music be a language?

Instructor:

S.A.M. Burns

Format: Lecture/discussion 2 hours Prerequisite: None

Enrolment: 70 Exclusion: None

PHIL 2270R Politics and Ethics: This class, formerly known as Justice, Law and Morality Regimes Version), is complementary to PHIL 2070R. Hobbes is the only author treated in both classes. The class may be taken for credit before, after, or concurrently with the other class. Either class satisfies the minimum requirement in Political philosophy for an Honours degree in

Political Science.

Why, and under what conditions, ought human beings to accept a state with coercive powers expressed in laws and otherwise? What are the proper ends of political association, and how can these be morally justified? What is a just regime? What is the best (or at least the least bad) regime? These are perennial questions addressed by the great political thinkers, and it is to answers put forward by Plato, Aristotle, Machiavelli, Hobbes, Rousseau, Burke, Tocqueville and others that we turn in this class.

Instructor: B.L. Crowley Lecture 2 hours Format:

None, one year of university work Prerequisite:

in Arts and Social Sciences is recommended as preparation, though first-year students can

succeed.

**Enrolment:** 

Cross-Listed:

Exclusion: PHIL 2270R under its old title.

Justice, Law, & Morality:

Regimes Version POL 2400R

PHIL 2350A/B and \*PHIL 2370A/B History of Philosophy: Ancient Philosophy I and II: The beginnings of Western philosophy are studied in the writings of pre-Socratics, Plato, Aristotle, and their successors.

Instructors: T. Vinci, S.A.M. Burns Format: Lecture/discussion 3 hours Prerequisite: One previous class in philosophy

**Enrolment:** Exclusion: None

\*PHIL 2361A/2362B Classical and Early Christian Philosophy: Special attention is given to Plato and Aristotle, and to the Greek philosophy of the first centuries A.D., and its influence on developing Christian thought. Instructors: W.J. Hankey, J.P. Atherton

Format: Lecture/discussion 2 hours Permission of the instructor Prerequisite:

**Enrolment:** Not limited Exclusion: None

Cross-Listed: CLAS 2361A/2362B

PHIL 2380R Medieval Philosophy: Anselm. Aquinas, Ockham, some XIII Century Augustinians and Averroists and late Medieval mystics are studied most closely; attention is given to related political, literary, and theological concerns.

Instructor: R. Crouse

Format: Lecture/discussion 2 hours Prerequisite: Permission of the instructor

**Enrolment:** Not limited Cross-Listed: **CLAS 3380R** 

\*PHIL 2410A/B Philosophy of Psychology: An examination of philosophical issues arising from the scientific study of the mind.

Instructor: T. Tomkow

Format: Lecture/discussion 2 hours

Prerequisite: One previous class in philosophy

or psychology

**Enrolment:** 70 Exclusion: None

\*PHIL 2540A/B Philosophy of History: Can the study of history be scientific? Are there any historical laws? Is history working toward some discernible goal?

Instructor: Staff

Format: Lecture/discussion 2 hours Prerequisite: One previous class in philosophy

or history

Enrolment: Exclusion: None

PHIL 2550A/B Marxist Theory and Its Upshot in the Modern World: Marxist theory combines themes of Hegelian philosophy with the economics of the British classical school. The class will consider how the mature works of Marx and Engels express this combination. It will then trace the fate of the combination in diverse attempts to fit it to circumstances, in Western Europe and in Russia, that Marx did not foresee. Finally it will ask how far any of these versions of Marxism is relevant to the current epoch.

Instructor: Staff

Format: Lecture/discussion 2 hours

Prerequisite: None Enrolment: Exclusion: None Cross-Listed: POL 2455B

PHIL 2610A/B History of Philosophy: The Rationalists: The philosophy of Descartes, Spinoza, and Leibniz.

Instructors: D. MacIntosh, S.A.M. Burns Format: Lecture/discussion 3 hours Prerequisite: One previous class in philosophy

Enrolment: Exclusion: None

PHIL 2620A/B History of Philosophy: The Empiricists: The philosophy of Locke, Berkeley, and Hume, with an introduction to Kant.

Instructors: S.A.M. Burns, T. Vinci, D.

MacIntosh

Format: Lecture/discussion 3 hours Prerequisite: One previous class in philosophy

Enrolment: Exclusion: None

\*PHIL 2660A/B Logic: Understanding Scientific Reasoning: An introduction to the principles of scientific prediction and rational choice. The class examines the workings of chance, or probability. and the theory of games.

Instructor: Staff

Format: Lecture/discussion 2 hours

Prerequisite: None

70 **Enrolment: Exclusion:** None

\*PHIL 2700R Philosophy in Literature: A study of some philosophical themes in modern literature. All readings will be literary works.

Instructor: R.M. Martin Format:

Lecture/discussion 2 hours

Prerequisite: None **Enrolment:** 70

Exclusion: PHIL 2705A/B and COMI.

2705A/B

Cross-Listed: COML 2705A/B

\*PHIL 2705A/B Philosophy in Literature: See description for PHIL 2700R.

Instructor: R.M. Martin

Format: Lecture/discussion 2 hours

Prerequisite: None Enrolment:

Exclusion: PHIL 2700R and COML

2705A/B

Cross-Listed: COML 2705A/B

PHIL 2710A/B Existentialism: A general introduction to existentialist themes and authors including Kierkegaard, Nietzsche, Sartre, and Camus.

Instructor:

N. Brett

Format: Lecture/discussion 2 hours None

Prerequisite: Enrolment: 50

Exclusion: **PHIL 2170R** 

PHIL 2800R Ethics and Health Care: (formerly Ethics & Medicine): Modern health care generates moral problems which cannot be settled on the basis of medical knowledge alone but need to be considered in the light of moral philosophy. Among the problems to be considered in this class are: euthanasia, informed consent, confidentiality, paternalism, coercion, abortion, and the allocation of scarce resources. S. Sherwin

Instructor:

Format: Lecture/discussion 2 hours

Prerequisite: None Enrolment: 80 Exclusion: None

3000-Level

PHIL 3051A/B Theory of Knowledge: A study of fundamental issues in the theory of knowledge. The class examines Skepticism, Rationalism, and Empiricism, and investigates the nature of knowledge, belief, meaning, evidence, and truth. Questions are raised about perception and memory and their relation to knowledge as well as questions about our knowledge of ourselves and other people. Attention is given to ancient and modern authors.

Instructors: Format:

T. Vinci, D. MacIntosh Lecture/discussion 3 hours Prerequisite: PHIL 2610A/B, PHIL 2620A/B or permission of the instructor

Enrolment:

**PHIL 3050R** Exclusion:

PHIL 3060A/B Logic: Logical Theory II: Devoted primarily to the study of formal semantics and its relation to symbolic language.

P. Schotch Instructor:

Lecture/discussion 2 hours Format: PHIL 2130, PHIL 2140 or Prerequisite: permission of the instructor

25 Enrolment: Exclusion: None

PHIL 3100R Ethics: A systematic study of the foundation of morality, including readings from Kant, Foundation of the Metaphysics of Morals; Hume, A Treatise of Human Nature; and Rawls, A Theory of Justice.

Instructor: R. Campbell

Lecture/discussion 3 hours Format: Prerequisite: 2 previous classes in philosophy,

preferably classes in history of philosophy and logic

Enrolment:

Exclusion: **PHIL 3105A/B** 

•PHIL 3105A/B/C Ethics: An abbreviated version of PHIL 3100R.

Instructor: N. Brett

Lecture/discussion 2-3 hours Format: 2 previous classes in philosophy, Prerequisite: preferably classes in history of

philosophy and logic

**Enrolment:** 

Exclusion: **PHIL 3100R** 

PHIL 3170A/B Theories of Feminism: A study of the theoretic underpinning of the major feminist theories in critical comparision, concentrating on the ideological disputes and the implications for traditional approaches to social and political thought.

Instructor: S. Sherwin Format: Seminar 2 hours

Prerequisite: 2 previous classes in Philosophy or

Women's Studies **Enrolment:** 25

Exclusion: None

Cross-Listed: Women's Studies 3500A/B

PHIL 3211A/B Philosophy of Law: Is coercion central to the concept of law? How are law and morality related? These and other issues relating to the analysis and evaluation of law will be dealt with in a way that utilizes specific statues and cases, e.g. the Narcotics Control Act and the Morgentaler Case.

Instructor: N. Brett. Format:

Lecture/discussion 2 hours Prerequisite: One previous class in philosophy 25

Enrolment:

PHIL 3300A/B Philosophy of Language: What does it mean to say that the elements of language have meaning?

Instructors: R. Martin, D. MacIntosh

Lecture/discussion 2 hours Format: Prerequisite: Two previous classes in

philosophy including one logic

class, half- or full-year

Enrolment: 30

**Exclusion:** None

PHIL 3420A/B Philosophy of Biology: The class begins with a general introduction to the philosophy of science, focusing on the often conflicting criteria for evaluating scientific theories. The relative importance of successful novel predictions, consistency, simplicity, scope, and fruitfulness are assessed in relation to the current status of Darwinian evolutionary theory. In considering the competing views of Popper, Hempel, Kuhn, Lakatos, and Giere, emphasis will be placed on the logic of scientific reasoning and the question whether there can be objectivity and progress in science. The class then turns to issues surrounding the role of teleology in current biological thought: the interpretation and significance of biological functions, the debate about whether genes are the fundamental units of natural selection, and the alleged reduction of modern genetics to physics and chemistry. Finally, the class considers the implications of human sociobiology for matters of traditional philosophical concern: the possibility of biological determinism, the origins of morality, and the reliability of cognitive functions. Instructor: R. Campbell

Format: Lecture/discussion 2 hours One previous class in philosophy Prerequisite:

or biology

Enrolment: 70

PHIL 2420A/B Exclusion: Cross-Listed: BIOL 3580A/B

\*PHIL 3440A/B Philosophy of Mind: A systematic study of the mind-body problem and/or theories of personal identity.

Instructor: T. Tomko Format:

Lecture/discussion 2 hours Two previous classes in Prerequisite: philosophy

Enrolment: 30

Exclusion: PHIL 4460A/B

\*PHIL 3460A/B Mind and Brain: An interdisciplinary approach, combining philosophical analysis and neuroscientific data to study current controversies about the relation between brain function and conscious experience, such as why consciousness evolved and how it is organized in the normal human brain, and whether the mental can be construed as itself physical.

Instructor: R. Puccetti

Lecture/discussion 2 hours Format:

Prerequisite: Two previous classes in philosophy

Enrolment: **Exclusion:** None

\*PHIL 3520A/B Philosophy of Social Science: An examination of philosophical questions about the presupposition, aims, and methods of the social sciences, for example, whether the quantitative methods of the natural sciences are appropriate in the social sciences.

Instructor: Staff

Lecture/discussion 2 hours Format: Prerequisite: One previous class in philosophy, political science, economics, or

sociology and social anthropology

Enrolment:

Exclusion: PHIL 351A/B and PHIL 2510A/B

Cross-Listed: POL 3496A/B

PHIL 3530A/B Freedom, Action, and

Responsibility: An investigation of the nature of action, seeking criteria for individuating, describing, and explaining actions. Topics may include the roles of volitions, intentions, motives, and reasons in actions; responsibility for actions and the concept of free actions.

Instructors: P. Schotch, D. MacIntosh Lecture/discussion 2 hours Format: Two previous classes in philosophy

Prerequisite: Enrolment:

Exclusion: PHIL 4450R, PHIL 4530A/B

\*PHIL 3630A/B History of Philosophy: Kant: Special attention will be paid to Kant's

metaphysics.

Instructor: T. Vinci

Lecture/discussion 2 hours Format: PHIL 2610A/B or PHIL 2620A/B Prerequisite:

or permission of the instructor

Enrolment: Exclusion: None

\*PHIL 3640A/B History of Philosophy: Twentieth-Century Philosophy: The Twentieth Century has been a period of revolutionary change in Anglophone philosophy. This class surveys the most influential figures, including Frege, Russell, Wittgenstein, and Quine.

Instructor: D. MacIntosh

Format: Lecture/discussion 2 hours Prerequisite: One previous class in the history

of philosophy or permission of the

instructor

**Enrolment:** 30 **Exclusion:** None

\*PHIL 3670A/B Philosophy of Science: Induction, probability, and explanation are studied with special attention to the nature of scientific theories. No scientific background is presupposed.

Instructor: D. MacIntosh Format: Lecture/discussion

Prerequisite: At least two previous classes in philosophy, including one half- on full-year logic class such as PHII 2660A/B

Enrolment: 30

None

**Exclusion:** 

PHIL 3720R Phenomenology of Literature: The class will examine how philosophical and literary works function in terms of their uses of language. presentation of ideas, and articulation of experience. What is the difference between literature and philosophy? How can literature increase one's understanding of the real world? Readings will include both literature and philosophy.

Instructor: M. Fry

Lecture/discusion Format:

Prerequisite: A class in history of philosophy or permission of instructor. Previous study of literature is

desirable

Enrolment: 10 Exclusion: None

\*PHIL 3851A/B Metaphysics: A study of topics such as the nature of substance and change, body and mind, cause and effect, and the concept of

existence. Instructor:

T. Tomkow Lecture/discussion

Format: Prerequisite:

Two previous philosophy classes including at least one half- or

full-year logic class

**Enrolment:** 

**Exclusion: PHIL 3850R** 

\*PHIL 3900A/B Logic: Logic and Philosophical Analysis: This class will examine the application of logical theory to philosophical problems and issues in the philosophy of logic. Topics in this area include: reference and definite descriptions, problems of intensionality, relativized identity and sortals, bivalence and the sorites paradoxes, logicism and set theoretic paradoxes, trans-world identity, paradoxes of confirmation, counterfactuals, multivalued logic, quantum logic, Arrow's theorem, analyticity and the a priori, negative existentials.

Instructor: Staff

Lecture/discussion Format:

Prerequisite: Two previous philosophy classes

including one half- or full-year class in modern symbolic logic 30

**Enrolment: Exclusion:** 

None

#### 4000-Level

Note: Classes at this level are intended for advanced undergraduates with a strong background in philosophy. No specific prerequisites are listed, but it is assumed that normally a student will have already taken

relevant classes at the 3000-level. Classes with relevables beginning "Topics in . . ." have no description, since the selection of topics and instructor is determined after the time of calendar preparation. The format for these classes is eminar, 2 hours, and enrolment is limited to 15. Interested students should consult the department for up-to-date information.

PHIL 4055A/B Topics in Epistemology

SPHIL 4070A/B Topics in Philosophical Psychology

\*PHIL 4080A/B Topics in Logical Theory

\*PHIL 4115A/B Topics in Ethics I

PHIL 4120A/B Theory of Rational Decision: A study of foundational problems in contemporary theory of rational decision, drawing on work by nhilosophers, psychologists, economists and mathematicians. Instructor:R. Campbell

PHIL 4125 A/B Topics in Ethics II

•PHIL 4190A/B Topics in the History of Philosophy I

PHIL 4191A/B Topics in the History of Philosophy II

\*PHIL 4192A/B Topics in the History of Philosophy III

PHIL 4200A/B Topics in Normative Theory

PHIL 4215A/B Topics in the Philosophy of Law

PHIL 4220A/B Contemporary Philosophical Issues: Intensive study of a few topics which are currently being debated and may fall outside of or cut across standard classification of areas of interest. Examples are: artifical intelligence, probability, sociobiology, causal theories, reduction. Instructor: Staff

PHIL 4430A/B Game Theory as a Foundation for Ethics and Politics: The most innovative recent work in ethical theory has applied the theory of games to the perennial problem of the social contract. To what extent can any organized society to which people freely adhere be represented as constituted by rules arrived at by rational agents trying each to arrive at the best bargain about rules with the other agents present? These rules can be regarded simultaneously as the foundation of political organization and as elementary rules of ethics, and a study of this topic forms the basis of the class. Instructor: Staff

Seminar Format:

Permission of the instructor Prerequisite:

Exclusion:

POL 4485A/B and ECON Cross-Listed:

4447A/B

\*PHIL 4470A/B Utilitarianism, Classical Liberalism, and Democracy: The study of two beliefs characteristic of classical liberalism: that good government is strictly limited government, and that there is no standard for social policy beyond the combination of personal preferences.

Staff Instructor: Seminar

Format: Permission of the instructor Prerequisite:

Exclusion:

POL 4479A/B and ECON Cross-Listed:

4446A/B

\*PHIL 4480A/B Social Choice Theory: Arrow's theorem brings together the theory of voting and welfare economics, seemingly leading both (and the theory of democracy as well) to ruin. This class will consider how to cope with the problem. Cross-listed in Economics and Political Science.

Staff Instructor: Seminar Format:

Permission of the instructor Prerequisite:

Exclusion: None

POL 4480A/B and ECON Cross-Listed:

4448A/B

\*PHIL 4500 A/B Topics in Feminist Philosophy: In this class we shall explore some of the current research in a focused area of feminist philosophy, such as feminist ethics, feminist epistemology, feminist philosophy of science, or postmodern feminism.

S. Sherwi Instructor: seminar, 2 hrs

Format: strong background in philosophy Prerequisite:

or feminist theory (normally including at least one previous class in feminist philosophy or

instructor's consent)

**Enrolment:** 

Cross-listing: WOST 4500A/B

\*PHIL 4510A/B Topics in the Philosophy of

\*PHIL 4600A/B Philosophy of Religion \*PHIL 4680A/B Topics in the Philosophy of Science

\*PHIL 4855A/B Topics in Metaphysics

PHIL 4940A/B, 4960A/B, 4980A/B & 4950R, 4970R, 4990R. Directed Reading: Consult department for details. In special cases, classes to suit individual interests can be developed jointly by a student and an instructor.

Staff Instructor:

Permission of instructor Prerequisite:

## **Political Science**

Location:

Arts and Administration Building,

3rd Floor Halifax, N.S.

Telephone:

(902) 494-2396

#### **Undergraduate Advisors**

Brian Lee Crowley - Undergraduate (494-6628) Herman Bakvis - Honours (494-6627)

#### Chair

R. Boardman (494-2392)

#### **Professors** Emeritus

J.H. Aitchison, BA, BEd (Sask.), BSc (Lond.), PhD (Tor.)
J.M. Beck, BA (Acadia), MA, PhD (Tor.), LLD (Dal), LLD (St. FX), LLD (RMC), FRSC E.M. Borgese, OC, Dip. Mus. (Zurich), LHD (Mt. St. V.)
D. Braybrooke, BA (Harv.), MA, PhD (Corn.), FRSC

#### **Professors**

P.C. Aucoin, BA (SMU), MA (Dal), PhD (Queen's)
H. Bakvis, BA (Queen's), MA, PhD (UBC)
R. Boardman, BSc, PhD (Lond.)
D.M. Cameron, BA (Queen's), MA, MPhil, PhD (Tor.)
J.G. Eayrs, OC, BA (Tor.), AM, PhD (Col.),
FRSC (Eric Dennis Memorial Professor of Government and Political Science)
T.M. Shaw, BA (Sussex), MA (East Africa, Prin.),
PhD (Prin.)
D.W. Stairs, BA (Dal), MA (Oxon.), PhD (Tor.)
FRSC Vice-President, Academic and Research
G.R. Winham, BA (Bowdoin), Dip. in Int. Law (Manc.), PhD (N.Car.)

#### **Associate Professors**

D.L. Luke, BSc, MSc, PhD (London)
D.W. Middlemiss, BA, MA, PhD (Tor.), (Director,
Centre for Foreign Policy Studies).
J. Smith, BA (McM), MA, PhD (Dal)

#### **Assistant Professors**

B.L. Crowley, BA (McGill), MSc, Ph.D (London)
R.G. Finbow, BA (Dal), MA (York), PhD
(London)
A. Heard, BA (Dal), MSc (Lond.), PhD (Toronto)
Research

#### What is Political Science?

Politics has been described as "Who Gets What, When, How, Why" in society. The study of politics, or Political Science is one of the oldest academic disciplines known to humankind. In Ancient Greece political philosophers concerned

themselves with creating a good society, and balancing justice with order. Today Political Scientists still study these matters, but the discipline has grown to encompass many aspects of government, such as parliaments, electoral processes and constitutions; or external relations, including issues of war, peace and poverty.

Political Science is important to society because, in an age of complex government, an educated citizenry is the best safeguard for democracy. Political Science is valuable for individuals who want to know more about the values, laws, institutions and policy mechanisms that govern their lives in society, and as well, the differences between their system of government and those in other countries. Beyond this, Political Science is an especially useful preparation for students who wish to pursue careers in teaching, law, public service or business.

Dalhousie University's approach to Political Science is a blend of traditional and modern analysis. The Department offers work in classical political philosophers; and most classes emphasize government structure and policy making, including domestic public administration and foreign policy. Other classes deal with political behaviour such as public opinion or interest group activity. Classes in modern research methods, including quantitative analysis, are also offered.

The admission requirements for Political Science are listed under the Faculty of Arts and Social Sciences. There are no additional requirements for Political Science beyond those of the Faculty.

Students majoring in Political Science are encouraged to seek advice from Professor Brian Lee Crowley, Co-Coordinator of Major Programmes in developing a programme of studies. Students taking an Honours Degree should seek advice from Professor Herman Bakvis, Honours Coordinator. Professor David Cameron is the Coordinator of Graduate Studies.

#### For General Interest

Students who have not yet decided on a major, or are looking for an elective in Political Science, are advised to take one of the Introductory classes. These are POL 1100R (various sections), POL 1103R (which fulfills the the writing class requirement), and POL 1501R. There are no prerequisites for these classes. Each also fulfills the introductory class requirement for Major, Advanced Major, and Honours programmes in Political Science.

## **Degree Programmes**

Students concentrating in Political Science may take a major programme, advanced major, or honours programme. The degree requirements are spelled out in University and Faculty Regulations, and in department regulations outlined below. The specific classes to be taken in each individual programme are chosen in consultation with the

relevant faculty adviser from the Department.
Undergraduate programmes may emphasize one of
the sub-fields of Political Science (Canadian
Government and Politics, Comparative
Government and Politics, Political Theory and
Methodology, and International Politics and
Poreign Policy) or may consist of a general
selection of classes from the Department's
offerings.

## Honours Programme

An honours programme normally consists of a first-year level class and not less than nine nor more than eleven additional classes in Political Science. Although nine to eleven classes represents the range allowed under the general university regulations, the Department recommends quite strongly that the normal honours programme consist of nine classes past the first-year class, including the honours essay. The intent of this recommendation is to encourage our honours students to take supporting class work in related disciplines.

For the purpose of the honours programme the Department has designated six second-year classes as honours core classes. Five of these core classes represent the political science subfields of Canadian politics, comparative politics, political philosophy (two classes) and international politics and the fifth represents the methodological basis for each of the sub-fields. The six core classes by area are as follows:

Canadian politics: POL 2200R Canadian Government and Politics

Comparative politics: POL 2300R Comparative Politics

Political philosophy: POL 2400R Politics and Ethics or POL 2401R Ethics and Politics.

International politics: POL 2500R World Politics

Methodology: POL 2494R Introduction to Political Inquiry

An honours programme in political science includes:

- at least three core classes, of which one must be POL 2494R Introduction to Political Inquiry, and another must be either POL 2400R or POL 2401R;
- at least four advanced classes at the third and/or fourth year level, including the honours essay.

The core class requirements are designed (1) to give breadth to the honours programme, (2) to provide all honours students with a grounding in the normative questions of the discipline as well as the foundations of empirical inquiry, and (3) to expose prospective honours students to the various sub-fields that may be chosen for emphasis in individual programmes.

Overall, these requirements leave a minimum

of two optional credits, which may be taken at the second, third or fourth-year levels.

In the exceptional case of students who have delayed their decision to enroll in an honours programme until late in their third year, or who have decided at the end of their general programme to pursue an Honours Certificate, third-year or higher level classes may be substituted on occasion for one or more of the core classes. Such substitutions, however, must reflect the same distribution of areas within the discipline as is represented by the core-class requirements, and they must have the approval of the Honours Supervisor. Students who think they may eventually pursue an honours degree or certificate are strongly advised to complete their core-class requirements as early in their undergraduate careers as possible.

The honours essay is counted as one credit. It is prepared during the fourth year under the supervision of a faculty member. The essay shows the student's ability to develop a systematic argument with reference to pertinent literature and other such data or analytical materials as may be appropriate. The credit number for the honours essay is POL 4600R. Informal arrangements are usually made for honours students in the last year to meet with some regularity to discuss and ultimately present the work represented in their essay.

#### **Combined Honours**

Several of the more common combined honours programmes are: Political Science and Philosophy; Political Science and History; Political Science and Economics; Political Science and Sociology; and Political Science and International Development Studies. Students interested in taking any of these combined honours programmes or in discussing other possible programmes should consult initially with the Honours Supervisor.

#### Advanced Major Programme

Students wishing to complete a 20-credit B.A. Programme with an Advanced Major in Political Science should plan to include the following classes among the first 10 of the 20 credits required for the Advanced Major degree:

- 1) English 1000R, or Kings Foundation Year Programme;
- the equivalent of one full-year class in a second language, normally French;
- the equivalent of one full-year class selected from the Life and Physical Science group specified in the Faculty calendar;
- 4) the equivalent of one-half credit in quantitative analysis or research methods, in consultation with the Department adviser (e.g., Math/Stats 1060A/B, or a research methods class from any of the social science departments, including Political

Science):

- POL 1100R, or POL 1103R, or POL 1501R and the equivalent of two other full-year classes in Political Science. both at the 2000-level:
- the equivalent of one full-year introductory-level class in each of at least two of the following subjects: Economics, History, Philosophy, Sociology and Social Anthropology, and Psychology:
- and the remaining 11/2 credits as electives.

The remaining 10 credits must be chosen in consultation with the Department's Coordinator of Major Programmes, and should reflect a concentration on one of the following four fields: Canadian Politics; Comparative Politics; International Relations; or Political Philosophy.

The equivalent of at least four of these remaining 10 classes must be in Political Science; of these, at least three must be beyond the 2000level. Other classes will be selected as appropriate to the field of concentration from the disciplines of Classics, Economics, History, Philosophy, Sociology and Social Anthropology, and Psychology. With Department approval, additional classes in a second language (normally French) may also be taken.

#### **Major Programme**

In order to meet the requirements of a major programme, a student must take at least four, but not more than eight, classes in political science in addition to an introductory class. All major students should take at least two full classes from among the second-year level offerings and these classes should be selected from at least two sub-fields. A minimum of two additional full classes should be taken from third-year level offerings.

#### **Summer School Classes**

The Department normally offers one of the Introductory classes and at least one second-year class in the summer sessions. For details, see the University's summer school calendar.

#### Classes Offered

Class descriptions are listed under five headings:

- 1) Introductory
- 2) Canadian Government and Politics
- 3) Comparative Government and Politics
- 4) Political Theory and Methodology
- 5) International Politics and Foreign Policy

The first digit of each class number thus indicates year, or level, of class. Except for 1000level classes, the second digit denotes the sub-field within which the class is listed.

No student may take more than one first. year class but some second-year classes require no prerequisite. The prerequisites listed with each class are intended to show the sort of preparation the instructor anticipates. A student will usually take one second-year class in a field before taking a 3000-level class in the same field. Students without the appropriate 2000-level may obtain admission to 3000-level classes only with special permission of the instructors of those classes.

Classes marked \* are not offered every year. Please note that some classes listed may not be offered in 1991-92. Classes listed as "A/R" may be taught in either the first or second term For final listings check with the Department office or the current timetable on registration.

#### (1) Introductory

There are usually two or three sections of POL 1100R, each a full-year class taught by a different instructor. The topics vary a little from section to section and from year to year. POI. 1103R has a content similar to POL 1100R. In addition, POL 1501R focuses on international politics and foreign policy.

POL 1100R Section 1, Introduction to Government and Politics: Designed to develop a basic understanding of government and politics in liberal democratic states, but with the major emphasis on Canada, the class examines the concept of democratic government, the role and structure of governmental institutions, political mechanisms and processes, concepts and ideologies, and comparisons with alternative regimes.

Instructor: D.M. Cameron Lecture 3 hours Format:

Prerequisites: None **Enrolment:** No Limit

POL 1100R Section 2, Introduction to Government and Politics: This class introduces the basic institutions of government, the processes of politics and the social environment which influences them. Different ideologies and competing interpretations of democratic government are discussed in the second term. The nature and distribution of political power will be a principal theme, as students are helped to understand the fundamental debates within the discipline.

Instructor: Staff

Format: Lecture 3 hours

Prerequisites: None

**Enrolment:** Limited to 120

POL 1103R Introduction to Government and Politics: The approach and format in POL 1103 is similar to that in POL 1100R above. This class is also designed, however, to serve as the Department's designated Writing Class.

Staff instructor:

Lecture 3 hours

Format: prerequisites: none

Limited to 60 Enrolment:

POL 1501R Introduction to International Politics and Foreign Policy: To provide a framework for analysis and understanding of contemporary international events, this class deals with the variety of "actors" in world politics (principally but not exclusively states), and examines some concepts in the field. POL 1501R is recommended for students planning to take POL 2500R (World Politics) in their second year.

J. Eavrs Instructor: Lecture 3 hours

Format:

Prerequisites: None

**POL 1101R** Exclusion: Limited to 60 Enrolment:

## (2) Canadian

POL 2200R Canadian Government and Politics: The class examines the Confederation debate, 1864-67, and the constitution of the new federation, the British North America Act. It studies the Act's development via constitutional amendment and the practice of judicial review. The review of the Canada Act, 1982, completes this section of the class. In the second section, the class deals with governmental institutions, the Crown, cabinet government and Parliament. The third and final section covers elections, the electoral system and political parties.

Instructor: Format:

J. Smith Lecture 3 hours

Introductory Political Science class Prerequisites: or instructor's permission.

Canadian Studies

Cross-listed: **Enrolment:** Limited to 80

\*POL 2228B Government-Business Relations in Canada: The aim of this class is to explore the interaction between business and government in Canada and, more generally, the role of government in economic life. The objectives are to introduce students to the policy instruments deployed by governments to promote and regulate business activities in a market economy, the political values and interests which pertain to such promotion and regulation, and the manner in which the private sector seeks to affect the formulation and implementation of government policy. The class is of interest to Commerce and Other students not majoring in political science since many of the topics are approached with a view to their practical importance.

Instructor: H. Bakvis

Format: Prerequisites:

Lecture & Discussion 2 hours Introductory Political Science or Economic class, Commerce students beyond the 1st year, or Instructor's permission.

Cross-listed: Canadian Studies Limited to 60 Enrolment:

\*POL 3205A Canadian Political Thought: (Not offered in 1991-92.)

POL 3206A/B Constitutional Issues in Canadian Politics: These are political issues that possess an important constitutional dimension. They include judicial review and the role of the Supreme Court of Canada, constitutional amendment, the representation formula, the Charter of Rights and Freedoms, language rights and the Crown.

J. Smith Instructor:

Seminar 2 hours Format: Prerequisite: POL 2200R Enrolment: Limited to 25

POL 3216A Local and Regional Government:

The unique character of municipal government is examined in terms of its historical evolution and present structure and operation. Special attention is given to city government and to recent reforms at the regional and metropolitan level.

Instructor: D.M. Cameron

Lecture & Discussion 3 hours Format: POL 2200R or equivalent Prerequisite:

Cross-listed: Canadian Studies Enrolment: Limited to 25

POL 3220A/B Intergovernmental Relations in Canada: The territorial division of political power and the relations that have developed between governments are considered, with emphasis on the impact on policy outcomes.

Instructor: H. Bakvis Seminar 2 hours Format:

Prerequisite: POL 2200R or instructor's

permission

Cross-listed: Canadian Studies Enrolment: Limited to 25

\*POL 3224A/B Canadian Political Parties: The Canadian party system, viewed as an integral part of the entire political system, presents a number of interesting questions for exploration, such as the alleged fickleness of voters, the role of party leaders, and the manner in which parties contribute to Canadian democracy. The particular themes emphasised will vary from year to year.

Instructor: H. Bakvis

Format: Lecture & Discussion 3 hours POL 2200R or instructor's Prerequisite:

permission. Students will find it helpful to have some background in statistics or methodology, such

as POL 2494R.

Cross-listed: Canadian Studies Enrolment: Limited to 25

\*POL 3228B Interest Groups: Function and Management: This class will attempt a systematic examination of the function and management of interest groups in Canada and, to a lesser extent, other western countries. It will begin by considering the functions such groups perform for their supporters on the one hand and, on the other, the role they play in (1) maintaining political systems; (2) securing and modifying public policy, and (3) implementing programmes. It will explore the ways in which their structures and behaviour patterns vary according to the resources of the groups themselves, the nature of their concerns and the demands of the political/ bureaucratic systems in which they operate. An important feature of the class will be a discussion of the internal management of groups. This discussion will include a review of how membership is secured and retained how group resources are obtained and applied; the role of professional staff in developing group positions and in interacting between the interest group and government officials. In conclusion the class will examine the role of interest groups in policy processes and the relationship between that role and the prospects for democracy in western politics.

Instructor: Staff

Format: Seminar 2 hours

Prerequisite: POL 2200R or instructor's

permission

Cross-listed: Canadian Studies Enrolment: Limited to 25

\*POL 3235A/B Regional Political Economy in Canada: The class surveys the interaction between politics and economics in Canada with emphasis on the question of regional development. It will canvass competing explanations for differences in economic development among Canada's regions with special emphasis on Maritime economic problems, highlighting both the political sources of regional disparities and continuing efforts to rectify them. Distinctive Western, Quebec and Ontario concerns will also be covered. Seminars, for graduates and senior undergraduates, will feature student presentations and research projects.

Instructor: R. Finbow Format: Seminar 2 hours

Prerequisites: Open to graduate students and senior undergraduates, who have

completed classes on Canadian politics, or permission of the

instructor.

Cross-listed: Canadian Studies Enrolment: Limited to 25

\*POL 3245B The Judicial System and Canadian Government: This class provides an overview of the regulation of Canadian society through its legal system. The general theme to be pursued is the political importance of the judicial system and

the rules it enforces in establishing the fundamental order of Canadian society. A combination of lectures and discussions based on student presentations provide the forum to examine the structure of Canada's court system the process of judicial adjudication and enforcement, and the bodies of law enforced. Among the topics to be studied are the jurisdictions of the various levels of courts, the appointment of judges, the role of judges, as adjudicators and policy-makers, the role of juries in enforcing the law, the independence of the judiciary, and bases of judicial reasoning. Attention will also focus on the general policy thrusts of criminal law, family law, as well as the laws of contracts and torts.

Instructor: A. Heard

Format: Lectures and Seminars, 2 hours

Prerequisites: POL 2200R or permission of

instructor Canadian Studies Cross-listed:

**Enrolment:** Limited to 25

\*POL 3250B Canadian Public Administration: (Not offered in 1991-92.)

POL 4204R Advanced Seminar in Canadian Government: The focus of the class is on the institutions and processes of parliamentary government and the federal system of government in Canada. Topics in the first term include responsible government; party government; electoral system; legislative processes; senate; cabinet; pressure groups; crown corporations and regulatory agencies; accountability; charter of rights; media. Topics in the second term include the ideas of interstate and intrastate federalism: judicial interpretation and the Supreme Court; executive federalism; federal-provincial fiscal arrangements; the 1982 constitutional amendments; the Meech Lake Accord and its consequences.

Instructor: P. Aucoin (First term) and D.M. Cameron (Second term).

Seminar 2 hours Format:

Prerequisite: Open to Honours students in their fourth year and to graduate

students.

Cross-listed: Canadian Studies Enrolment: Limited to 15

POL 4240A Policy Formulation in Canada: A comprehensive examination of the three critical questions in the study of policy formulation in Canada: 1) The function of the state; 2) The question of why governments develop policies; and 3) The means by which governments authoritatively develop policies. The discussion links these variables with a macro level analysis of the scholarly approach to decision-making. The emergence of tension resulting from the development of superindustrial society and from regionalism in the Canadian community provides

policy problems on which the general theoretical analysis is hinged.

P. Brown Instructor: Seminar 2 hours Format:

Prerequisite: Open to Honours students in their fourth year and to graduate

students.

Cross-listed: Canadian Studies Limited to 15 Enrolment:

POL 4241B Introduction to Policy Analysis: This class examines four aspects of policy analysis: (1) The role of the analyst in modern government; (2) The analyst's working environment; (3) Techniques used in carrying out research and preparing nosition papers; (4) and the analyst's responsibilities to government and to the public in determining what information should reach decision-makers.

A.P. Pross Instructor: Seminar 2 hours Format:

POL 4240A or instructor's Prerequisite:

permission

Cross-listed: Canadian Studies Limited to 15 Enrolment:

## (3) Comparative

POL 2300R Comparative Politics: The methodology and scope of comparative politics including an analysis of institutions and behaviour is examined through general overviews and more detailed studies of selected Western liberal democratic, Communist and Third World countries. Topics include presidential and parliamentary regimes; theories of the state; political culture, ethnicity and nationalism; and policy outcomes.

Instructor: Staff

Lecture 3 hours

Prerequisites: Introductory political science class or instructors' permission

Limited to 60

**Enrolment:** 

\*POL 2306A/B West European Politics: An introduction to politics in selected countries of Western Europe, and in the European

Community. Instructor:

Staff

Format: Lecture 2 hours

Prerequisite: Introductory political science class or instructors' permission.

Enrolment: Limited to 60

POL 2307A/B Politics in Eastern Europe: (Not offered in 1991-92.)

POL 2327A/B Women in Western Political Thought: The role of women in political life has been vilified, praised or ignored by major thinkers. Pertinent texts will be read along with interpretations by modern feminists in order to

assess why the formal political enfranchisement of women has not resulted in greater substantial equality.

Instructor:

Format: Lecture and discussion 2 hours

Prerequisite: None

Cross-listed: Women's Studies 2600A/B

Enrolment: Limited to 45

\*POL 2370R U.S. Government and Politics: The class provides a survey of American political institutions, public policies, and public participation in politics. The presidency, Congress and bureaucracy are examined along with the interplay of private interest groups and the role of political parties. Class assignments allow students to pursue individual interests in American politics or public policy.

Instructor: J. Smith

Format: Lecture & discussion 3 hours Introductory political science Prerequisite: class or instructor's permission.

Limited to 40 Enrolment:

\*POL 3302A/B Comparative Development Administration: Some analytical and normative issues of public administration in developing countries are examined including the scope of development administration as a sub-field of public administration; public sector organisation and management including public services, public enterprises, decentralisation and rural development, financial systems, human resource management, aspects of state economic management with Japanese and South Korean case studies; and institutional aspects of aid administration with CIDA and World Bank cases.

Instructor: D. Luke Format: Seminar 2 hours

POL 2300R or equivalent or Prerequisite: instructor's permission

Cross-listed: MPA 6780A International Development Administration.

Enrolment: Limited to 25

\*POL 3303A Human Rights and Politics: Issues arising from the claim to rights and from alleged infractions of rights which continue to arouse a great deal of public contraversy within individual states and also within the international community are examined by type and by the bases of the claims to such rights. The approach is comparative, and students undertake case studies relating to the general topics.

Instructor: A. Heard

Lecture & discussion 2 hours Format: POL 1100R or POL 1103R, and, Prerequisite:

preferably, POL 2300R or POL 2400R or POL 2401R; or with

the permission of the instructor. Limited to 20

Enrolment:

**Political Science** 

\*POL 3304A/B Comparative Federalism: A seminar class which examines the theory and practice of federalism within a comparative framework. The actual federations discussed depends in part on student interest but usually includes both established federal nations and those moving in that direction.

Instructor: H. Bakvis Format: Seminar 2 hours

Prerequisite: POL 2200R or POL 2300R or

instructor's permission

Limited to 25 Enrolment:

POL 3315A/B African Politics: The diversity of states, politics, economy and society in postcolonial sub-Saharan African is examined in this seminar. Topics include theoretical approaches. economic framewors, governmental regimes. structural adjustments, civil society, and intraregional political economies, and selected aspects of policy such as economic reform, political liberalisation, women and development, drought and ecology, AIDS and health.

Instructor: Staff

Format: Seminar 2 hours

Prerequisite: POL 2300R or equivalent or

instructor's permission

**Enrolment:** Limited to 25

POL 3340A/B Approaches to Development: A survey of theories of and policies about change, dependence, underdevelopment, and inequalities. Particular emphasis on modernisation and materialist modes of analysis, and on orthodox and radical strategies of development. Topics treated include social contradictions (e.g., class, race and ethnicity), debt, structural adjustment, (de)industrialisation, self-reliance, human development, gender, technology, civil society, informal sectors, authoritarianism and ecology.

Instructor:

Staff

Format: Prerequisite:

Discussion and Seminar 2 hours POL 2500R or POL 2300R, or International Development Studies

2000A/2001B, or instructor's permission.

**Enrolment:** Limited to 25

\*POL 3360A/B Politics in Latin America: Latin America is an area in which public attention is rapidly growing. This course seeks to analyze the fundamental institutions and policies which have fashioned its development (and underdevelopment). Specific case histories will be examined to show the "unrevolutionary" nature of society and political structures, as well as the exceptions (Cuba and Nicaragua). Among other topics, the role of militarism, the Doctrine of National Security, the abuse of human rights, the changing role of the Church, external involvement, the revolutionary tradition, and the structure of government, will be studied. The objective of the course is to provide a basic grasp of the central

elements which have determined (and continued to determine) its troubled political life.

J. Kirk Instructor:

Enrolment:

Seminar 2 hours Format:

Prerequisite: POL 2300R or instructors

permission

Limited to 25

POL 4301A/B Comparative Theory: This class examines two levels of theory utilised in the study of politics in different nations: 1) the major paradigms or approaches to political analysis notably debates over methodology and knowledge the nature of the state, etc.; 2) selected theoretical tools used to analyze specific elements of the political process, notably interest group and media influence, political culture and socialization. electoral and revolutionary regime change. political development and economic dependency. etc. The list of topics is subject to revision depending on the students backgrounds and interests.

Instructor:

R. Finbow

Format: Prerequisite:

Seminar 2 hours

Open only to graduate and fourth year honours students who have completed classes in Comparative politics; permission of the

instructor required.

**Enrolment:** 

Limited to 15

## (4) Theory and Methodology

POL 2400R Politics and Ethics: This class. formerly known as Justice, Law and Morality (Regimes Version), is complementary to POL 2401R (Ethics and Politics). Hobbes is the only author treated in both classes. The class may be taken for credit before, after, or concurrently with the other class. Either class satisfies the minimum requirement in political philosophy for an Honours degree in Political Science.

Why, and under what conditions, ought human beings to accept a state with coercive powers expressed in laws and otherwise? What are the proper ends of political association, and how can these be morally justified? What is a just regime? What is the best (or the least bad) regime? These are perennial questions addressed by the great political thinkers, and it is to answers put forward by Plato, Aristotle, Machiavelli, Hobbes, Rousseau, Burke, Tocqueville and others that we turn in this class.

Instructor: Format:

B.L. Crowley Lecture 2 hours

Prerequisite:

None. One year of university work in Arts and Social Sciences is recommended as preparation, though first year students can succeed.

Cross-listed: Enrolment:

**PHIL 2270R** Limited to 60 when for credit before, after, or concurrently with the other class. Either class satisfies the minimum requirement in political philosophy for an Honours degree in Political Science. In the first erm, the natural law view of justice, expressed by St. Thomas confronts the savage realism of Hobbes' Leviathan. The concept of justice has had mixed career since Hobbes' time. In Locke's and Hume's doctrines it is narrowly tied to the defence of property. Sometimes, as with the utilitarianism of Bentham and Mill, it has appeared redundant. and Marx held that it would be superseded. In our own time, a major effort has been made by John Rawls to restore justice to the central place in ethics. His theory is considered at length at the end of the second term, after examining Lon Fuller's equally contemporary account of the moral dimensions of law. Instructor: Staff Discussion 2-3 hours None. One year of university work

POL 2401R Ethics and Politics: This class,

formerly known as Justice, Law and Morality

Concepts Version), is complementary to POL 400R (Politics and Ethics). Hobbes is the only

author treated in both classes. The class may be

Format:

Prerequisite:

in Arts and Social Sciences is recommended as preparation, though first year students can succeed.

Cross-listed: Enrolment:

PHIL 2070R Limited to 60

POL 2455A/B Marxist Theory and Its Upshot in the Modern World: (Not offered in 1991-92.)

POL 2494R Introduction to Political Inquiry: A variety of methods employed in contemporary political analysis to explain political events are analysed critically, including consideration of the general question of the requirements of explanation in political science. Causal explanation and problems in the development and verification of social scientific theory are emphasized. A particular substantive issue unifies discussion of the various methods of explanation and a research project in that issue permits the use of some of the tools of analysis discussed in connection with social scientific theory. Staff

Instructor:

Format: Lecture and Discussion 3 hours Prerequisite: Introductory Political Science class

or instructor's permission. Enrolment: Limited to 45

POL 3430A/B The Political Philosophy of Plato: (Not offered in 1991-92.)

POL 3431A/B The Political Imagination in Literature: After having looked at how the study of literature both complements and supplements the social scientific approach to understanding Politics, the seminar will analyse the implicit and

explicit treatment of a number of political themes in a list of works by both modern and classical novelists and playwrights ranging from Sophocles, Shakespeare and Dickens to Brecht, Sartre and Naipaul.

Instructor:

B.L. Crowley Seminar 2 hours

Format: Prerequisite:

POL 2400R or POL 2401R, or

instructor's permission

Enrolment: Limited to 25

\*POL 3435A Machiavellian Politics: This seminar explores Machiavelli's contributions to modern politics and political science.

Instructor: Format:

B.L. Crowley Seminar 2 hours

POL 2400R or 2401R, or Prerequisite: instructor's permission

Enrolment: Limited to 25

\*POL 3438A/B Rousseau: (Not offered in 1991-

92). Cross-listed:

Philosophy 3438A/B

\*POL 3496A/B Philosophy of Social Science: This class identifies three sides of social sciencenaturalistic, iterpretive, critical. It will consider how inquiries on the critical side reduce to a mixture of activities on the other two. It will then explore relations bewtween naturalistic and interpretive theories.

Instructor:

Discussion 2 hours Format:

Prerequisite: A class in social science or a

class in philosophy. Several classes in social science and at least one in philosophy are recommended as preparation.

Enrolment: Limited to 25

POL 4479B Classical Liberalism: Nobel Prize winning economic and social philosopher F.A. Hayek is perhaps the most influential modern exponent of a number of the key doctrines of classical liberalism. Using Hayek's Law, Legislation and Liberty as a basic text, we will critically examine his ideas (and his critics') on subjects such as epistemology, economics, politics, coercion, social justice and liberty.

Instructor: **B.L.** Crowley Format: Seminar 2 hours

Prerequisite: Normally, classes in philosophy or political science or economics:

consult instructor.

Cross-listed: PHIL 4470B/5470B and ECON 4460B/5470B

Limited to 15

Enrolment:

## (5) International

POL 2500R World Politics: A continuation of POL 1501R, this class examines techniques of statecraft, surveys the "assults" upon order, justice

and well-being of which the actors of world politics are capable, and explores the available "constraints" upon such actions afforded by international systems and methods.

Instructor:

J.G. Eavrs

Format: Prerequisite:

Lecture and discussion 2 hours Recommended for students who have taken POL 1501R in their first year, but open to others with an introductory political science class or instructor's permission.

Limited to 60 **Enrolment:** 

POL 3531A/B The United Nations in World Politics: The evolution of the United Nations from its early concentration on problems of collective security, through the period of preventive diplomacy and anti-colonialism, to its present role as a forum for the aspirations and demands of the Less Developed Countries is reviewed. The more distant future, and the continuing relevance of the United Nations in world politics, and how its role and objectives

Instructor:

should be determined, are considered. T. Shaw

Format: Seminar 2 hours

Prerequisite:

Class in international politics or

instructor's permission

Limited to 25 Enrolment:

POL 3535A/B The New International Division of Labour: This seminar provides an overview of the global political economy in the current post-Bretton Woods and -Cold War period. It treats the New International Division of Labour/Power from several theoretical and political perspectives, from comparative foreign policy to feminism. Issues addressed include the Newly Idustrialising Countries, the Middle Powers and the Fourth World; new functionalism; popular participation; and alternative futures.

Instructor: T. Shaw

Format: Seminar 2 hours

Prerequisite: Class in international politics or instructor's permission.

Enrolment: Limited to 25

\*POL 3537R Management and Conservation of Marine Resources: This is an intensive programme on the problems of managing the multiple uses of the Exclusive Economic Zone. It covers the New Law of the Sea and its many implications for politics and management, the social, economic and technical aspects of managing living resources, non-living resources, shipping, ports and harbours, coastal management and the protection of the environment; national legislation and required institutional infrastructure, regional cooperation and cooperation with international institutions.

Instructor: Format:

E.M. Borgese Seminar 2 hours

Class in international politics on Prerequisite: instructor's consent. Offered in

summer only, consult instructor

Enrolment: Limited to 25

\*POL 3540A Foreign Policies of African States (not offered in 1991-92).

POL 3544A/B Political Economy of Southern Africa: An introduction to the comparative politics, economic structures and international relations of Southern Africa, which provides a study of regional political economy with both empirical and theoretical signifiance. The primary focus is on regional conflict and change, especially on transformation and reaction, given the contemporary global context.

Instructor: T. Shaw

Format: Prerequisite:

**Enrolment:** 

Lecture and seminar 2 hours Class in international politics or instructor's permission.

Limited to 25

POL 3570R Canadian Foreign Policy: The seminar examines post-World War II Canadian foreign policy in three parts: (1) a detailed analysis of major policy developments, using the case-study approach; (2) an investigation of selected recurrent and contemporary themes, issues, and problems, and (3) an investigation of the general factors that may help to "explain" the form and content of Canadian foreign policy, with particular reference to the institutions and processes through which policy decisions are made. The primary emphasis is on politicosecurity issues, although other subjects are also

considered. Instructor:

D. Stairs Seminar 2 hours

Format: Prerequisite:

A class in international politics, Canadian politics, or Canadian history in the 20th century, or instructor's consent. Restricted to students in their 3rd or 4th

vears. Limited to 20

Enrolment:

POL 3571R Strategy and Canadian Defence Policy: This seminar examines post-World War II Canadian defence policy in three parts: I. An analysis of important cases of policy development. 2. An investigation of certain persistent themes and current issues (e.g., Canada-U.S. defence relations; defence funding; weapons procurement; the role of women in the forces; civil-military relations, etc.) 3. An assessment of the major determinants of policy and prescriptions for the future.

Instructor: Format:

D. Middlemiss Seminar 2 hours

Prerequisite:

Class in international politics or instructor's permission

Enrolment:

Limited to 25

POL 3572R American Foreign Policy: (Not offered in 1991-92.) Why Americans make the tind of foreign policy they do and the decision process and relevant methodologies for examining decision strategy are examined. Students develop and ability to explain foreign policy decisions of the United States.

G. Winham Instructor: Seminar 2 hrs

Format: Prerequisite: Course in international politics, US politics or history, or

instructor's consent

limited to 25 Enrolment: POL 3574R Exclustion:

POL 3574A/B American Foreign Policy: (Not offered in 1991-92.) This class is similar to POL3572R but covers topics in less detail.

Instructor: Format:

Enrolment:

G. Winham Seminar 2 hrs

Course in international politics, Prerequisite: US politics or history, or

instructor's consent limited to 25 Enrolment: POL 3572R Exclustion:

POL 3575B Nuclear Weapons and Arms Control in World Politics: The seminar examines the technological, doctrinal, and political aspects of the nuclear weapons "problem" and the arms control "solution". It also assesses the fate of contemporary nuclear arms control efforts.

D.W. Middlemiss Instructor: Seminar 2 hours Format:

Class in international relations or Prerequisite: defence policy, or with instructor's

> permission. Limited to 25

POL 3585B Politics of the Environment: Environmental issues have become increasingly important on international agendas. In this class, political analysis of these questions is grounded in a global ecological perspective. The topics for discussion include acid rain and other problems in the relations between advanced industrialized countries; the role of international institutions and international law in promoting environmental conservation; the environmental dimension of international development; and the politics of the transnational environmental movement.

Instructor: R. Boardman Format: Seminar 2 hours

Prerequisite: A class in international politics or foreign policy, or instructor's

permission.

Enrolment: Limited to 25

POL 3590R The Politics of the Sea: The major issues involved in the Law of the Sea, the differing interests of different countries, the developing legal framework, and the political process of the on-going negotiations are covered.

Instructor: Staff

Format: Seminar 2 hours

Prerequisite: Preference is given to graduate

students, although mature students from other relevant disciplines are welcome.

Enrolment: Limited to 25

\*POL 3596A Theories of War and Peace: (Not offered in 1991-92.) This class examines critically a broad range of theories of the causes. persistence, and termination of war.

Instructor: Staff

Format:

Seminar 2 hours

Prerequisite: Class in international politics or

instructor's permission

Limited to 25 **Enrolment:** 

POL 4520R Theories of International Relations: A survey of the discipline of international relations. Topics include the role of theory, structure and operation of the international system, balance of power, international economics and problems of dependence, war and problems of international security, international organization

and the nation-state. Instructor: Staff

Format: Seminar 2 hours

Prerequisite:

Limited to graduate students and 4th year Honours students with previous work in international relations, or with instructor's

permission.

Enrolment: Limited to 15

POL 3601R Readings in Political Science: A fullyear reading class, taught only by special arrangement between individual students and individual instructors.

Instuctor: Staff

Instructor:

POL 3602A Readings in Political Science: A first-term reading class, taught only by special arrangement between individual students and individual instructors.

POL 3603B Readings in Political Science: A second-term reading class, taught only by special arrangement between individual students and individual instructors. Instructor: Staff

POL 4600R Honours Essay: Restricted to Honours students in their 4th year.

Staff Instructor:

## Russian

Location:

1376 LeMarchant Street

Halifax, N.S.

Telephone:

(902) 494-3679

#### Chair

J.A. Barnstead (494-3679)

## **Undergraduate** Advisor

J.A. Barnstead (494-3679)

#### Professor

Y.Y. Glazov, PhD (Oriental Inst.), F, (Moscow)

#### **Associate Professor**

I. Vitins, BA (Mich), PhD (Calif.)

#### **Assistant Professor**

J.A. Barnstead, BA (Oakland), AM (Harv.)

#### Introduction

The Russian Department offers classes in Russian language, literature, and culture. Since the Soviet Union plays a crucial role in today's world and makes important contributions in a wide variety of scientific, technical, and humanistic fields, knowledge of its linguistic and cultural backgrounds can prove advantageous in many areas of study. Glasnost' and perestroika have significantly widened opportunities for using Russian in business, law, science, and government.

In the language classes emphasis is placed on gaining a thorough grasp of Russian grammar combined with practical competence in speaking, reading, and writing. Sections are small and intensive. Classroom work is supplemented by computer-assisted language learning programmes and audio-visual materials at the Learning Laboratory.

Study of Russian literature begins with a general survey intended for first or second year students, followed by monograph, period, and genre classes. Literature classes are generally offered in both English and Russian in order to give as many students as possible from other disciplines the opportunity to become acquainted with this important part of Russian life.

Classes in Russian culture and civilization are intended to introduce students to art, architecture, music, religion, and other areas of Russian life which are necessary to understand the language and literature. Films, guest speakers, and evenings of Russian poetry are scheduled periodically. The Dalhousie Association of Russian Students organizes a variety of events throughout the year.

Major or honours students may, with the approval of the Department of Russian, take up to one year (5 full credits) of work at a University

in the Soviet Union and receive credit at Dalhousie. Qualified students are urged to participate in the Russian Studies Programme, founded by Dalhousie, which enables Canadian students to study for a semester at Leningrad State University, the Moscow Pedagogical Institute, or the Moscow Pushkin Institute.

### **Degree Programmes**

Classes in the Russian Department are open to students either (1) as electives in any degree programme; or (2) as constituents of a major or honours degree in Russian; or (3) with classes in another discipline forming part of a combined honours degree.

#### Classes Offered

#### Classes in Language

RUSS 1000R Elementary Russian: For students who have little or no previous knowledge of the Russian language. Equal emphasis is placed on developing oral and reading skills with a sound grammatical basis.

Format: In

Instruction/drill 5 hours

Prerequisite:

Enrolment: 25/section

RUSS 2000R Intermediate Russian: A continuation of RUSS 1000R. Oral and reading

None

skills and a further knowledge of grammar are developed through study and discussion of

Russian texts.

Format: Instruction/drill 5 hours
Prerequisite: Russian 1000R or equivalent

Enrolment: 25/section

RUSS 3000R Advanced Russian: Conducted in Russian. Following a thorough review, this class concentrates on expanding all aspects of the student's knowledge of Russian grammar. Texts are read extensively and intensively. Discussion and compositions are based on the assigned readings.

Format:
Prerequisite:

Lecture and discussion 5 hours Russian 2000R or equivalent

Enrolment: 25

RUSS 3010T Grammar: (See listing under Russian Studies Programme.)

RUSS 3030T Conversation: (See listing under Russian Studies Programme.)

RUSS 3050B Vocabulary Building, Translation, Reading: (See listing under Russian Studies Programme.) RUSS 3100A Intensive Russian Grammar: (See listing under Russian Studies Programme). (This is a six-credit class).

RUSS 4000R The Structure of Contemporary standard Russian: Required for honours candidates. Conducted in Russian. Systematic study of the structure of Russian: analysis of special problems in phonology, morphology, syntax, and stylistics. Tailored to the individual needs of the student, with emphasis on practical applications of linguistic insights.

Format:
Prerequisite:

Lecture and discussion 3 hours Russian 3000R or permission of

the instructor

Enrolment: Unlimited

Classes in Literature and Culture Note: Classes marked \* are not offered every year. Please consult the current timetable on registration to determine if these classes are offered.

\*RUSS 2020A/B Nineteenth Century Russian
Literature and Culture: Conducted in English.
The class traces developments in classical Russian
literature, as well as in the Russian arts: painting,
sculpture, theatre, and music. Religious and
secular ideas of 19th century Russia are also
discussed.

Format: Lecture and discussion 2 hours

Format: Lecture Prerequisite: None Enrolment: 35

RUSS 2050R Survey of Russian Literature:
Conducted in English with section in Russian for majors. Required for majors and honours candidates. This class satisfies the university writing requirement. An overview of the history of Russian literature, from its Byzantine roots to the present day. The first semester includes works by Pushkin, Lermontov, Gogol', Turgenev, Dostoevsky, and Tolstoy, among others; the second begins with Chekhov and Gorkii and ends with an examination of the current literary scene.

Format: Lecture and discussion 3 hours
Prerequisite: None

Enrolment: 30

RUSS 2070A/B Russian Literature and Culture after Stalin's Death: Conducted in English. The literary, cultural, and political history of Russia after Stalin's death in 1953. Among the major issues considered are the significance of Stalin's death, the "Thaw" and de-Stalinization, Pasternak, Solzhenitsyn, Nadezhda Mandelstam and Sakharov. Revival of the intelligentsia and religious trends. Relationships of Russia and the West. Official and lon-official culture.

Format: Lecture and discussion 2 hours

Prerequisite: None Enrolment: 25 \*RUSS 2100A/B Pushkin and his Age:

Conducted in English with section in Russian for majors. A close study of the poetry and prose of Russia's greatest poet, and other writers of the "Golden Age of Russian Poetry." Works to be read will include the major narrative poems, Eugene Onegin, the "Little Tragedies," Boris Godunov, The Belkin Tales, as well as the poetry of Baratynskii, Batiushkov, Del'vig, and Yazykov. No knowledge of Russian is required.

Format: Lecture and discussion

Prerequisite: None Enrolment: Unlimited

\*Russian 2190R Survey of Russian Theatre:
Conducted in English with a section in Russian for majors. An overview of Russian writing for the theatre, with emphasis on the nineteenth and twentieth centuries. The first semester examines plays by Pushkin, Griboedov, Gogol', Ostrovsky, Turgenev, and Sukhovo-Kobylin; the second semester includes Chekhov, Gorkii, Andreev, Bulgakov, Shvarts, Aitmatov and one current play. Format:

Lecture and discussion 2 hours

Prerequisite: None Enrolment: 25

#### \*RUSS 2240A/B Theories of Literature:

Conducted in English. This class surveys Russian thought about literature from mediaeval times to the end of the nineteenth century, then concentrates on a more detailed study of twentieth century theories. Emphasis is on the complex interrelationships of modern Russian theories of literature with their Western counterparts, e.g. Formalism and American "New Criticism". Topics treated include Formalism. early Marxist criticism, Socialist Realism, post-Stalin Marxist criticism, Structuralism, and the Tartu School of semiotics. Student discussions and papers apply the principles of a given school to practical criticism of works of their choice. demonstrating the strengths and weaknesses of each theory.

Format: Lecture and discussion 2 hours

Prerequisite: None Enrolment: Unlimited

\*RUSS 2340A/B Russian Modernism: Conducted in English. A study of trends in literature and the arts at the turn of the century. Known as "The Silver Age", this is one of the most innovative and dynamic periods in Russian culture.

Format:Lecture and discussion 2 hours

Prerequisite: Russian 2050R or equivalent Enrolment: 20

\*RUSS 2500A/B Tolstoy: Conducted in English. An introduction to the work of this enigmatic spiritual giant of Russian literature; the impact of his philosophy and writing on world literature and thought. Reading includes War and Peace, Anna Karenina, and Resurrection.

Format:

Lecture and discussion 3 hours

Prerequisite: None Enrolment: 25

\*RUSS 2520A/B Chekhov and Turgenev:
Conducted in English. Close analysis and
discussion of the major works of Turgenev,
sensitive portrayer of socio-political and
psychological issues of the second half of the
nineteenth century in Russia, and Chekhov,
unequaled short-story writer and radical innovator
in modern theatre.

Format: Lecture and discussion 3 hours

Prerequisite: None Enrolment: 25

\*RUSS 2600A/B Russian Satire and Humour:
Conducted in English. Russian satirical and
humorous literature written within the last two
centuries. Russian satire and humour have made a
great contribution to the world's treasures in this
genre. Students read masterpieces by Gogol (Dead
Souls) and Dostoevsky (The Devils). Lectures
cover some of the immortal comedies of Russian
literature and the early humorous stories of
Chekhov. For the period after the 1917
Revolution stories by Soviet satirists, including
Zoshchenko and Bulgakov, are discussed as well.
Format:

Lecture and discussion 2 hours

Prerequisite: None
Enrolment: 25

\*RUSS 2750A/B Dostoevsky and the Russian Idea: Conducted in English. Dostoevsky's novels are of the highest importance in understanding the fate of Russia and the thoughts of other great Russian authors and thinkers. Crime and Punishment and The Brothers Karamazov are taken as the basis for discussion. The works of I. Turgenev and Lev Tolstoy are discussed together with the ideas of such great Russian philosophers, V. Solovyev and N. Berdyaev.

Format: Lecture and discussion 2 hours
Prerequisite: None

Enrolment: 30

\*RUSS 2760A/B Dostoevsky and Western
Literature: Conducted in English. With all his
love for Russia, Dostoevsky treasured the West
and its literature. It is impossible to understand
Dostoevsky and his main novels, including The
Idiot and The Devils, without Hamlet by
Shakespeare, Don Quixote by Cervantes, Faust by
Goethe, some plays by F. Schiller, etc. The class
traces the influence of Western ideas on
Dostoevsky and his influence on such Western
thinkers as Nietzsche and Freud.

Format: Lecture and discussion 2 hours

Prerequisite: None Enrolment: 30

RUSS 3090A Soviet Society Today: (See listing under Russian Studies Programme.)

RUSS 3120A Intensive Russian Proce and Poetry.
(See listing under Russian Studies Programme)

\*RUSS 3250A/B Literature of Revolution - The 1920s in Russian Literature: Conducted in English. A study of experiment and submission during one of the most exciting, diverse, and frustrating periods in Russian letters. "Socialist realism" was not yet official doctrine; innovation in literature was tolerated. Writers openly pondered the role of the individual and culture in the new collective society. Close reading and discussion of texts by Pasternak, Babel, Zamyatin Olesha, Pilnyak, Zoshchenko, and Bulgakov. Lecture and discussion 2 hours Format: Prerequisite: None **Enrolment: 25** 

\*RUSS 3270A/B The Russian "Heroine":

Conducted in English. The strong spiritual and moral force which Russian women have exerted on their society is richly reflected in literature. The class focusses on the portrayal of several literary heroines and discusses their impact on both the literary imagination and society. Their number includes Pushkin's Tatyana, Dostoevsky's Sonya Marmeladova and Nastasya Filippovna, Tolstoy's Anna Karenina, Gorky's Mother and Bulgakov's Margarita.

Format: Lecture and discussion 2 hours

Prerequisite: None Enrolment: 25

\*RUSS 3330A/B The Russian Short Story:
Conducted in English. On the basis of ten to
twelve Russian masterpieces in the short story
genre, students have a chance to trace the
development in this field from Pushkin and Gogol
through Turgenev, Tolstoy, Dostoevsky to the best
short stories of post-revolutionary writers,
including I. Babel, M. Zoshchenko, B. Pilnyak, A
Platonov.

Format: Lecture and discussion 2 hours

Prerequisite: None Enrolment: 25

\*RUSS 3500A/B Gogol and his Tradition: Author of "Overcoat," "Nose," Taras Bulba, Dead Souls, Gogol has been proclaimed "a pathological liar and honest anatomist of the soul, jejune jokester and tragic poet, realist and fantast". An in-depth study of this major writer and his impact on the work of Dostoevsky, Kafka, Bely and Bulgakov.

Format: Lecture and discussion 3 hours
Prerequisite: None

Prerequisite: Non Enrolment: 25

RUSS 4300R Russian Poetry: Conducted in Russian. Required for honours candidates. A combination of an introduction to the theory of poetry with close analysis of masterpieces of nineteenth and twentieth century Russian poetry chosen to fit the interests of the individual

student.
Format:
Perequisite:
Permission of the instructor
Unlimited

RUSS 4950A/B, RUSS 4960A/B, RUSS 4990R
Russian Special Topics: Conducted in Russian.
Offers the student an opportunity to work with an advisor in researching subjects which are not regularly taught in the Department. Past topics have included Old Church Slavonic, the historical phonology and morphology of Russian, and Russian symbolism. Students who wish to register for a specific programme should consult the chair of the Department.

Prequisite: Permission of the Instructor

# Russian Studies Programme

Coordinator
John A. Barnstead (494-3679)

Participating Faculty
Yuri Glazov (Professor of Russian)
Norman Pereira (Professor of History)
leva Vitins (Associate Professor of Russian)
John A. Barnstead (Assistant Professor of Russian)

#### Introduction

The Russian Studies Programme, the first one of its kind in Canada, is a special inter-disciplinary programme of instruction which allows Dalhousie students (as well as students from other Canadian universities) to undertake intensive study of the Russian language, both here and in the Soviet Union. In order to participate, students must be able to demonstrate competence in the Russian language equivalent to two years of university classes (at Dalhousie these are RUSS 1000R and RUSS 2000R) with a mark of "B" or better. The duration of the programme is one academic year, the first half of which is at Dalhousie, the University of Alberta, or some other Canadian university, the second half of which is at the Pushkin Institute in Moscow, the Moscow Pedagogical University, or Leningrad State University. Enquiries and applications should be addressed to the Administrator of the Programme.

Classes at Dalhousie, September to December

RUSS 3090A Soviet Society Today: Conducted in

Russian.
Instructor:

Instructor: N.G.O. Pereira Cross-listed: HIST 3090A

RUSS 3100S Intensive Russian Grammar:
Conducted in Russian. Approximately one-half of class time is devoted to grammar and reading.
The remaining time is devoted to conversation and pronunciation. The class meets for five two-hour sessions each week. There is one written composition per week of 2-3 pages. The instructor works closely with individual students. This is a six-credit class.

Instructor: Soviet language specialist Format: lecture 10 hours

RUSS 3120S Russian Prose and Poetry:
Conducted in Russian. The students read,
translate and critically interpret representative
works of the nineteenth and twentieth centuries.
Original texts are supplied with vocabularies and
grammatical notes. This is a six-credit class.

Instructor: Staff

Format: lecture and discussion 5 hours

Classes at the Pushkin Institute, Moscow Pedagogical Institute, or Leningrad State University, February to June

RUSS 3010T Grammar: Intensive study of the finer points of Russian grammar. Topics include verbs of motion, aspect, impersonal constructions, government and agreement, and other themes. This is a six-credit class.

RUSS 3030T Conversation: Systematic development of conversational ability on everyday themes: transport, city services, theatre, sport, shopping, the library, the Soviet educational system, the structure of the Soviet government, etc. This is a six-credit class.

RUSS 3050B Vocabulary Building, Translation, Reading: Extensive study of Russian lexicon and/or work in translation; analysis of journalistic and literary texts. This is a three-credit class.

## Sociology and Social Anthropology

Location:

South-East Corner of South and

Sevmour Streets

Halifax, N.S.

Telephone:

(902) 494-6593

#### Chair

R.A. Apostle (494-2069)

## **Undergraduate** Advisor

J.G. Morgan (494-6756)

#### **Professors**

R.A. Apostle, BA (Simon Fraser), MA, PhD (U

J.H. Barkow, AB (Brooklyn), AM, PhD (Chi)

D.H. Clairmont, BA, MA (McM), PhD (Wash U) H.V. Gamberg, BA (Brandeis), A.M., PhD (Princ) R.C. Kaill, BA (Dal), BD, MA (Tor), PhD (McG)

L. Kasdan, MA, PhD (Chi)

J.J. Mangalam, BSc, MSc (Panjab), PhD (Cornell)

#### **Associate Professors**

M.E. Binkley, BA, MA, PhD (Tor) Associate Dean of the Faculty of Arts and Social Sciences P.M. Butler, BA, MA, PhD (Tor) D.H. Elliott, BA (Yale), PhD (Pitt) J.L. Elliott, BA (Wells), MA (Kan.), PhD (Pitt) N.W. Jabbra, BA (U Calif at Santa Barbara), MA (Ind), PhD (Catholic) (on leave) V.P. Miller, BA (U California at Berkeley), MA, PhD (U Calif at Davis) J.G. Morgan, BA (Nott), MA (McM), DPhil

(Oxon)

C.J. Murphy BA (St. F.X.), MA (Dal), PhD (Tor) J. Stolzman, BA (Ore), MS (Fla), PhD (Ore) V. Thiessen, BA (Man), MA, PhD (Wis)

#### **Assistant Professors**

P.G. Clark, BA, MA (McM), PhD (UBC) T.J. Li, BA, PhD (Cantab) (Research) S. Pollock, BN (Man), BA, PhD (Warwick)

#### **Adjunct Professors**

J. Benoit, BA, MA (Guelph), PhD (Hopkins) D. Findlay, BA, BSW, MA, PhD (McMaster)

B. Keddy, BScN (MSVU), MA (Dal), PhD (Dal),

D. Looker, BA (Carleton), MA (Waterloo), PhD (McMaster) B. Raymond, MA (U California at Berkeley), PhD

S. Shaw, BPE (Dal), MSc (Dal), PhD (Carleton)

#### Research Associate

A.F. Davis, BA (St. Mary's), MA (Man), PhD (Tor)

#### Introduction

Social Anthropology and Sociology are related and overlapping disciplines. Although in some universities they are found in separate departments, this Department and many of its classes blur the distinction between them and emphasize the areas of overlap. The Department is committed to a programme which stresses the areas of convergence between the two disciplines

#### Sociology

As a social science, sociology seeks to apply the scientific method to human behaviour. In doing so, it makes two assumptions, that human social life exhibits regularity and recurrent patterns, and that people are essentially social animals. The sociological enterprise focuses upon social relationships, social institutions, and processes of social change. No single approach to these complex phenomena has been found adequate. As a result, a wide range of explanatory models and perspectives has evolved.

Sociology provides a context within which students learn to think critically about their social environment; become aware of the impact of social forces on their lives and the lives of others: and develop skills of analysis useful in understanding and managing their social environment. Many students find a sociology major helpful in preparing for social work, nursing, personnel management, and other occupations dealing directly with people. A well-trained sociologist will be acquainted with overlapping areas in Social Anthropology.

#### Social Anthropology

Anthropology is a diverse discipline whose branches study the human species in all of its physical, cultural, and linguistic diversity in both space and time. It consists of four sub-disciplines: Archaeology, Linguistics, Physical Anthropology, and Social Anthropology. The major focus is upon classes in Social Anthropology, although classes in other areas may be offered.

Social Anthropology is a strongly comparative field, which is concerned with the complete range of human societies in all historical and geographic settings. In the past, emphasis in Social Anthropology was on non-industrial and small-scale societies, but in recent years attention has been paid to industrial and industrializing societies and to the various groups that comprise them. Social Anthropology aims at generalizations by comparing structures and processes in major institutions within societies (kinship, political, economic, and religious) as well as between societies.A well-trained social anthropologiest will be acquainted with overlapping areas in Sociology.

## Career Options

Career possibilities in sociology and social anthropology include research and other positions in government, industry, or university, and teaching at the high school or university levels.

## negree Programmes

The department offers a major and an advanced major in Sociology and Social Anthropology leading to the BA degree. It offers honours BA degrees in Sociology and in Social Anthropology.

## Honours BA Programme

An Honours degree is normally the required preparation for graduate study in Sociology and Social Anthropology. Students interested in honours programmes should consult the Department's Undergraduate advisor, Dr. J.G. Morgan, as early in their course of studies as possible.

Students may choose to register in an honours programme either in Sociology or in Social Anthropology. At least nine classes, and no more than eleven classes, beyond the introductory level must be taken in the area of concentration. Each programme consists of several required classes (see below), other classes selected according to the student's interests in consultation with the Undergraduate Advisor, and an honours thesis paper. Students with the honours concentration Sociology may not declare Social Anthropology as their minor subject; students with the honours concentration Social Anthropology may not declare Sociology as their minor subject. (See College of Arts and Science Regulations 11.5 for general information and requirements).

### Required Classes for Honours Degrees

#### Social Anthropology Programme

SSA 2010A Introduction to Social Research. SSA 2011B Research Design, SSA 2250A/B Introduction to Social Anthropological Theory, at least one credit (or at least two half credits) in a geographical area class(es) (SSA 2370A/B People and Cultures of the World I, SSA 2380A/B People and Cultures of the World II, SSA 2350A/B Native Peoples of Canada, SSA 2360A/B Native Peoples of the United States, SSA 2390R Social Anthropology of the Middle East, SSA 3185A/B Issues in the Study of Native Peoples of North America), SSA 3415A Social Statistics, SSA 4000R Seminar in Social Anthropology, and SSA 4590R Honours Seminar in Social Anthropology (two

## Sociology Programme

SSA 2010A Introduction to Social Research, SSA 2011B Research Design, SSA 2240A/B Introduction to Sociological Theory, SSA 3115B Research Methods, SSA 3415A Social Statistics,

SSA 3401A History of Sociological Thought, SSA 3405B Contemporary Sociological Theory, and SSA 4500R Honours Seminar in Sociology.

The honours thesis paper is produced for the class SSA 4500R (Sociology) or SSA 4590R (Social Anthropology). This fulfills the College of Arts and Science Honours Qualifying Examination requirement.

#### Combined and Unconcentrated Honours

Combined honours programmes can be arranged between Sociology or Social Anthropology and some other appropriate discipline. Combined honours in Sociology and Social Anthropology, however, is not possible. Students wishing to arrange combined or unconcentrated honours programmes are advised to seek the counsel of the departments involved as early as possible.

#### **Advanced Major**

For information see the Undergraduate Advisor.

#### **BA** Degree

Students enrolled in the BA (i.e., three-year) degree programme must take at least four and no more than eight classes beyond the introductory level in Sociology and Social Anthropology. Depending on their interests, they may take mainly sociology classes or mainly anthropology classes, or they may combine the disciplines.

#### Required Classes

- Introductory Level: Either SSA 1000R, SSA 1050R, SSA 1100R, or SSA
- Theory: Either SSA 2240A/B or SSA 2250A/B.
- Research Methods: SSA 2010A is required. SSA 2011B is recommended.
- Two full credits in classes beyond the 2000 level in Sociology and Social Anthropology.

#### Suggested Class Structure

Year I: SSA 1000R, SSA 1050R, SSA 1100R, or SSA 1200R; at least one introductory class in Economics, Political Science, Psychology, History or Biology; and three other classes chosen from fields other than Sociology and Social Anthropology. N.B. One class must satisfy the writing requirement (College of Arts and Science Regulations 11.1.a).

Year II: SSA 2010A, SSA 2011B, and SSA 2240 A/B or SSA 2250 A/B; 11/2 - 2 other classes in Sociology and Social Anthropology; and two electives.

Year III: Two classes at the 3000 level in Sociology and Social Anthropology; one other class in Sociology and Social Anthropology: and two electives. N.B. One class of the 15 credits must satisfy the language requirement (College of Arts and Science Regulations 11.1.a) or the requirment may be met as specified in the Regulations.

#### Canadian Studies Programme

The Department is cooperating with several other departments in offering a Canadian Studies Programme. Interested students should contact Professor P. Clark.

#### **International Development Studies**

The Department is cooperating with several other departments and with Saint Mary's University in offering a BA and Honours BA in International Development Studies. Interested students should contact Professor J. Barkow.

#### Women's Studies Programme

The department is cooperating with several other departments in the Women's Studies Programme. Interested students should contact Professor Scarlet Pollock.

## Classes Offered

#### Please Note:

- No student may receive credit for more than one introductory level class (SSA 1000R, SSA 1050R, SSA 1100R, SSA 1200R) in Sociology and Social Anthropology.
- All students (whether Sociology and Social Anthropology majors or not) must have SSA 1000R, or SSA 1050R, or SSA 1100R, or SSA 1200R as a prerequisite for any class at the 2000 or higher levels, or obtain permission from each instructor involved. There may also be additional prerequisites required. No student may receive credit for more than one introductory level class (SSA SSA 1000R, SSA 1050R, SSA 1100R, or SSA 1200R) in Sociology and Social Anthropology.
- The Foundation Year Programme of the University of King's College is an acceptable alternative to Sociology and Social Anthropology introductory classes for prerequisite purposes.
- SSA 1050R fulfills the first-year writing requirement.
- Some classes listed may not be offered in a given academic year. Consult the timetable for details.

Note: Classes marked \* may not be offered even year. Please consult the current timetable on registration to determine if these classes are offered

SSA 1000R Culture and Society: An introduction to the comparative study of human society from the parallel perspectives of Sociology and Social Anthropology. The principal focus is on continuing and change in a variety of societies ranging from simple hunting and gathering societies to highly complex industrial societies.

Lecture 3 hours Format:

Prerequisite: None

SSA 1050R, SSA 1100R, SSA **Exclusion:** 

Sections with maximum 60 and Enrolment:

maximum 150

SSA 1001R Introduction to Service Learning: This class is designed as the introductory and foundation class for the President's Leadership Class. It will include a study of the roots of service learning. A sociological perspective on altruism and the place of service in our society will be explored. There will be a monthly speaker series which will be organized by the class as well as a lab which places the students in a variety of service experiences. This class is not a prerequisite to other SSA classes. This class fulfils the firstyear writing requirement.

\*SSA 1050R Explorations in Culture and Society. This class covers the same topics as SSA 1000R but partly in a seminar format. There are biweekly written assignments. This class fulfills the first-year writing requirement.

Lecture and seminar 3 hours Format:

Prerequisite:

SSA 1000R, SSA 1100R, SSA **Exclusion:** 

1200R

30 students Enrolment:

SSA 1100R Introduction to Anthropology: This class introduces students to all subfields of anthropology while emphasizing the socio-cultural. Topics considered include: the variety of human cultures and societies and how they are organized and function, the relationship between ecology and culture, human evolution, nonhuman primate behaviour, principles of archaeology, and the study of languages around the world as they relate to the cultures of which they are part.

Lecture 3 hours Format:

Prerequisite: None

SSA 1000R, SSA 1050R, SSA Exclusion:

1200R

**Enrolment:** 60 students

SSA 1200R Introduction to Sociology: This class introduces students to basic sociological concepts, the logic of social inquiry, and major theoretical and methodological issues in the field. Substantive class contents include the study of culture, ocialization, deviance, social organizations, institutions, social roles, and demography. Emphasis is on the study of modern industrial societies with special attention given to Canadian

society. Format:

Lecture 3 hours

Prerequisite: None

SSA 1000R, SSA 1050R, SSA Exclusion:

1100R

Sections with maximum 60 and Enrolment:

maximum 150

SSA 2000A/B Archaeology: An Introduction: This class covers the following topics: archaeology and its relationship to history and prehistory, the origins and growth of the discipline of archaeology, the application of archaeological techniques in the field of prehistory, the excavation of a site, the establishment of a chronological framework, and the reconstruction of the historical past.

Lecture 3 hours Format:

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

60 students Enrolment:

SSA 2010A Introduction to Social Research: This class provides an introduction to basic research skills used by anthropologists and sociologists to investigate and analyze social phenomena. The class is organized into three modules each of four weeks duration. The first module emphasizes the effective use of existing information, with particular emphasis on library research techniques and resources. The second module provides an introduction to computers and demonstrates a variety of computer based research activities. The third module stresses the evaluation of research and provides the student with both the skills and opportunity to assess critically and professionally the work of empirical anthropologists and sociologists.

Format: Prerequisite:

Lecture 3 hours

SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 60 students

SSA 2011B Research Design: The class is organized around four 3-week modules, representing a survey of the major research designs employed in anthropology and sociology. Module I deals with the design of experiments and simulations; Module II examines historical and comparative research designs; Module III treats survey-based designs; Module IV examines designs based upon fieldwork and observation. Format:

Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R and SSA

2010A or permission of the

instructor Enrolment: 60 students \*SSA 2030R Deviance and Social Control: Groups make formal and informal rules in an attempt to regulate and make predictable the behaviour of their members. Violations of these rules occur in many different ways and stem from various causes. This class examines both the processes by which groups make rules and the reasons why these rules are violated. Specific issues such as crime, delinquency, narcotic addiction, alcoholism, prostitution, suicide, and minority group relations are discussed in this context.

Format: Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

150 students Enrolment:

\*SSA 2040R Social Stratification: Aspects of social inequality in modern industrial society. The formation of classes, status groups, and organized political expressions is considered. Questions of the distribution of power and wealth in society, the existence of power elites or governing classes, the impact of bureaucracy on class relations, the extent to which major economic inequalities have been reduced in this century, and problems of the mobility of individuals and groups through the stratification systems are analyzed. Theoretical discussions in the class are largely concerned with the ideas of Karl Marx and Max Weber, but attention is also paid to contemporary theoretical approaches to stratification.

Format: Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 60 students

\*SSA 2050R Sociology of Religion: The relations between religious beliefs and human behaviour and social structure. Major themes include: the impact of social structure on the development of belief systems; the question of whether beliefs guide and direct human behaviour; the formal organization of religious institutions; and social psychological considerations of religious behaviour. The primary focus is on current religious movements in Canada.

Format: Lecture 3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

Enrolment: 60 students

SSA 2060A/B Social Gerontology: A general introduction to social gerontology, in which emphasis will be placed upon the historical and philosophical development of the study of aging in Canada, theories of aging, current social and economic programmes for the elderly both in Canada and to some extent cross-culturally, and various pertinent social-psychological aspects of the aging process. The class familiarizes students with some of the problems people experience as a consequence of aging in Canadian society and

provides an understanding of the socio-economic

factors relevant to these problems. Format: Lecture 3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R Cross-listed: Nursing 4900R Enrolment: 60 students

\*SSA 2070R Socialization: Socialization is the process by which a society's values and customs are perpetuated, passed along to the younger generation. This is seen as the function of certain institutions, such as the family, the churches, and the schools. These, however, require support from the larger social milieu. Our own rapidly changing society appears to be at a point of crisis in this regard. Recent social changes have undermined traditional means by which children acquire a sense of allegiance to their elders, and take to themselves the society's major values.

Format: Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

**Enrolment:** 60 students

\*SSA 2080R Communities: An examination of a wide variety of territorially based residential groups such as the large metropolitan centre, the rural village, and the intentional community. Major themes include: evolution of the modern city, urbanization, rural depopulation, ecology of the city, neighbourhood social networks, behaviour in public places, minority subcommunities, and urban planning.

Format:

Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 60 students

\*SSA 2100R Ecology and Culture: This class deals with the ways in which different environments affect how people live, relate to one another, think, and organize themselves. The major focus is on how cultural choices are influenced and constrained by the relationships among ecology, technology, and how people are making a living. Examples of hunter-gatherer, horticulturalist, rancher and farmer cultures are used as illustrations.

Format:

Lecture 3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

**Enrolment:** 

60 students

\*SSA 2110R Canadian Society: An analysis of selected aspects of Canadian society employing theoretical perspectives and empirical materials to develop a composite view of the society as a whole through understanding the interrelationships among its parts. Major foci include the integration and survival of Canadian society, structural change, and the management and consequences of inequality. Prospects for the future of Canada are

discussed in terms of these characteristics.

Format: Lecture 3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

Canadian Studies Cross-listed: 60 students Enrolment:

\*SSA 2120A/B Minority Groups: The social status of minority groups is examined in the light of contemporary theories of prejudice and discrimination. The societal consequences of discrimination are considered with respect to their effect on both minority and majority groups. Emphasis is on an analysis of Canadian minorities

Lecture 3 hours Format:

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

60 students **Enrolment:** 

\*SSA 2140A/B Industrial Sociology: This class deals with the development of modern industrial society, especially advanced capitalist society. Major topics for investigation include theories of industrial capitalism, the modern corporation and trade unionism. The role of the state is also highlighted.

Format:

Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 60 students

\*SSA 2141A/B Sociology of Work: This class deals with work in modern society. Major topics investigated include modern work values, varieties of work relationships (e.g. white/blue collar, professionalism), work alienation, job satisfaction and issues of industrial democracy. It is a companion course to SSA 2140A/B but the latter though recommended is not required as a prerequisite.

Format: Lecture 3 hours

Prerequisites: SSA 1000R, SSA 1050R, SSA

1000 or SSA 1200R

**Enrolment:** 60 students

\*SSA 2150A/B Mass Society: The origin of modern, post-industrial mass society. Problems associated with industrialization, cybernation, leisure, technology, and environmental degradation are examined in detail. Various attempts at solution of these problems are analyzed. The rise of the expert and of counter-cultural movements are given particular attention. Theoretical and methodological innovations for future forecasting are introduced.

Format: Lecture 3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

**Enrolment:** 60 students

SSA 2160A/B Sociology of Occupations: sociological views of the occupational structure, and of the constraints and influences that bear

upon persons in various occupations.

Format: Lecture 3 hours Prerequisite:

SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

60 students Enrolment:

SSA 2170A/B Political Sociology: Introduces students to the major concepts and theories which inform the sociological study of politics. In addition to this general orientation, particular attention is devoted to the role of power and ideology in Western society, the interplay between economy and polity in contemporary North America, and political transformation as a social

process.

Lecture 3 hours

Format: Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

60 students Enrolment:

•SSA 2180R Criminology: Crime as a form of social deviance. The significance of official crime rates is analyzed, and the various forms of criminal structure and behaviour are examined. The second part of the class deals primarily with societal response to offenders, tracing the judicial and correctional processes in Canada.

Lecture 3 hours Format:

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

Enrolment: 150 students

\*SSA 2190R Gender Roles in Cross-Cultural Perspective: Taking a broad comparative framework, we examine sex roles in the contexts of daily life, of economics, politics, kinship, social stratification, religion and values, and socialization. With these data as background, we then look at sex roles in Canada and in Nova Scotia.

Format: Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Cross-listed: Women's Studies 2800R

Enrolment: 60 students

\*SSA 2200R Sociology of the Family: Family in one form or another is an aspect of all societies. It is the most important agent of early socialization and personality formation. The first term is devoted to a consideration of some of the cross-societal characteristics of the family in general, and of the extended family as found in traditional societies in particular. The second term is devoted to a consideration of family characteristics in urban-industrial societies, concentrating on the nuclear family with particular reference to the Canadian scene. An attempt is made to understand the processes by which family structures and functions have changed through time as societies evolved from a traditional to an

urban-industrial social organization.

Format: Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

**Enrolment:** 60 students

\*SSA 2220A/B Social Psychology: Groups influence individuals and individuals react (resist, adapt to, cooperate with, or use to their own advantage) to these influences. The processes involved in such person-group relationships are explored in a number of different settings, such as the family, mental hospitals, and universities. The class will focus on both a critical review of actual studies done and on social-psychological interpretations or theories of these findings.

Format: Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

**Enrolment:** 60 students

SSA 2240A/B Introduction to Sociological Theory: An introduction to some of the major approaches taken by sociologists to understand the nature of society. The early foundations of social thought are surveyed with emphasis on the emergence of sociology as a discipline in the nineteenth century. The contributions of prominent theorists -Durkheim, Marx, Mead, Spencer, and Weber - are stressed. The most important sources of virtually all the varieties of sociological theories of the twentieth century are found in these thinkers. Specific contemporary approaches to be considered include functionalism, conflict theory. social action theory (including symbolic interactionism and ethnomethodology), and exchange theories.

Format: Lecture 3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

Enrolment: 60 students

\*SSA 2250A/B Introduction to Social Anthropological Theory: The foundations and development of social anthropology. The growth of theory in social anthropology is stressed, with special attention paid to major schools of thought and the work of prominent individuals within those schools, including Cultural Evolution; Historical Particularism; Functionalism; Culture and Personality; Structuralism; Symbolism; Cultural Materialism; and the directions in which contemporary social anthropology points. Special efforts are made to expose students to the original

writings of prominent anthropologists. Format: Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 60 students

\*SSA 2290A/B Belief Systems: The study of non-Western belief systems. Emphasis is on the religion of small-scale societies, treated from the

perspective of religion as a system of symbols giving meaning to the universe and one's place in it. Topics include religion as a biological phenomenon, the nature of ritual, religion and healing, religion and altered states of consciousness, sorcery and witchcraft, and religion and culture change.

Format: Lecture 3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

60 students **Enrolment:** 

\*SSA 2350A/B Native Peoples of Canada: A survey of the cultures of the peoples who inhabited Canada at the time Europeans came to this continent. Following a review of prehistory, the class uses an ecological perspective to examine the geographic culture areas and representative tribes in them. As time permits, information on ethnohistory and the situation of contemporary native peoples is incorporated. This class should be taken with SSA 2360A/B to gain an overall ethnographic knowledge of North America.

Format: Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

SSA 2355R Exclusion: Enrolment: 60 students

\*SSA 2360A/B Native Peoples of the United States: A survey of the cultures of the peoples who inhabited the area that is now the United States at the time Europeans came to this continent. Following a review of prehistory, the class uses an ecological perspective to examine the geographic culture areas and representative tribes in them. As time permits, information on ethnohistory and the situation of contemporary native peoples is incorporated. To gain an overall ethnographic knowledge of North America, this class should be taken with SSA 2350A/B.

Format: Lecture 3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Exclusion: SSA 2355R Enrolment: 60 students

\*SSA 2370A/B Peoples and Cultures of the World I: Each year, the Peoples class surveys the peoples of a specific geographic area. The class includes background material on geography,

climate, and history. Its focus is on the people themselves, their social organization and political, economic and kinship systems; and their problems of modernization and development. Consult the department to find which regions are to be

offered in a particular year.

Lecture 3 hours Format:

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 60 students \*SSA 2380A/B Peoples and Cultures of the World

II: See class description above.

Format: Lecture 3 hours Prerequisite:

SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R

Enrolment: 60 students

\*SSA 2390R Social Anthropology of the Middle East: We know the Middle East as the cradle of civilization, the scene of the Crusades, and the focal point for a variety of international tensions But beyond history book and newspaper are real people with their own modes of social organization, values, ways of thinking and making a living, and their own valued resources. If Western nations, including Canada, are to deal effectively with this increasingly important region their people must come to understand the values and aspirations of the people of the Middle East In this class we touch upon some of the common trends and diversities which characterize the region from Iran and Afghanistan to Morocco: geography and population; ethnic groups and languages; religion; social organization; modes of subsistence; values; and the impact of the West.

Lecture 3 hours Format:

Enrolment:

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R 60 students

\*SSA 2400R Medicine and Health Across

Cultures: Every culture has its own concepts of health and nutrition, its own treatments and practices. The strengths and weaknesses of our own system grow clearer when medical anthropologists compare it with that of other societies. This class's specific topics vary from year to year but always include: native theories of the etiology of illness, transcultural vs. culture-specific disease syndromes, pregnancy and childbirth in other cultures and our own; senescence and death viewed cross-culturally, the conflict between traditional medical systems and the Western physician and hospital, patients' expectations and the medical subculture, the physician as secular priest, and food and nutrition across cultures.

Format: Lecture 3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

**Enrolment:** 60 students

\*SSA 2500A/B Sociology of Health and Illness:

An introduction to sociological analyses of health, illness, and health care. Class topics include the experience of illness, socioeconomic and cultural variations in patterns of illness, social behaviour and its effects on health, the social production of health and illness, occupational hazards, the relationship between mental and physical health, the organization of health care, hospital and community care, health care workers, inequalities in health and health care.

Lecture 3 hours

Format: Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

SSA 2501R

Exclusion: 60 students Enrolment:

SSA 2600R Food and Nutrition Across Cultures: our bodies determine nutrition, our environments timit what may be available, and our cultures decide what is to be considered "food". This class joins the anthropology of food with the cross-cultural study of nutrition. Topics include definitions of the edible, nutrition and modernization, ecology and food, food taboos, age and gender differences in food prescriptions and proscriptions, dieting and obesity, food and

religion, cannibalism, the symbolic meaning of eating and food, and food shortages. Lecture 3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

60 students Enrolment:

Format:

\*SSA 2700A/B Sociology of Mediation: Mediation is a process where a neutral third party assists two contending parties to reach an agreement. It is a rapidly growing form of conflict resolution, particularly in North America. This class will apply sociological research to the various types of mediation such as: divorce mediation, victim-offender mediation, community mediation. Mediation will be studied as a social movement, as an organizational form and as a small group process. Although this class does not teach the student how to be a mediator, it does complement non-credit programmes providing mediation training.

Lecture 3 hours Format:

Prerequisite: SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R

60 students **Enrolment:** 

\*SSA 3010R Sociology of Work Roles: A seminar which examines development and change in work roles and the labour process. Among the topics covered are labour-management relations, job satisfaction, the quality of working life, professionalization, the working poor, and gender patterns of work. Underlying processes of power and control in the labour process, and of status and earnings attainment will be emphasized.

Seminar 2-3 hours Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 20 students

\*SSA 3030R Social Problems and Social Policy: This class focuses on the nature of social Problems and social policy in advanced industrial societies. It adopts a social movement perspective, exploring the processes whereby agitation on behalf of undesirable but remedial social conditions leads to changes in social policy.

Among the areas treated in depth are crime prevention, the quality of work life, race relations, deviance, and poverty and inequality.

Seminar 2-3 hours Format:

Prerequisite: SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R

20 students Enrolment:

\*SSA 3060A/B Social Change and Development: This class considers theories of social change and development, approaches to the analysis of rural and urban livelihoods at the micro level, and examination of community, class, patronage and gender relations in both their economic and cultural aspects. The constructive uses of social analysis in the support and design of development

Format: Seminar 2-3 hours

initiatives are also discussed.

SSA 1000R, SSA 1050R, SSA Prerequisite:

> 1100R or SSA 1200R and one SSA credit at 2000-level, or International Development

Studies 2000.

20 students Enrolment:

\*SSA 3070R Human Nature and Anthropology: Can anthropologists explain why we feel sexual jealousy or why we tend to follow a dominant leader in times of stress? Can the evolutionary theories explaining why we have fingerprints and flat nails explain our behavioural traits? This class reviews theory and data on the evolution of human mind and culture in order to construct a theory of human nature. Its perspective and contents include much of what some have categorized as "human sociobiology," "Darwinian anthropology," and "Darwinian psychology." Evaluation will be based on essay exam and a term paper.

Format: Seminar 2-3 hours

SSA SSA 1000R, SSA 1050R, Prerequisite:

SSA 1100R or SSA 1200R or an introductory class in Psychology

or Biology

Enrolment: 20 students

\*SSA 3080R Linguistics and Anthropology: A seminar which examines aspects of linguistics relating to anthropology. Students learn to transcribe utterances phonetically, then to apply this knowledge as they study the relation of language and culture in both western and non-western societies. Each student does a phonetics fieldwork project and writes a sociolinguistics term paper.

Seminar 2-3 hours Format:

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

**Enrolment:** 20 students

\*SSA 3090R Sociology of Culture: The Sociology of Culture deals with the symbolic aspects of social activity. The class will examine major

contributions to this field by intellectuals from the western industrial systems. This overview will include consideration of works by Bourdieu, Habermas, Lasch, McLuhan and Williams. We will also look at the ongoing debates regarding popular culture, and the new interest in theories of postmodernity.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R and SSA 2240A/B or SSA 2250 A/B

Enrolment: 20 students

\*SSA 3095A/B Demographic Techniques: This class will explore the demographic techniques used to describe the dynamics of population structure. Various demographic sources ranging from census to church records will be examined. Basic techniques for determining rates and measures of fertility, mortality, morbidity and growth as well as more advanced methods using computer programmes and simulations will be discussed. Students will be expected to complete a project using primary sources. A knowledge of logarithms and high school algebra is required.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R and SSA

2010A Enrolment: 20 students

\*SSA 3100A/B Feminism and Sociological Theory:
An examination of sociological theory using a
feminist perspective, and an exploration of
feminist theorizing. Topics include feminist
critiques, comparative theories, principles of
feminism, methodological issues, Marxist-feminist
theorizing, Radical feminist theorizing, and the
study of key authors in selected areas of interest.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA 1100R, SSA 1200R and SSA

2240A/B; or two Women's Studies

credits
Enrolment: 20 students
Cross-listed: WOST 3805A/B

\*SSA 3110A/B Sociology of Leisure: This class looks at the phenomenon of leisure from a sociological perspective. Emphasis is on leisure research and the application of sociological theories to the study of leisure. Topics include: the social organization of leisure; the leisure industry and the roles of the state, the mass media, culture and leisure; and leisure and disadvantaged groups, e.g., women, the elderly, the unemployed, and minority groups.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R Leisure Studies 3491B

Cross-listed: Leisure Stu Enrolment: 20 students SSA 3115A/B Research Methods: This class discusses the construction of theory, the formulation of research problems, research designs, measurement, methods of data collection, and analytic theory testing. Special attention is given to the sample survey as one of the main methods of social science research. Practical experience in survey methods is provided through a class project.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R and SSA 2010A and SSA 2011B and SSA

3415A/B

Enrolment: 20 students

\*SSA 3116A/B Issues in Social Research: This class focuses on various methodological issues such as causal analysis, qualitative research, measurement theory. The specific class content in a given year is available through the Department.

Format: Seminar 2-3 hours
Prerequisite: SSA 1000R, SSA 10

SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R and SSA 2010A and SSA 2011B

Enrolment: 20 students

\*SSA 3117A/B Formal Organizations: This class makes a critical study, from the comparative point of view, of theoretical models for the analysis of bureaucratic organizations. Students examine the classical, structural-functionalist, and management-science approaches to organizations. The class entails a systematic survey of the sociological literature on this subject, with special concentration on organizational structure, strategy and decision-making.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 20 students

\*SSA 3120A/B Social Conflict: Introduces students to the various analytical perspectives sociologists have employed to understand the patterning and consequences of conflict in society. In this regard particular attention is devoted to the functional, coercion, and Marxian theories of conflict. This class is also concerned with conflict in contemporary society, with special reference to patterns of conflict and change in Canada.

Format: Seminar 2-3 hours
Prerequisite: SSA 1000R, SSA 1050

SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R

Enrolment: 20 students

\*SSA 3135A/B The Social Organization of Health Care: The social organization of medicine and the politics of health are examined. Particular attention is paid to environmental and occupational health issues in light of technological and social change. Epidemiological patterns of morbidity and mortality are assessed. Students are

responsible for seminar presentations in areas of

interest. Format:

Prerequisite:

Seminar 2-3 hours

SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R

Enrolment:

20 students

\*SSA 3140R Sociology of Mental Disorders:
Mental disorders as both a social and sociological problem. Social factors in the definition, incidence, etiology, and treatment of mental disorders are examined. Societal views toward and responses to so-called mental illness are reviewed and analyzed from a sociological perspective. Other topics include the social role of the mental patient and the development of mental health policy in Canada. Evaluation is based primarily on essays or a term paper. Format: Seminar 2-3 hours

Format: Seminar 2-3 hours

prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 20 students

•ssa 3145A/B Gender and Health: The class focuses upon 3 major areas in the relationship between gender and health: (a) The relationships among gender stereotypes and food, sexuality and body image, dieting and health; (b) Reproduction and childcare including birth control, menstruation, menopause, reproductive technology, childcare and child health; (c) Health care and health care workers - an analysis of caring, both paid and unpaid. Topics include sexual inequality in health care, health policy, family relationships and health care responsibilities.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R

Cross-listed: Women's Studies 3800A/B

Enrolment: 20 students

\*SSA 3150A/B Micro-Sociology: This class will consist of a micro-sociological examination of the human body as a socio-cultural construction. Topics include: bodily self image, cultural definitions of physical attractiveness, stigmatization, proxemic behaviour, non-verbal communications, body hygiene and pollution laboos, and cultural aspects of human reproduction and sexuality. Special attention will be paid to class, gender and ethnicity and their relationship to body politics.

Format: Seminar 2-3 hours
Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 20 students

\*SSA 3160 A/B Dawn of Civilization: The processes of development of civilization in the New and Old Worlds examined from the viewpoints of current anthropological and archaeological research, The role of environment, ideology, technology, and population as causal

and/or limiting factors will be examined, as well as those features which differentiate civilizations from other forms of society. Different explanations for the rise and decline of early civilizations are tested against the archaeological record.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 20 students

\*SSA 3170A/B Sociology of Sport and Recreation:
A survey class which views the interrelationships among sport, recreation, culture, and society from a sociological perspective. The class provides the student with a broad overview of selected sociocultural factors which help to explain the incidence, form, and regulation of sport and specified recreational elements in contemporary society.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Cross-listed: Physical Education 4490A/B

Enrolment: 20 students

\*SSA 3180A/B Issues in the Study of Society:
This seminar consists of an intensive examination
of a selected substantive issue within Sociology
and Anthropology. Since the specific topic or
research problem which receives special treatment
will differ from year to year, students are advised
to consult the department prior to registration.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 20 students

\*SSA 3185R Issues in the Study of Native Peoples of North America: This seminar is concerned with the historical background of the Native-European contact situation in North America and with issues arising from this background. Students will research and present reports on issues which are significant to themselves and important to native groups. Topics covered may vary from year to year, but will normally include a combination of historical issues such as culture change and acculturation among specific groups, and contemporary issues such as land claims, government policy, and social conditions of natives.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R and SSA 2350A/B or SSA 2360A/B or SSA

2355R

Exclusion: SSA 3185A/B
Enrolment: 20 students

\*SSA 3190A/B Social Movements: The general topic of unstructured group activity encompasses phenomena traditionally classified as collective

behaviour incidents, as well as reformist and revolutionary social movements. Although there is considerable overlap, the collective behaviour literature tends to focus on relatively brief and spontaneous activities, such as panics, disasters, and crazes, while work on social movements examines relatively more organized and enduring group activities which still fall outside the realm of normal institutions. This class investigates problems emerging from both areas of concern. Emphasis is given to relevant Canadian materials.

Format: Seminar 2-3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

Enrolment: 20 students

\*SSA 3205R Ethnicity, Nationalism, and Race: This class begins with a consideration of the concepts of ethnic group and race, and proceeds to a view of ethnic group formation and change. Next, systems of ethnic stratification are surveyed. The class concludes with the study of policies concerning ethnic relations, ethnic nationalist movements, and problems of race and ethnic relations. Both Canadian and comparative data, particularly from developing countries, are included.

Format:

Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 20 students

\*SSA 3210R Continuity and Change in Rural Societies: An examination of the ways of life of the majority of humanity. The focus is upon groups making their living from primary production (farming, fishing) or artisan production. The structures developed and stategies employed at the local level as well as in situations of subordination to more powerful insitutions and groups are of particular concern. The perspective taken is comparative with cases from the western world contrasted with other areas.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Enrolment: 20 students

\*SSA 3220A/B Coastal Communities: Coastal communities as a social/ecological type are examined as populations, and social structures (territorial, economic, occupational, political) as they have developed in response to particular ecological and social circumstances. Various perspectives which have been applied to coastal communities are examined with regard to the contribution they may make to understanding the dynamics of these communities. Major (though not exclusive) emphasis is on North Atlantic communities.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

Environmental Studies 5180R Cross-listed: Enrolment: 20 students

\*SSA 3230R Psychological Anthropology: The overlap between psychology and anthropology, Topics include: culture and personality, culture and mental health, psychiatry in other cultures cross-cultural differences in learning, and the evolution of human psychological characteristics The class will focus on the extensive psychological anthropology literature dealing with the people of Japan.

Format: Seminar 2 - 3 hours

SSA 1000R, SSA 1050R, SSA Prerequisites:

1100R or SSA 1200R

Exclusion: SSA 2230R Enrolment: 20 students

\*SSA 3250A/B Sociology of Science and Ideas: In. the attempt to understand the reciprocal interaction between science and society we stress a comparative approach, examining science in different cultural groups and different historical periods. Various modern scientific disciplines are compared in different countries, including developing and developed countries, with differing economic and political organizations. The social organization of science is investigated through the application of micro-sociological analysis (e.g. small groups and organizational sociology theory). In particular, we focus upon tensions and conflicts within the scientific community which are understandable in sociological terms. We examine innovation and change within the scientific community, including the processes by which new fields emerge and new ideas are evaluated.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA

1100R or SSA 1200R

20 students Enrolment:

\*SSA 3275A/B Crime and Public Policy: This class deals with the dynamics of change in the criminal justice system that reflect three major factors namely social movements (e.g., the victims movement, the women's movement), social forces (e.g. aging, multiculturalism), and internal processes (e.g., professionalism, rationalization). The class focuses on how outside pressures modify, and are channelled by, the criminal justice system.

Format: Seminar 2-3 hours

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R

**Enrolment:** 20 students

\*SSA 3280R Youth Crime: This class deals with criminal offences committed by young persons. Etiologies drawn from various disciplines are examined and evaluated. A secondary focus concerns the criminal justice system as it applies to young offenders.

Seminar 2-3 hours Prerequisite:

SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R and SSA

2030R or SSA 2180R 20 students

Enrolment:

SSA 3285R Sociology of Criminal Law: This class includes an examination of the philosophy and origins of criminal law, with emphasis on the Canadian experience. Current issues related to revisions to the Canadian Criminal Code and the Young Offenders Act (1982) receive major emphasis.

Seminar 2-3 hours Format:

Prerequisite: SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R and SSA

2030R or SSA 2180R

Enrolment: 20 students

SSA 3290R Corrections: This class traces the difficulties of the penal system in Western societies, with particular reference to Canadian corrections. The effectiveness of current methods is assessed in terms of their aims and objectives. problems of the evaluation of current practice receive major consideration. Examination of conventional and innovative programmes in community-based treatment is included. Seminar 2-3 hours

Format: SSA 1000R, SSA 1050R, SSA Prerequisite: 1100R or SSA 1200R

20 students Enrolment:

\*SSA 3295A/B Society and the Police: The police play an increasingly powerful role in the maintenance of social order in contemporary Canadian society. This class introduces students to sociological theory and research on: a) the role of police in social develoment and social control; b) the historical and political development of public policing; c) the nature and structure of police work; d) control and accountability and e) selected issues in policing such as, policing the family, minorities and the police, community based policing and police discretion.

Format: Seminar 2-3 hours

Prerequisite: SSA1000R, SSA1050R, SSA

1100R or SSA1200R & SSA2180R

Enrolment: 20 students

SSA 3401A History of Sociological Thought: Selected theorists in the history of sociological

thought.

Format: Seminar 2-3 hours

Prerequisite: SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R and SSA

2240A/B or SSA 2250A/B

Enrolment: 20 students

SSA 3405B Contemporary Sociological Theory: A number of recent theoretical developments in sociology are critically examined. The choice of specific theoretical topics is left up to the

instructor.

Seminar 2-3 hours Format:

Prerequisite: SSA 1000R, SSA 1050R, SSA 1100R or SSA 1200R and SSA

2240A/B or SSA 2250A/B

20 students Enrolment:

SSA 3415A/B Social Statistics: There are three main components to this class: (1) lectures, in which the logic of statistical inference is presented; (2) laboratories, in which computer programmes such as SPSS are utilized; and (3) analysis of sociological data. Students are required to interpret the results of the analysis in two drafts of the same paper. An appreciation of the interplay among methods, theory and statistics is emphasized. A grasp of Grade 9 algebra is assumed.

Seminar 2-3 hours Format:

SSA 1000R, SSA 1050R, SSA Prerequisite:

1100R or SSA 1200R and SSA

2010A and SSA 2011B

20 students Enrolment:

SSA 4000R Seminar in Social Anthropology: This seminar is designed to allow small groups of students to pursue a particular area in social anthropology for which no regular class is offered. The topic and requirements for the class are jointly decided by the students and the professor involved.

Format: Seminar 2-3 hours

Honours registration in Social Prerequisite:

Anthropology or permission of

the instructor.

**Enrolment:** as required

SSA 4500R Honours Seminar in Sociology: Consult the Department's Undergraduate Advisor for details of this class.

Seminar 2-3 hours Format:

Prerequisite: Honours registration in Sociology

or permission of the instructor.

**Enrolment:** as required

SSA 4510A/B Readings in Sociology/Social Anthropology: In a reading class the student is assigned to a member of staff for regular meetings to discuss readings in a selected area. Papers and research projects are expected.

Format: individual instruction

Honours registration in Sociology Prerequisite:

or Social Anthropology or permission of the instructor.

**Enrolment:** as required

SSA 4520A/B Readings in Sociology/Social Anthropology: See class description above.

Seminar 2-3 hours Format:

Honours registration in Sociology Prerequisite:

or Social Anthropology or permission of the instructor.

Enrolment: as required

SSA 4590R Honours Seminar in Anthropology:

This class carries two credits. The student writes an honours thesis under the supervision of his/her principal adviser.

Seminar 2-3 hours or individual Format:

supervision

Honours registration in Social Prerequisite:

Anthropology or permission of the

instructor.

Enrolment: as required

## Spanish

Location:

1376 LeMarchant Street

Halifax, N.S.

(902) 494-2544 Telephone:

Chair

J.E. Holloway (494-2544)

**Undergraduate Advisor** 

J.E. Holloway (494-2544/7017)

**Professors** 

J.M. Kirk, BA (Sheff.), MA (Queen's), PHD

A. Ruiz Salvador, BA (Brandeis), AM, PHD (Harv.)

**Associate Professors** 

J.E. Holloway, BA (No. Colo.), MA (Wyoming), PHD (Duke)

Lecturer

M. Jimenes (Sorbonne)

#### Introduction

After Chinese and English, Spanish is the most widely spoken language in the world. It is the native tongue of well over 300 million people living in 22 countries.

Spanish-speaking nations are making international headlines and students of political science, economics, commerce, sociology, anthropology, literature, history, and other academic disciplines feel increasingly interested in this area of the world. Students from these departments are welcome to take our classes on Spanish and Latin American culture, civilization, history, and politics. These classes are conducted in English, the reading is in translation, and there are no prerequisites.

Knowledge of the Spanish language will be useful to all Canadians seeking careers as members of the foreign service, business, interpreters, translators, teachers, professors, critics, editors, journalists, and many others. Our beginning language class especially emphasizes conversational Spanish.

It is a widely recognized fact that some of the best novels and poetry are coming out of Latin America today, providing stimulating and challenging material for many of our literature

If your tastes and abilities lie in the direction of Spanish or Latin American studies vou should consider the possibility of taking Spanish as an area of concentration in a General Bachelor's degree programme, a Bachelor's degree with Honours in Spanish, or with Honours in Spanish and another subject combined. An undergraduate concentration in Spanish, followed by training in Management Studies, for example. could lead to a variety of possible careers in the Spanish-speaking world in international business and public service.

#### The Salamanca Programme at the Colegio de España

The Salamanca Programme is a special inter-disciplinary course of instruction designed to allow Dalhousie students to undertake both an intensive study of the Spanish language and classes in Hispanic culture. In order to participate, students must normally have completed Spanish 2010B with at least a standing of 'B'. The programme takes place during the fall. lasts for one term, and is offered at the Colegio de España in Salamanca, Spain. Dalhousie University will grant 21/2 credits to those students who successfully complete their classes in Spain. Enquiries and applications should be addressed to the Coordinator of the Programme.

### Spanish Studies to be taken at the Colegio de España

SPAN 3100S Advanced Grammar (1 credit) SPAN 3120A Spanish Art (1/2 credit)

SPAN 3140A Spanish Literature (1/2 credit) SPAN 3160A Spanish History (1/2 credit)

Spanish Degree Programmes

## Bachelor of Arts with Honours in Spanish

Classes should include:

SPAN 1020R, and four electives. Year I:

SPAN 2000A, SPAN 2010B, SPAN 2500A/B, SPAN 2510A/B, plus two

other 2000-level half classes; a class in the minor subject; and one elective.

SPAN 3020A/B, SPAN 3030A/B, plus Year III: two other 3000-level half classes; a class in the minor subject, and an elective in a subject other than that of

the previous year.

Year IV: Six Spanish half classes to be chosen from the upper-level programme; and two electives (may be Spanish).

In addition, students are required to write an Honours essay, in Spanish, supervised by a member of the Department.

## Rachelor of Arts with Combined Honours in Spanish and Another Subject

Programmes may be arranged by consultation (as early as possible) with the departments concerned.

The "other" classes chosen as electives in the programmes outlined above must satisfy general degree requirements.

Combinations of classes other than those set forth above may be chosen after consultation

with the Department Chair.

A student may, with the permission of the Department, be admitted to a Spanish class at an advanced point because of prior knowledge of the language. Such a student, however (except as he/she may be granted transfer credits in the usual way), must normally take the same total number of classes as other students in the same programme.

#### Advanced Major

The BA Advanced Major 20 Credit Programme is also available in Spanish. It is comprised of 6-9 credits in Spanish beyond the first year, of which at least 3 must be beyond the 2000 level. Recommended classes are those also listed in the Spanish Honours Programme description, and students wishing to change to an Honours Programme may do so, provided the quality of their work justifies it.

#### **Bachelor's Degree**

Programme should consist of at least four full-credit upper level classes taken in the second and third year, four of which must be conducted in Spanish. Any student who wishes to deviate from these basic requirements should consult the Department Chair.

#### Classes Offered

Classes marked \* are not offered every year. Please consult the current timetable on registration to determine if this class is offered.

SPAN 1010B Advanced Beginning Spanish: For students with some slight prior knowledge of Spanish. Students join, at mid-year, classes of SPAN 1020R already in progress.

Instructor:

Staff

Format:

Discussion and conversation 3

hours, lab as needed.

Prerequisite:

Knowledge of Spanish to the equivalent of first half of SPAN

1020R.

Enrolment: No limit

SPAN 1020R Beginning Spanish: For students wishing to achieve proficiency in both spoken and written Spanish.

Instructor: Staff

Discussion and conversation 3 Format:

> hours, language lab and computer-assisted language learning techniques as needed.

Prerequisite: For students with no knowledge or only a slight knowledge of

Spanish.

Enrolment: Limited to 25

\*SPAN 1100A/B Spanish Civilization: Although it may sound self-evident to Canadian students, this class deals with Spain and the Spaniards. What Spain is and who the Spaniards are, however, may not be that clear-cut for Spaniards themselves. This class is a search for Spain throughout her history (Roman, Arab, Jewish, and Christian Spain), her art, literature, four main languages, and customs. The goal is a clearer picture of one of the most perplexing components of Western

Instructor:

A. Ruiz Salvador Format:

Lecture and discussion 2 hours,

conducted in English.

Prerequisite: No prerequisites. Open to students in all departments. No

knowledge of Spanish necessary.

Enrolment: Limited to 60

\*SPAN 1110A/B Latin American Civilization:

The aim of this class is to provide the non-specialist with a basic understanding of this complex -- and fascinating -- world area. The first half of the class examines the development of Latin America from pre-Columbian times to the Mexican Revolution. In the second half, by means of a careful study of selected texts, the class examines the way in which the reality of Latin America has shaped a continental cultural identity, producing one of the most dynamic, "readable" world literatures.

Instructor: J. Kirk

Format: Lecture and discussion 2 hours,

conducted in English.

No prerequisites. Open to Prerequisite: students in all departments. No

knowledge of Spanish necessary.

**Enrolment:** Limited to 60

SPAN 2000A Intermediate Spanish: This class continues the work done in SPAN 1010B or SPAN 1020R. Supplementary reading as necessary.

Instructor:

Staff

Format: Discussion and conversation 3

hours, language lab as needed.

Spanish 1020R, or equivalent. Prerequisite:

Limited to 20 Enrolment:

SPAN 2010B Reading and Conversation: Emphasis is on perfecting conversational skills as

the reading material is discussed in class. Instructor: Staff

Format: Discussion and conversation 3

Spanish 2000A, or equivalent Prerequisite:

Enrolment: Limited to 20

\*SPAN 2069A/R Central America to 1979:

Events in Central America are frequently covered in our media, causing people to believe that "the unrest" there is recent. This class seeks to examine the historical roots of the conflict from the colonial period until the 1970s. The aim of the class is to provide students with a background knowledge of this area, so that they can better understand current developments there.

Instructor: J. Kirk

Lecture and discussion 2 hours. Format:

conducted in English.

No prerequisite. Open to students Prerequisite:

in all departments. No knowlege

of Spanish necessary.

**Enrolment:** Limited to 60

\*SPAN 2070A/B Area Studies on Mexico and Central America: Following an examination of the Indian heritage, and the colonial legacy of the conquistadors, the class deals principally with the contemporary period, examining the Mexican Revolution and its aftermath, Petroleum Power, the Somoza dynasty, Nicaragua under the Sandinistas, the U.S. role in the region, the human rights situation in Central America, the current El Salvador crisis, and probable developments in the region. The class is designed to provide an understanding of the contemporary reality of this volatile region, in many ways a microcosm of the crucial situation of Latin America as a whole. J. Kirk Instructor:

Format: Lecture and discussion, 2 hours,

conducted in English.

No prerequisites. Open to Prerequisite:

students in all departments. No

knowledge of Spanish necessary.

Enrolment: Limited to 60

\*SPAN 2080A/B The History of Modern Spain: This class focusses on four main historical periods: the Republic of 1931, the Civil War (1936-1939), General Franco's Spain (1939-1975), and the post-Franco Restoration of the Monarchy.

Instructor:

A. Ruiz Salvador

Format:

Lecture and discussion 2 hours. conducted in English.

Prerequisite:

No prerequisites. Open to students in all departments. No knowledge of Spanish necessary.

Enrolment: Limited to 60

\*SPAN 2100A/B La Civilización de España: Recommended to students planning to join the Salamanca Programme at the Colegio de España This class is an exploration of Spain, one of Europe's most perplexing nations, with references to its history, art, literature, languages, and

Instructor:

A. Ruiz Salvador

Format:

Lecture and discussion 2 hours

conducted in Spanish.

Prerequisite:

SPAN 1020R and SPAN 2000A or equivalent facility in the

Spanish language. Limited to 25

Enrolment:

\*SPAN 2109A/B Cuba from Colonial Times to

1961: While many people are aware of the impact of the Cuban Revolution of 1959, few are aware of the kind of society that existed in Cuba beforehand. This class seeks to examine the historical roots of the country from the colonial period until the 1960's, with particular attention being paid to socio-cultural aspects. The objective is to provide students with a background knowledge of this country and its current reality.

Instructor: J. Kirk

Format:

Lecture and discussion 2 hours.

conducted in English.

Prerequisite:

No prerequisites. Open to students in all departments. No knowledge of Spanish necessary.

Limited to 60 Enrolment:

\*SPAN 2110A/B The Cuban Cultural Revolution: Cuba, the only Communist society in the Western Hemisphere, has undergone a dramatic political and economic transformation. The Revolution has also brought about changes in education, the arts, the role of women, race relations, and athletics. The class focuses on the problems and achievements of the Revolution, the peculiarities of Communism in a Caribbean society, and its effect on literature and the arts.

Instructor: I Kirk

Format:

Lecture and discussion 2 hours,

conducted in English No prerequisites. Open to

students in all departments.

Prerequisites: **Enrolment:** 

Limited to 60

\*SPAN 2130A/B Latin American Dictators in the Novel: The history of Latin America since Independence has been characterized by the rise to power of countless dictators. Some of the best Latin American novels portray these almost mythical figures who to this day wield absolute power in many countries. The class examines the literature and history of this phenomenon with particular attention to the twentieth century, and attempts to discover its roots in militarism, underdevelopment, and imperialism. Instructor:J. Kirk

Format:

Lecture and discussion 2 hours, conducted in English.

prerequisites: No prerequisites. Open to students in all departments. No

knowledge of Spanish necessary.

Limited to 60

ISPAN 2210A/B The Novel of the Mexican

gevolution: The Mexican Revolution (1910-1917) is the first people's revolution of the twentieth century. The prerevolutionary situation, the war, and its aftermath, resulted in some of the finest Latin American novels. This class views these works against the historical and social background of contemporary Mexico.

Instructor:

J. Kirk

Lecture and discussion 2 hours, Format:

conducted in English. Prerequisites:

No prerequisites. Open to

students in all departments. No knowledge of Spanish necessary.

Limited to 60 Enrolment:

SPAN 2220A/B Masterpieces of Spanish Theatre: This class discusses and analyzes plays from Spain's Golden Age (16th and 17th centuries) as well as works written in the contemporary period.

lectures provide an historical and cultural context for the plays which clarifies their significance.

Staff Instructor: Format:

Lecture and discussion 2 hours,

conducted in English.

No prerequisites. No knowledge Prerequisites:

of Spanish necessary.

Limited to 25 Enrolment:

SPAN 2230A/B Contemporary Latin American Prose: This class samples short stories and novels of contemporary prosists from throughout Latin America. Included are works by such outstanding experimental writers as Julio Cortázar, Juan Rulfo, Carlos Fuentes, Alejo Carpentier, García Márquez and José Donoso-- authors whose vigorous narrative, technical innovation and synthesis of surrealism, myth, and magical realism evidence not only a "new consciousness" in Latin America, but perhaps a rejuvenation in prose art of global consequence.

Instructor:

J. Holloway

Format: Lecture and discussion 2 hours,

conducted in English

Prerequisite: No prerequisites. Open to students in all departments. No knowledge

of Spanish necessary.

Enrolment: Limited to 25

\*SPAN 2240A/B Contemporary Latin American Prose, Part II: This class is a continuation of Spanish 2230A/B, but may be taken independently of it.

Instructor:

J. Holloway

Format: Lecture and discussion 2 hours,

conducted in English. No prerequisites

Prerequisite: Enrolment: Limited to 25 \*SPAN 2500A/B Introduction to Spanish

Literature: Study of illustrative works.

A. Ruiz Salvador Instructor:

Lecture and discussion 2 hours,

conducted in Spanish

SPAN 2000A, or equivalent Prerequisite:

Enrolment: Limited to 25

Format:

\*SPAN 2510A/B Introduction to Latin American Literature: Introduction to major authors and trends in recent Latin American literature. Study of illustrative works.

J. Holloway Instructor:

Lecture and discussion 2 hours, Format:

conducted in Spanish.

SPAN 2000A, or equivalent Prerequisite:

Enrolment: Limited to 25

\*SPAN 3010A/B Workshop in Advanced Oral Spanish: This class intends to build vocabulary, increase fluency and enhance the style of spoken Spanish through continued development and intensive use of oral Spanish skills.

Staff Instructor:

Lecture and discussion 3 hours, Format:

conducted in Spanish

SPAN 2010B, or equivalent Prerequisite: Limited to 20 Enrolment:

SPAN 3020A/B Translation: Exercises in translation from Spanish to English and from

English to Spanish. Instructor:

Lecture and discussion 3 hours Format: SPAN 2000A, or equivalent

Prerequisite: Enrolment: Limited to 20

SPAN 3030A/B Composition: Training towards accuracy in writing Spanish. Vocabulary-building, free composition.

Instructor:

Lecture and discussion 3 hours Format: SPAN 2000A, or equivalent Prerequisite:

**Enrolment:** Limited to 20

\*SPAN 3070A/B Contemporary Latin American History: This class examines the underlying structures of Latin America through a consideration of the major political and social trends in the continent. After a brief historical overview it studies both general currents (e.g., the Church's role, militarism's growth, and U.S. influence) and specific developments, such as the Mexican and Cuban Revolutions, Chile under Allende and Pinochet, and the Sandinistas' Nicaragua. This helps the student understand the present-day reality of this important world area. J. Kirk Instructor:

Lecture and discussion 2 hours, Format:

conducted in English

Prerequisite: No prerequisites. Open to

students in all departments. No knowledge of Spanish necessary.

Enrolment: Limited to 60

\*SPAN 3200A/B Cervantes: This class examines Cervantes' philosophy of life through an analysis of his great masterpiece, Don Quixote. In this precursor of the modern novel. Cervantes studies human nature in all its many aspects. Life is presented as a complex and ironic interplay of idealism and disillusionment, appearance and reality, chivalrous love and worldly love. All truth is relative, but the ultimate irony is felt by the reader himself who discovers, in the end, that Don Quixote's view of the world is superior to that of all the "sensible" people who judged him to be mad.

Instructor: Staff

Lecture and discussion 2 hours. Format:

conducted in English.

Prerequisite: No prerequisites. Open to

students in all departments. No knowledge of Spanish necessary.

Enrolment: Limited to 25

\*SPAN 3215A/B Seminar in Spanish American Literature: This class studies in depth, selected topics in Spanish American prose and poetry, in their cultural and aesthetic contexts. Areas of special focus include modernismo, creacionismo and the prose of Quiroga and the Regionalist authors, as well as the more recent inheritors of these traditions; Neruda, Vallejo, Paz and novelists of the "Boom" generation.

Instructor: J. Holloway

Format: Lecture and discussion 2 hours.

conducted in Spanish

Prerequisite: SPAN 2010B, or equivalent

Enrolment: Limited to 25

\*SPAN 3225A/B Seminar in Modern Spanish Literature: This class studies in depth, selected topics in Modern Spanish prose and poetry, in their cultural and aesthetic contexts. The focus of the class falls especially on such figures as Galdos, Leopoldo Alas, and writers of the Generation of '98 such as Baroja, Unamuno, Ortega, Machado and Jiménez.

Instructor: A. Ruiz Salvador

Format:

Lecture and discussion 2 hours.

conducted in Spanish

Prerequisite: SPAN 2010B, or equivalent

Enrolment: Limited to 25

\*SPAN 3230A/B Literature of the Spanish Civil War: A study of representative works.

Instructor: A. Ruiz Salvador

Format: Lecture and discussion 2 hours,

conducted in Spanish

Prerequisite: SPAN 2010B, or equivalent

Enrolment: Limited to 25 \*SPAN 3500A/B Contemporary Spanish

Literature: A study of representative works

Instructor: A. Ruiz Salvador

Lecture and discussion 2 hours, Format: conducted in Spanish

SPAN 2010B, or equivalent Prerequisite:

Enrolment: Limited to 25

\*SPAN 3510A/B Contemporary Spanish American Literature: A study of representative works

J. Holloway Instructor:

Lecture and discussion 2 hours Format:

conducted in Spanish

SPAN 2010B, or equivalent Prerequisite:

Limited to 25 Enrolment:

\*SPAN 3970A/B Directed Reading in Spanish American Literature

\*SPAN 3975C Directed Hispanic Studies

\*SPAN 3980A Reading class for majors

\*SPAN 3990B Reading class for majors

\*SPAN 4040A/B Advanced Style and Syntax:

Instructor:

Format: Lecture and discussion 2 hour Prerequisite: SPAN 3020, or equivalent

Enrolment: Limited to 25

\*SPAN 4500A/B Golden Age

\*SPAN 4510A/B Golden Age Poetry and Prose:

Instructor:

Format: Lecture and discussion 2 hours Prerequisite: SPAN 3020, or equivalent

Enrolment: Limited to 25

SPAN 4980A Reading class for Honours students

\*SPAN 4985C Independent Advanced Hispanic **Studies** 

SPAN 4990B Reading class for Honours students

## Theatre

Location:

Dalhousie Arts Centre, 5th Floor

Halifax, N.S.

Telephone: (902) 494-2233

Chair

D. Overton (494-2241)

**Undergraduate Advisor** R.G. Merritt (494-2233)

professors AR. Andrews, BA, Dipl. Ed., MA (Leeds), PhD Perina, MA Dipl. Scenography (Prague)

Associate Professors

P. Christopher, Dipl. (NTSC)

R.G. Merritt, AB (Corn.), MA (N.Car.), PhD

P.B.O'Neill, BA (Waterloo), MA (USD), PhD

n Overton, BA, MA (UBC), PhD (Calif.)

y Collins, AB (Dallas), MFA (Calif.)

Senior Instructor L Sorge, BA (King's/Dal)

**production** Manager D. Griffin

Special Instructors

C. Bader (Acting)

K. Edgett (Acting)

B. MacLennan (Light and Sound)

M. McMurray Pigot (Acting)

D. Porter (Properties)

R. Theriault (Costumes)

I. Thomson (Construction)

#### Introduction

The Dalhousie Theatre Department offers different ways to study the theatre: (1) You can undertake programmes that lead to a university degree: an Honours BA (4 years), a General BA (3 years); (2) You can enroll in a training programme in costume studies that leads to: a Certificate (2 years), a Diploma (3 years); (3) You can select certain theatre classes to reinforce and complement your studies in other disciplines offered by the university; (4) You can enroll in one class, from a special group, as a part-time or extension student.

Basically, the degree programmes involve a curriculum of theatre classes, and a selection of other classes in different disciplines. The university has a set of regulations which specify how these programmes must be arranged. These regulations are all listed earlier in this calendar, and prospective students should refer to them to become aware of the opportunities offered. There are a surprising number of different ways to arrange one's studies; what we recommend is the basic structure you should follow if theatre is your primary interest.

## Degree Programmes

Note: Honours programmes may not be available. Interested students should contact the

Undergraduate Advisor.

### **BA** with Honours in Theatre (4 years)

Students who wish to follow a programme of theatre studies that keeps the whole of the theatre in perspective choose this programme. They must maintain a high scholastic level of performance to remain in this programme (B- or better in all classes.) Only theatre classes are listed.

> Year 1: THTR 1000R, THTR 1050R. Year 2: THTR 2000R, THTR 2011A/B, THTR 2012A/B, and THTR 2900R or THTR 2700R.

Year 3: THTR 3500R and choice of two of THTR 3200R, THTR 3600R, THTR 2300R or THTR 3510A/B.

Year 4: THTR 4900, THTR 4700R, THTR 4710R.

#### **BA** with Combined Honours (4 years)

It is possible to follow a programme of studies that leads to Combined Honours in two subjects. Students interested in constructing such a programme should start by seeing both Chairpersons of the disciplines they wish to combine. From that point a suitable programme can be constructed.

#### BA in Theatre (Acting) (3 years)

The BA programme in acting is a degree program only, and students in it must satisfy the ongoing degree requirements of the University. If accepted as a result of audition you must pursue the following programme:

> Year 1: THTR 1500R, THTR 1050R, plus three classes in other

subjects.

Year 2: THTR 2011A/B, THTR 2012A/B, THTR 2800R/ THTR 2810R/ THTR 2820R, plus one class in another subject.

Year 3: THTR 3800R/ THTR 3810R/ THTR 3820R and either THTR 3500R or THTR 2900R, plus one class in another subject.

## BA in Theatre (Scenography & Technical Scenography (3 years; 4 years with Honours)

People from very different backgrounds are attracted to the study of scenography. Students with considerable art school or architecture background are offered especially tailored programmes, and should contact the scenography professor to work out a suitable programme of studies in scenography. Students starting with a keen interest and little formal background in art or architecture are admitted if they meet the university entrance requirement, and should then plan to follow the following programme:

Year 1: THTR 1000R, THTR 1050R; plus three classes in other subjects.

Year 2: THTR 2700R, THTR 2011A/B, THTR 2012A/B, THTR 2060R/ THTR 2070R; plus one class in another subject.

Year 3: THTR 3060R/ THTR 3070R; plus two of THTR 2000R, THTR 2900R, THTR 2300R, THTR 3500R, THTR 3710R, plus one class in another subject.

Year 4: THTR 4900R; plus two of THTR 3600R, THTR 3200R, THTR 4700R, THTR 4710R; plus two classes in other subjects.

Students wishing to pursue the scenography specialty are urged to make an appointment with the scenography professor before they register to ensure they plan their specific programme in line with their particular needs.

#### BA with a Major in Theatre

You can major in theatre in a three-year BA programme (15 classes). This requires at least four and not more than eight theatre classes beyond the 1000-level. You may also take an advanced major after consultation with the Undergraduate Advisor.

> Year 1: THTR 1000R, THTR 1050R; plus three other classes of your choice.

> Year 2: THTR 2011A/B, THTR 2012A/B plus up to three of THTR 2000R, THTR 2700R, THTR 2900R; plus elective(s).

> Year 3: Up to four of THTR 3200R, THTR 3500R, THTR 3510A/B, THTR 2300R, THTR 3600R, plus elective(s).

Optional - consult the department.

#### Combined BA/BEd

The Theatre Department in conjunction with the School of Education may offer a 4-year programme leading to the BA and BEd degrees. The outline of this programme is approximately as follows:

> Year 1: (5 Credits) THTR 1000R, THTR 1050R, an approved writing class (1 full credit), introductory class in minor area\* (1 full credit), and Arts and Social Sciences elective (1 full credit).

(5 Credits) THTR 2000R, THTR Year 2: 2900R, further classes in minor area\* (2 full credits), 1/2 credit class in educational foundations, 1/2 credit Arts and Science or other elective.

(6 Credits) THTR 3200R, THTR 2011A/B, THTR 2012A/B, further classes in minor area\* (2 full

credits at 2000\* level), two 1/2 credit classes in educational foundations, and one credit Arts and Science or other elective.

Year 4: (6 Credits) Education 4620R, One credit class in Field Experience. one credit in methods area (elementary option: 2 credits) one credit in special education, 1/2 credit class in educational foundations, further class in minor area\* (1 full credit), and 1/2 credit Arts and Science or other elective.

> The minor area must also be a recognized teachable subject.

For further information, consult the Undergraduate Advisor.

### Costume Studies, Certificate in 2 years. Diploma in 3 years

This professional programme is designed for the student whose goal is the professional theatre or the fashion industry. Students must meet university entrance requirements. Students in this programme do not have to take classes outside of theatre.

Students are required to work on departmental productions as a means of gaining proficiency in garment assembly. In order to maintain a harmonious student/teacher relationship only twenty-five students will be enrolled in the first year, fifteen students in the second year and five in the third year. The third year prepares the student for professional work, either in the fashion industry or in the theatre.

#### **Facilities**

The department is located in the theatre wing of the Dalhousie Arts Centre. The theatre wing is a self-sufficient unit involving one proscenium theatre, two studios, and supporting workshops.

The department is developing close collaboration in certain theatre work with the Neptune Theatre and other regional theatres.

Some theatre classes by the nature of the work involved have a restricted enrollment. All students wishing to take any class in theatre should therefore first consult with the department.

Please note: Theatre by its nature requires evening work. Students, especially in acting, scenography, and costume classes, are advised not to undertake other evening commitments.

## Classes Offered

Note: Classes marked \* are not offered every Please consult the current timetable on registration to determine if these classes are offered.

## classes in the Degree Programme

year 1 THIR 1000R The Nature of the Theatre: This class provides an introduction to the nature of the production process and theatre through lectures, discussion, demonstration, script analysis, and practical scene work.

R.G. Merritt/D.R. Overton Instructor: Lecture/lab 3 hours Format: 30 per section

THTR 1010R Introductory Theatre: (Summer session only). This class provides an introduction to the nature of the theatre as a composite performing art, involving work with written scripts. improvisation, criticism, and discussion leading to a basic understanding of the functions of theatre. It is designed to serve as an elective for the student who wishes to take a single class in theatre. It may serve as a prerequisite to advanced theatre classes in lieu of THTR 1000R.

D.R. Overton Instructor: lecture/lab 10 hours Limited to 20 Enrolment:

THIR 1050R Theatre Organization and Starccraft: An introduction to theatre production,

providing initial contact with scenography. Basic theatre construction, common materials used for construction, stage properties and costumes, knowledge of basic theatre lighting and sound equipment, and the methods and procedures for working with all of them efficiently, creatively and safely make up the substance of this class. Students who intend to major in the theatre programmes must take this class. It is also a prerequisite for the scenography classes. Because of the required evening production work, those enrolling in this class must avoid permanent evening commitments other than departmental theatre activity during the academic year. There are certain lab charges connected with this class. Instructor: P.Perina and staff

Format: lecture 2 hours, lab 4 hours Enrolment: Limited to 50

THTR 1200R The Nature of Acting: (Summer Session only). This class is designed to be a basic exploration of the fundamental techniques required by the performer. It is not intended as a substitute for THTR 1500R nor is it a prerequisite for admission to the acting programme. Through the use of theatre games (C. Barker), introductory improvisational exercises (V. Spolin), and physical awareness work (R. Benedatti), the student develops the imaginative

and emotional awareness that serves as the foundation of the performers' technique.

Instructor: P.Christopher Format: 6 hours lecture **Enrolment:** Limited to 20

THTR 1500R An Introduction to Theatre Studies (Acting 1): Acceptance into the Acting Programme is highly selective and is based on an evaluation of the applicant's ability and potential through the audition process. (Contact the Department of Theatre for details.) DISCOVERY YEAR: The first year of the programme is structured to assist the acting student in the discovery of what talents--physical. vocal and imaginative--nature has provided them with. The student is guided in the discovery of what must be done to develop these talents in order to acquire technique and performance skills. Concentration is placed on the emotional and imaginative range through the use of theatre games, improvisational techniques and sensory awareness exercises. This work is integrated with the fundamentals of voice and speech and one term each of ballet and jazz training. A strong emphasis is placed on the discipline that is required for a career in the professional theatre. Instructor(s): Christopher/Collins and Acting Staff Format: 6 hours

Prerequisite: Audition (Consult department for

details.)

**Enrolment:** Limited to 20

#### Year 2

THTR 2000R Theatre Performance: Designed to provide exposure to the production/performance process. Through a workshop/discussion approach, basic performance problems are considered and the student is given the chance to experiment with various solutions in a performance situation. The ability to articulate solutions both verbally and nonverbally is developed. The class may result in a public performance.

Instructor: D.R. Overton Format: lecture/lab 6 hours **THTR 1000R** Prerequisite: Enrolment: Limited to 20

THTR 2011A/B The History of the Theatre from its Origins to the Renaissance: This class gives students an opportunity to study various aspects of the early history of theatre. Specific topics covered include the origins of theatre, the Greek theatre, the Roman theatre, the medieval theatre and the theatres of the Italian Renaissance and of Shakespeare. Although there is no formal prerequisite for the class, students should normally be in their second year of study. A background in theatre, history, and/or dramatic literature will be an advantage.

P.B. O'Neill Instructor: Lecture 3 hours Format:

Enrolment: Limited to 40

THTR 2012A/B The History of the Theatre from Renaissance to the Twentieth Century: This class is in a sense the sequel to Theatre 2011A/B, though that class is not a prerequisite. It aims to study the development of the theatre in Europe and North America from the Renaissance to the twentieth century. There is no prerequisite, but students should normally be in at least the second year of study. A background in history, theatre and/or dramatic literature will be an advantage.

Instructor: P.B. O'Neill Lecture 3 hours Format: Enrolment: Limited to 40

\*THTR 2020R Jazz Dance I: (Summer Session only). The Theories and techniques of Jazz Dance: the use of space, rhythm, dynamics, and aesthetic awareness. Emphasis is on the development of personal expression through the medium of dance. Concentration is also placed on awareness of dance terminology and vocabulary.

Instructor: K.Edgett

4 hours lab/demonstration Format:

Limited to 20 Enrolment:

THIR 2060R/2070R Technical Scenography I: This class is concerned with the progressively more complex problems of the preparation of theatre production in lighting, sound, construction, photography, and properties. The theory behind the operation of these crafts, the advances in technology and their expense and adaptability, form part of this class. Lecture periods are concerned with Stage Management, Technical Drawing, Theatre Organization and Administration as well as other related topics. Workshop preparation in light and sound, darkroom, properties, and construction is integrated with crew responsibilities in department productions. There are certain lab charges connected with this class.

Instructor: P. Perina and staff

Format: lecture/lab 6 hours

Prerequisite: THTR 1000R, THTR 1050R

Enrolment: Limited to 10

Format:

\*THIR 2300R Film as Theatre (Normally Summer Session): The class provides an overview of the development of film as both an art form and a portion of the "entertainment industry". In both its conception and initial practices, film began an an offshoot of popular 19th Century theatre, borrowing both its vocabulary and its aesthetics from the older art form. Since then, film has had a major influence on the modern theatre, and the function of the class is to explore the parallels by considering the content and style of significant films from the silent era to the present. This class replaces THTR 1300R. R.G. Merritt Instructor:

lecture/lab 8 hours

instructor Limited to 20

THTR 1000 or permission of

**Enrolment:** 

Prerequisite:

THTR 2700R Scenography I: Designed to give students basic visual judgement and understanding In the first half, it follows the Bauhaus approach to graphic design but adapts it to the needs of three-dimensional theatre space. In the second half the class teaches perspective; the final project is to integrate all the previous material and apply it to simple stage composition. Throughout the vear analysis and criticism of various works are encouraged. The texts followed are Gyorgy Kepes' Language of Vision and Johannes Ihen's The Elements of Colour. Students wishing to take this class should consult with the instructor.

P. Perina Instructor: lecture/lab 6 hours Format: Prerequisite: Permission of instructor Enrolment: Limited to 15

THIR 2800R/ THIR 2810R/ THIR 2820R Acting II: TRANSFORMATION YEAR. The second year of the programme is structured to build on the knowledge acquired in the previous year. The student begins to learn how to use the possibilities as they gain further knowledge of physical, vocal and imaginative expression and how not to be always themselves. 2800: The focus of the acting class is divided between scene study (the actor as interpreter) and mask characterization (the actor as creator). 2810: Voice and Text/Singing: Emphasis is placed on the development of range, flexability and speech that is free of regionalisms. Musical ability is explored through weekly classes in singing technique. 2820: Jazz and Ballet: Continued work to enhance posture, grace and a knowledge

The student may be invited to perform in the D.T.P. season, depending upon the needs of the plays chosen and the student's suitability for the performance situation.

Instructor: Christopher/Collins and Acting Staff

Format: lecture/lab 15 hours

Prerequisite:

THTR 1500 with a minimum grade of C, THTR 1050 and completion of the first-year degree requirements. Permission to continue into the second year of the programme is dependent upon an evaluation of the student's progress.

**Enrolment:** Limited to 15

THTR 2900R Dramaturgy: How to Read a Play: This is a beginning class in dramaturgy, involving the following: learning to read a play as a theatre performance piece rather than solely as dramatic literature; understanding the theatrical and social conventions implicit in the text of any script; finding a basis for connecting scripts from other

ocieties to a contemporary audience. The plays societies and sudience. The historical periods, cultures, and styles. The focus is on the play script as a performance vehicle, on the readers, but for actors, designers, directors, etc. This class replaces THTR 2100A/B and THTR 3100A/B.

R.G. Merritt lecture 3 hours

Format: Prerequisite: THTR 1000R or permission of

instructor. Limited to 25

THIR 3020R Jazz Dance I (Summer Session only): Intermediate studies in the principles and techniques of Jazz Dance. Students must have a solid foundation in dance technique (Modern. Rallet or Jazz).

K.Edgett Instructor:

Instructor:

Enrolment:

Lecture/demonstration 4 hours Format: Admission is subject to approval Prerequisite: of instructor. (Audition/Interview)

Limited to 20 Enrolment:

THTR 3060R/ THTR 3070R Technical scenography II: An advanced class in production technology. Students work intensively in one of the areas of: construction, properties, lights and sound, or stage management. Lecture periods are devoted to Administration, Publicity, Advanced Techniques, and other related topics. Lectures are common to all students. Each student serves as

crew head for at least two departmental productions. There are certain lab charges connected with this class.

Instructor: P.Perina et al Format: lecture/lab 6 hours

Prerequisites: THTR 2011A/B, THTR 2012A/B,

THTR 2060R/THTR 2070R/THTR 2700

**Enrolment**: Limited to 10

\*THTR 3200R The Director in the Theatre: This class explores in theoretical and practical terms the various functions of the director in creating a theatrical event. Topics include the historical role of the director, conceptualizing scripts, working with dramaturges, relationships with actors, and the script development process. Laboratory exploration of practical problems related to the above topics will form an integral part of the class. This class replaces THTR 4600R.

Instructor: D.R. Overton Format: lecture/lab 4 hours

Prerequisites: THTR 2000R, THTR 2900R, or permission of instructor.

Enrolment: Limited to 15

THIR 3500R The Modern Theatre: The modern theatre has been characterized by successive bursts of creative energy and experiment. This class gives an opportunity to study these developments in

detail and to examine several important theatrical theories and their application.

A.R. Andrews Instructor: seminar 2 hours Format:

Prerequisite: THTR 2011A/B, THTR 2012A/B,

or permission of instructor.

Limited to 20 **Enrolment:** 

THTR 3510A/B Topics in the Modern Theatre: This is a class in supervised research on specific topics in the modern theatre. It may only be taken by students registered concurrently in THTR 3500R.

Instructor: A.R. Andrews Format: seminar 3 hours Prerequisite: Permission of instructor

Enrolment: Limited to 10

THTR 3600R The Playwright in the Theatre: The play as a vehicle for performance rather than as a literary work. Through weekly writing exercises dealing with specific dramaturgical problems, the craft of playwriting is explored. Simultaneously, a basis for understanding the nature of dramatic forms is provided through detailed analysis of the structure and techniques of plays representing a broad spectrum of styles, genres, and historical periods. With this background, the class then writes plays (both individually and collaboratively) which are then revised, critiqued, given a public presentation, and rewritten.

Instructor: R.G. Merritt Format: lecture/lab 4 hours

Enrolment:

Prerequisite: THTR 2900R or permission of

the instructor Limited to 10

\*THTR 3710R Scenography: For theatre honours and special scenography students only. It builds on the knowledge from the previous class in the field. THTR 2700R, as far as visual knowledge is concerned, and from technical knowledge acquired in THTR 2060R/ THTR 2070R. Students concentrate on learning in more detail about three-dimensional theatrical space, its dynamics and composition. At the same time, they learn technical drawing for the theatre and the methods of executing constructionally a designed work. They are introduced to the directorial/scenographic relationship. The texts followed are John R. Walker's Exploring Drafting: Basic Fundamentals and Willis Wagner's Modern

Woodworking. Instructor: P. Perina

Format: lecture/lab 6 hours

Prerequisites: THTR 2011A/B, THTR 2012A/B,

THTR 2060R/THTR 2070R, and

THTR 2700R. Limited to 5 Enrolment:

THTR 3800R/ THTR 3810R/ THTR 3820R Acting III: INTERPRETATION AND PERFORMANCE YEAR: Having discovered the natural equipment that is available and enlarging it to some degree, the student can now acquire confidence and apply it to the interpretation of plays in different styles. The student begins to project and communicate with an audience. This is achieved by applying the in class work to the DTP season. 3800 ACTING: focus is put on the requirements of the profession--audition technique and the performance situation. 3810 VOICE AND TEXT/SINGING: students continue to expand their range and expression with particular emphasis on individual strengths and weaknesses. Weekly singing classes focus on breathing, pitch and relaxation. 3820 JAZZ/BALLET: students develop a dance vocabulary which addresses flexibility, alignment, strength and balance. Students are expected to earn significant parts in at least two departmental productions. It is likely that most students will exceed this minimum performance requirement.

Christopher/Collins and Acting Instructors:

Format:

lecture/lab 18 hours

Prerequisite:

THTR 2011A/B, THTR 2012A/B, a grade of at least "B" in THTR 280OR/THTR 2810R/THTR 2820R. Permission to continue into the third year of the programme is dependent upon an evaluation of the student's progress, and completion of the second year degree requirements. Students must be concurrently registered in either THTR 2900R

or THTR 3500R. Enrolment: Limited to 10

\*THTR 3900R Heroines and Actresses: Women in Drama and Theatre: This class is intended to provide and opportunity for hte study of theatrical events as representations of women's experience. Specific themes to be explored are: women as dramatic characters; the experience of women who attempted to pursue careers in the theatre in different countries at different times; and contemporary feminist theatre in Britain, the United States, and Canada.

Instructor: A. Andrews 2 hours Format:

Recommended: Some background in dramatic literature and/or theatre studies is

useful

Cross-listed: **WOST 3900R** 

## Year 4

\*THTR 4200R (EDUC 4620R) Developmental Drama: A class which shows anyone involved or interested in the development of children or adults how drama can be used both to guide personal development and to heighten learning ability. The

class considers how best to adapt developmental drama to school situations or organized groups, Improvisation, theatre games and dramatizations of social issues make up part of the class; various approaches to drama in education are considered Regular practice runs through the class, and each student must develop individual practical workshops.

Instructor: TBA

seminar 3 hours Format:

\*THTR 4700R and \* THTR 4710R Special Topics: The student explores in detail particular areas of the theatre of special interest, with the guidance of members of the faculty. Frequency and the length of meetings are decided to meet the needs of the particular topic or project under study. The class is open only to fourth-year honours theatre students.

Instructor: Faculty

seminar 6 hours Format:

Prerequisite: Permission of department

Limited to 10 Enrolment:

\*THTR 4800R/ THTR 4810R/ THTR 4820R Acting III: An advanced class in exercises and scene study, as well as interview and audition techniques.

Instructors: Christopher/Collins and Acting staff

Format: seminar 18 hours THTR 3800R/THTR Prerequisite:

Enrolment:

3810R/THTR 3820R and either

THTR 3500R. Limited to 10

\*THTR 4900R Dramatic Theory and Criticism, and the Aesthetics of the Theatre: All of the arts face a profound problem in the attempt to establish criteria for evaluating creative activity. This class tackles that problem as it affects the theatre. It looks at the various hypotheses and critical strategies that have been devised hitherto, and attempts to judge their present worth. It also asks what critical values are necessary for the survival and future growth of the theatre.

Instructor: A.R. Andrews Format: seminar 4 hours

THTR 2011A/B, THTR 2012A/B Prerequisite: and THTR 3500R

**Enrolment:** Limited to 10

#### Classes in Costume Studies

These classes make up an entire programme. They are not available for credit towards a degree, i.e. BA programmes. Students accepted for the Costume Studies programme concentrate their work solely on these classes.

#### Year 1

THTR 1750R Costume Studies I: A basic outline of the history of costume; a history of textiles; pattern drafting; a designer's method for the media; and practical costume construction. There

are certain lab charges connected with this class. the content of THTR 1050R forms a component of THTR 1750R.

Instructors: Doyle/Sorge 4 hours daily Format: Limited to 20 Enrolment:

THIR 2750R Costume Studies II: This covers advanced pattern drafting; decoration techniques; millinery; costume accessories; the wearing of ostume; and costume making. There are certain lab charges connected with this class. The content of THTR 2011A/B and THTR 2012A/B may be a component of this class.

Instructors: Doyle/Sorge 4 hours daily

Prerequisite: THTR 1750R, with a grade of "B" or better, and the content of

THTR 1050R, and permission of

the instructor. Limited to 15

Enrolment:

THTR 3750R Costume Studies III: In residence and professional theatre apprenticeship, Doyle, 30 credit hours. Prerequisites: The content of THTR 2011A/B and THTR 2012A/B, THTR 2750R. permission of the instructor. On the basis of outstanding performance in the first two years, five or six students are selected for the third year. During this year, these chosen students are responsible for the total production of costumes required for use within the theatre department. It is intended that during part of this year the student is placed under the supervision of the Costume Studies director to assist in bridging the gap between student projects and the profession. During this year, these students learn to direct and supervise hired staff within the specific needs of today's professional theatres. They also learn all aspects of budgeting related to costume design and manufacture for major stage productions. There are certain lab charges connected with this class.

Instructor: R. Doyle

Prerequisites: The content of THTR 2011A/B and THTR 2012A/B, THTR

2750R, permission of the instructor.

Enrolment: Limited to 5

Please note: Classes marked with asterisk (\*) may not be offered on a regular basis. For details consult department.

## Women's Studies

Location: Multidisciplinary Centre

Halifax, N.S.

Telephone: (902) 494-3814

Coordinator & Undergraduate Advisor Ann Manicom (494-3724/3814)

#### Faculty

A. Andrews (Theatre)

J. Arscott (Political Science)

B. Bednarski (French)

J. Crowley (History)

A. Dowdall (English)

J. Fingard (History)

J. Gilroy (Social Work)

N. Jabbra (Sociology and Social Anthropology)

(on leave) T. Laidlaw (Education)

A. Manicom (Education)

I. Oore (French)

J. Parpart (History, Development Studies)

S. Pollock (Sociology and Social Anthropology)

S. Sherwin (Philosophy)

M. Stone (English)

N. Trèves (French)

M. Turner (History, Development Studies) (on leave 1991)

### Introduction

This multidisciplinary programme is designed for students who wish to focus on Women's Studies as the major concentration of their undergraduate degree. The goal of the Women's Studies major is to demonstrate the usefulness of gender as a category of analysis. Students will develop interconnections among the fundamental questions raised by scholarship on women through a selection of classes in the humanities and social sciences. Because this major is multidisciplinary, a student will also gain a perspective on women's experiences through the examination of other issues such as race, class and cultural differences, that are central to the study of gender. A critical awareness of methodology in the organization of knowledge and the framework for analysis is important throughout the body of the student's work.

## **Programme Structure**

The BA degree in Women's Studies includes one required half credit class at the 1000-level (WOM 100A/B/WOST 1000A/B held at Mount Saint Vincent University) and four to eight full credit classes above the 1000-level to be selected from the list of core classes in consultation with the advisor. A minimum of one of these classes must be at or above the 3000level and the major classes must be taken from a

minimum of three disciplines. In addition, the student may choose elective classes from a list of related classes, remembering that:

- a) one class must satisfy the writing requirements
- b) at least 7 full credits shall be beyond the 1000-level
- c) some of the classes have prerequisites. A related class is one in which the topic and/or approach is pertinent to Women's Studies and in which the professor has agreed to permit the student to submit work on women-related topics.

Appropriate classes offered at Mount Saint Vincent University and Saint Mary's University may also be selected, subject to the rules and regulations of the College of Arts and Science at Dalhousie regarding transfer credits and in consultation with the advisor.

#### Classes Offered

Note: Classes marked \* may not be offered every vear. Please consult the current timetable on registration to determine if these classes are offered.

#### Core Classes

WOST 100A/B Focus on Women: An interdisciplinary class presenting a variety of perspectives on the role, function and expression of women. This class is held at Mt. St. Vincent University. Students must register by a letter of permission. Consult the Secretary of the program for details.

WOST 2100A/B Introduction to Gender Socialization: Identification and analysis of problems deriving from gender socialization form the core of this class. Emphasis is placed on female roles both historically and in contemporary society. Attention is paid to the influence of education - both formal and informal - in the development and perpetuation of gender socialization.

Lecture, discussion, student Format:

participation None

Prerequisites:

Preference is given to students Enrolment: enroled in Education or Women's

Studies.

Cross-listed: **EDUC 4021A/B** Toni Laidlaw Instructor:

\*WOST 2200R Fictions of Development: Fictions of development are novels or short stories focusing on the crises and the conflicts involved in growing up, finding a vocation, and finding oneself. This class studies representative fictions of development ranging from 19th century classics like Jane Eyre to contemporary works like The Color Purple. Special attention will be given to the connection between psychological theories and literary depictions of human development. Format: 2 hours lecture/discussion.

Prerequisites: ENGL 1000R Limited to 35 Enrolment: Cross-listed: **ENGL 2221R** Instructor: Marjorie Stone

\*WOST 2211R Commonwealth Literature: This class will examine a number of modern novels and short stories written by Indian sub-continent and Canadian writers, mostly but not exclusively female. Among the questions which will concern us: Can we define a post-colonial consciousness? What does it mean to express nationalist themes in international English? Can we generalize a feminine consciousness from these textual examples? What is the nature of our comparative project? I hope that by turning our own culture into an object of study side by side with a foreign culture we will end up with more selfconsciousness as well as an understanding of what it can mean to study a foreign culture. I expect two medium-length term papers.

2 hours lecture/discussion Format: ENGL 1000R Prerequisite: Enrolment: Limited to 35 **ENGL 2211R** Cross-listed: Anna Dowdall Instructor:

WOST 2500A/B Philosophical Issues of Feminism An examination of various approaches to feminism, and of practical and theoretical issues associated with feminism, such as abortion, pornography, sexual harassment, and economic equality. 2 - 3 hours lecture/discussion

Format: None

Prerequisites: Limited to 60 **Enrolment:** Cross-listed: **PHIL 2160A/B** Susan Sherwin Instructor:

\*W0ST 2600A/B Women in Western Political Thought: The role of women in political life has been vilified, praised or ignored by major thinkers. Pertinent texts will be read along with interpretations by modern feminists in order to assess why the formal political enfranchisement of women has not resulted in greater substantial equality.

2 hours lecture/discussion Format: None Prerequisites:

**Enrolment:** Unlimited POL 2327A/B Cross-listed: Jane Arscott Instructor:

\*WOST 2800R Gender Roles in Cross-Cultural Perspective: Taking a broad comparative framework, we examine sex roles in the context of daily life, of economics, politics, kinship, social stratification, religion and values, and socialization. With these data as background, we then look at sex roles in Canada and in Nova Scotia.

3 hours Format:

prerequisites: SSA 1000R/SSA 1050R/SSA

1100R/SSA 1200R or Women's

Studies Class. Limited to 50

Enrolment: Cross-listed: SSA 2190R Instructor: Staff

WOST 3000A/B Directed Readings in Women's endies: Advanced readings and research in women's Studies on selected topics. See coordinator about particulars.

Individual reading

Prerequisites: Open only to senior students in

Women's Studies

Staff Instructor:

WOST 3100A/B Gender Issues in Education: central concerns in Education include classroom

practices, politics and ideology of the curriculum, family-school relations, and the transition from school to work. Recent feminist critiques have forced educators to re-examine these areas of concern. This course considers how gender analysis deconstructs and reconstructs our understanding of central economic, social and cultural issues in education.

Format: 2 hours lecture/discussion Prerequisites: One previous course in Sociology

Ann Manicom

or Women's Studies Limited to 30 Enrolment: Cross-listed: **EDUC 4022A/B** 

Instructor:

WOST 3250A/B French Women Writers through the Centuries/Les femmes écrivains: Du temps des cathédrales à celui des Editions des femmes: A chronological survey based on the study of literary texts by French Women Writers, this class will attempt to analyze the society of the time, the way it portrayed women and their role, and the overall condition of women. Emphasis will be given each time to a special period/authors within the context of the survey. Students taking the class as a Women's Studies credit may write their essays and exams in English.

Format: Lecture/discussions 3 hours Recommended: FREN 2201A or FREN 2202B **Enrolment:** Limited to 20

Cross-listed: **FREN 3250A/B** Instructor Nicole Treves

WOST 3300A/B Family and Community in North America 1600-1900: The family in North American history from the period when the family was a model for social relations to the time when was seen as a private refuge from society at large. Among the topics considered are the role of the family in rural and urban communities; the demographic transition from high fertility and mortality; the construction of the family's responsibilities in economic life and education; the tole of ideology in shaping sex roles and child

rearing; and the relations of family and community according to ethnic group, class and economic setting.

Format: 2 hours seminar

Prerequisites: 2000-level class in Canadian or

American History Limited to 20 Enrolment: HIST 3350A/B Cross-listed: Jack Crowley Instructor:

\*WOST 3305A/B Women in Capitalist Society: The North American Experience: An examination of the impact of industrialization and urbanization on "women's sphere" in society and of the emergence of various strains of feminism in the 19th and 20th centuries.

Format: 2 hours seminar

1000- or 2000-level Prerequisites: Canadian/North American

History or Women's Studies class.

Unlimited Enrolment: HIST 3610A/B Cross-listed: Judith Fingard Instructor:

\*WOST 3310A/B Women and Development in Africa: This class examines the economic, political and social roles of African women from precolonial to modern times. It analyzes women not as objects, but as actors who participate in the political and economic processes affecting their lives.

Format: 2 hours seminar

1000-or 2000-level History, IDS, Prerequisites:

or Women's Studies class

Limited to 20 Enrolment: HIST 3461A/B Cross-listed: Instructor: Jane Parpart

\*WOST 3330A/B Women in Socialist Societies: Investigates the progress made towards the achievement of equal status for women in societies dedicated in principle to equality for all. Case studies will range from Cuba to China.

Format: 2 hours seminar 2000-level Arts class Prerequisites: Enrolment: Limited to 25 Cross-listed: HIST 3612A/B Mary Turner Instructor:

\*WOST 3500A/B Theories of Feminism: A study of the theoretical underpinning of the major feminist theories in critical comparison, concentrating on the ideological disputes and the implications for traditional approaches to social and political thought.

Prerequisites: Two previous classes in

Philosophy or Women's Studies

Limited to 25 Enrolment: Cross-listed: PHIL 3170A/B Instructor: Susan Sherwin

\*W0ST 3800A/B Gender and Health: The class focuses upon three major areas in the relationship between gender and health: food, reproduction, and health care. Topics include gender stereotypes and food consumption, sexuality, dieting; birth control, childbirth, menstruation, menopause, reproduction technology; health workers, caring in the family, health policy, sexism in medicine, hospital and community care. This is a discussion class and students are responsible for class participation, and research in their selected area.

Format: 3 hours discussion

Prerequisites: SSA 1000R/SSA 1050R/SSA

1100R/SSA 1200R or Women's

Studies Class

Enrolment: Limited to 20
Cross-listed: SSA 3145R
Instructor: Scarlet Pollock

\*WOST 3805A/B Feminism and Sociological

**Theory:** An examination of sociological theory using a feminist perspective, and an exploration of feminist theorizing. Topics include feminist critiques, comparative theories, principles of feminism, methodological issues, Marxist-feminist theorizing, Radical feminist theorizing, and the study of key authors in selected areas of interest.

Format: 2-3 hour seminar

Prerequisite: SSA 2240A/B or 2 previous full

credits in Women's Studies

Enrolment: Limited to 20
Cross-listed: SSA 3100A/B
Instructor: Scarlet Pollock

\*WOST 3850A/B Women and Social Change:

This course is designed to examine feminist critiques of selected social policies and servicesj (polices such as those geverning financial assistance or welfare programmes, child protection services, day care provision); evaluate the usefulness of feminist theories and methods for developing social policies and programmes which are more oriented to women; assist students in developing a critical analysis of social policy and human services from the perspective of women and feminism.

Format:
Prerequisite:

Co-requisite:

lecture/seminar 2.5 hrs

Preference is given to students registered in Social Work and in

the third year of Women's Studies Related courses in social work,

health and social sciences, and/or Women's Studies

Enrolment: limited to 20
Cross-listing: BSW 3230A/B
Instructor: J. Gilroy

\*WOST 3855A/B Feminist Counselling: This class examines feminist counselling theories and approaches, assesses these critically and assists students in the development of feminist

frameworks for counselling.

Format: lecture/seminar 2.5 hrs

Prerequisite: Preference given to students in

Social Work or Women's Studies Related courses in social work

health and social sciences, and/or

Women's studies limited to 20

Enrolment: limited to 20
Cross-listing: BSW 3170A/B
Instructor: J. Gilroy

Co-requisite:

\*WOST 3900R Heroines and Actresses: Women in Drama and Theatre: This class is intended to provide an opportunity for the study of theatrical events as they represent women and their experiences. Specific themes to be explored are: women as dramatic characters; the experience of women who attempted to pursue careers in the theatre in different countries at different times; and contemporary feminist theatre in Britain, the United States and Canada.

Format: 2 hours

Recommended: Some background in dramatic

literature and/or theatre studies is

useful

Cross-listed: THTR 3900R Instructor: Alan Andrews

W0ST 4000A/B, W0ST 4100A/B Selected Topics in Women's Studies: Advanced readings and research in Women's Studies on selected topics. See the Coodinator about particulars. Enrolment: Open only to senior students in Women's Studies

\*WOST 4250A/B Québec Women Writers/ Écrivaines Québécoises: This class will explore the condition of women as revealed in texts by Québec women writers. In any given year different writers and time periods will be covered, and a variety of genres may be included.

Format: 2 hours lecture/discussion
Recommended: FREN 2201A/2202B and at least

one third-year literature class, preferably French Canadian

Enrolment: Limited to 15
Cross-listed: FREN 4904A/B
Instructors: B. Bednarski, I. Oore

WOST 4500A/B Topics in Feninist Philosophy: In this class we shall explore some of the current research in a focused area of feminist philosophy such as feminist ethics, feminist epistemology, feminist philosophy of science, or postmodern feminism.

Format: 2 hr seminar

Prerequisite: Strong background in philosophy

or feminist theory (normally including at least one previous class in feminist philosophy or permission of the instructor).

Enrolment: limited to 25

Cross-listed: PHIL 4500A/B and PHIL

5500A/B

Instructor: S. Sherwin

## gelated Classes

These classes are subject to change; consult the programme office for offerings.

# Classes Offered at Mount Saint Vincent University

Classes offered at Mount Saint Vincent University are subject to change. Please consult Women's Studies, Mount Saint Vincent, (902) 43.4450. These classes must be taken on a letter of permission.

## **Faculty of Science**

Location:

3rd Floor, Arts and

Telephone:

Administration Building (902) 494-2373

FAX:

(902) 494-1957

## Introduction

Dalhousie's Faculty of Science, the primary centre in the region for science education and research, is part of the College of Arts and Science and consists of eleven Departments. The principal mission of the Faculty is the discovery, organization, dissemination and preservation of knowledge and understanding of the natural world. The Faculty is dedicated to excellence in the pursuit of this mission. Students in the Faculty of Science are assisted to develop the capacity for inquiry, logical thinking and analysis, to cultivate the ability to communicate with precision and style, and to acquire the skills and attitudes for lifelong learning.

Undergraduate students in the Faculty of Science normally develop these abilities by concentrating their studies in one or two of the following fifteen subjects: biology, biochemistry, chemistry, computing science, economics, engineering, geology, marine biology, mathematics, meteorology, microbiology, neuroscience, physics, psychology, and statistics. Both BSc and BA degree programmes are available in most of these subjects. Details concerning particular programmes of study are provided below.

## Officers of the Faculty

W.C. Kimmins, PhD (London) Professor of Biology Telephone: (902) 494-3540

#### Associate Dean

R.L. Mazany, BSFS (Georgetown), PhD (UBC) Associate Professor of Economics Telephone: (902) 494-3421

## Assistant Dean (Student Affairs and Space)

G.F.O. Langstroth, BSc (Alta), MSc (Dal), PhD (London), Professor of Physics Telephone: (902) 494-2373

## Secretary of Faculty

D.W. Russell, BPharm, PhD, DSc (London), BEd (Dal), Professor of Biochemistry Telephone: (902) 494-2373

#### Administrator

D.P. Chase, BSc (Queen's) (902) 494-1443 Telephone:

## Departments of the Faculty of Science

Biochemistry (also in the Faculty of Medicine) Biology Chemistry **Economics** Engineering Geology Mathematics, Statistics and Computing Science Microbiology (also in the Faculty of Medicine) Oceanography **Physics** Psychology

## Degree, Certificate and Diploma Requirements

See section 11 of the College of Arts and Science entry for information on degree, certificate and diploma requirements in the Faculty of Science.

## **Biochemistry**

Location:

Sir Charles Tupper Medical

College Street

Telephone:

(902) 494-2480 (902) 494-1355

Head of Department w. Carl Breckenridge

## Faculty Advisors

A Verpoorte - Undergraduate Advisor (494-2022) AH. Blair - Graduate Advisor (494-2407)

AH. Blair, BA, MSc (UBC), PhD (Calif.) WC. Breckenridge, BSc (Queen's), MSc, PhD R.W. Chambers, BA, PhD (Calif.) P.J. Dolphin, BSc, PhD (Southampton) WF. Doolittle, AB (Harv.), PhD (Stan.) M.W. Gray, BSc, PhD (Alta.) C.W. Helleiner, BA, PhD (Tor.) CB. Lazier, BA (Tor.), MSc (UBC), PhD (Dal) ( Mezei, MSc, PhD (UBC) F.B.St.C. Palmer, BSc, PhD (W.Ont) p.W. Russell, BPharm, PhD, DSc (Lond.), BEd R.A. Singer, AB (Princeton), PhD (Harv.) M.H. Tan. BSc. MD (Dal) M.W. Spence, MD (Alta.), PhD (McG.)

#### Associate Professors

(Pretoria)

H.W. Cook, BSc, MSc (McG.), PhD (Dal) E.A. Faust, BSc, PhD (McGill) F.I. Maclean, BA, MA (Tor.), DPhil (Oxon.) CJA. Wallace, BA, MA, DPhil (Oxon)

SD. Wainwright, BA (Cantab.), PhD (Lond.)

JA Verpoorte, BSc, Drs (Utrecht), DSc

#### Assistant Professors

D.M. Byers, BSc, MSc (Dal), PhD (Alta.) DE.C. Cole, BSc, MD (Tor.), PhD (McG.) P.X.-Q. Liu, BSc (Wuhan), PhD (Cornell) H.S. Ro, BSc, PhD (McMaster) CG. Waghorne, BSc (Guelph), PhD (Tor.)

#### ecturers

S. Reddy, BS, MD (Memorial) C. Riddell, BSc, PhD (Kingston)

## ntroduction

Biochemistry is the study of biological action at the molecular level. Although Ochemical processes follow the basic laws of wics and chemistry, living organisms, because of eir complexity, operate on a set of distinct

principles that are not found in simple isolated chemical systems. The goal of biochemistry is to elucidate these principles. The department offers an integrated series of classes that will provide students with an up-to-date view of modern biochemistry ranging from structure-function relationships in macromolecules to the dynamic aspects of metabolism and genetic information transfer, including the exciting new biological and biochemical vistas opened up by recombinant DNA technology.

## **Degree Programmes**

Note: Students interested in a Biochemistry degree should obtain from the department a special booklet that describes all of the programmes available and the special requirements relating to them. Degree programmes should be planned in consultation with the undergraduate coordinator (Dr. J.A. Verpoorte), or another faculty advisor (Dr. F.B. Palmer, Dr. D.W. Russell).

There is no three-year programme with a Biochemistry major. Students wishing to include Biochemistry in other programmes are welcomed. Students cannot obtain credit for both Biochemistry 2200 and 2020 and the Biochemistry 2000 and 2600 offered previously. Note that all Biochemistry classes have prerequisites.

#### **B.Sc.** with Honours in Biochemistry

This is a special concentrated Honours Programme. Because Biochemistry and Chemistry are closely interwoven both conceptually and experimentally, the list of major classes required (see Regulation 11) includes both subjects to a total of 10.5 credits. Additional chemistry classes may be taken as electives, or by choosing Chemistry as a minor subject. Students are strongly urged to include Mathematics 1060 or 2070 and Biology 2030 and 2100 in their programmes, and should consider also Biology 3070 and (for students interested in molecular biology) Microbiology 3033. Honours students must meet the general degree requirements of the faculty (Regulation 11).

Chemistry 1100 or equivalent; Biology 1000; Physics1100; Mathematics 1000 & 1010, a "Writing Class" (see Regulation 11).

Year 2: Biochemistry 2020A, 2200B; Chemistry 2200, 2310, 2320, and 2400; and one full credit in the minor subject. Students who want to enter the molecular biology stream are advised to take Biology 2030.

Biochemistry 3200, 3300, & 3400; Chemistry 3410 & 3430; one half-credit elective (any subject); one full credit elective (not Biochemistry nor minor); and one full credit in the minor subject.

Year 4: Biochemistry 4602 and 4603A; three more credits in Biochemistry, including at least one half-credit in each of the following areas: Metabolism (43xx), Molecular Biology (44xx), and Physical Biochemistry (47xx); one half-credit elective (not Biochemistry nor minor).

A minor subject (see Regulation 11) should be chosen in consultation with the department's Advisor. Elective and minor classes need not be taken in the order stated.

## **BSc** with Combined Honours in **Biochemistry** and Another Science

Biochemistry may be chosen along with one of Biology, Chemistry, Mathematics, Microbiology, Physics, Psychology, or possibly another subject, for a Combined Honours Programme. Consult the Undergraduate Advisor, Dr. J.A. Verpoorte, for details of recommended courses of study.

## **BSc Advanced Major in Biochemistry**

The department offers a four-year, 20-credit programme of study leading to an Advanced Major Degree. The programme, while not designed as a preparation for graduate study in Biochemistry, nevertheless introduces students to all main aspects of the subject. As well as meeting the general degree requirements of the faculty (Regulation 11) students must complete the following classes with a grade of C-- or better: Chemistry 1100 (or equivalent), 2200, and 2400; Biology 1000; Biochemistry 2020, 2200, 3200, 3300, 3400, and at least three full credits in Biochemistry at the fourth-year level. Students who want to emphasize molecular biology are advised to take Biology 2030. Students who have not passed Nova Scotia grade 12 Physics or its equivalent must include a 1000-level Physics class among their first ten credits.

## Classes Offered

The Department also teaches students in Dental Hygiene, Dentistry, Medicine, Nursing and Pharmacy; these classes are described in the appropriate sections of the Calendar. Classes marked \* are not offered every year; please consult the current timetable.

**BIOC 1420B Introductory Biochemistry: Topics** discussed are structure, biosynthesis, and function of carbohydrates, lipids, proteins and nucleic acids; enzyme kinetics; genetic engineering; nutrition. Medical aspects are stressed.

F. I Maclean Instructor:

Lecture 3 hours, Lab 2 hours Format: Chemistry 1410A or permission of Prerequisite:

Instructor

Chemistry 1430 Cross-listing:

Exclusions: this class cannot be used as a prerequisite for any other biochemistry

limited to 150 students Enrolment:

BIOC 2020 A/B Cell Biology: This class is described under Biol 2020 A/B

BIOC 2200B Introductory Biochemistry: This class will survey basic topics and concepts of Biochemistry. Topics include; the chemical and biological description of constituents of living organisms, like amino acids, pyrimidines and purines, carbohydrates, lipids, hormones and vitamins. The interrelations between the various groups of compounds will be discussed. Introductions to macromolecular structures and functions will be presented.

C.W. Helleiner, D.W. Russell. Instructors: C.J.A. Wallace and W.C.

Kimmins (Biology)

Lectures 3 hours, tutorial 1hour Format:

alternating with Lab 4 hours Biology 1000, Chemistry 1100.

Prerequisites: Students are advised to also take

Chemistry 2400.

Biol 2010 B Cross-listing:

No credit will be given together **Exclusions:** with credits for previous classes Bioc 2000 and 2600 Enrolment:

limited to 100 students

BIOCHEMISTRY 3200, 3300, and 3400: are half-credit classes, each of which deals with one important aspect of biochemistry. The level of instruction is such that adequate preparation is essential.

Chemistry 2400, Biochemistry Prerequisites: 2020A, 2200B, Biology 2030B, or

instructor's consent

BIOC 3200A Biological Chemistry: This class deals with chemical principles governing biochemical systems. We discuss the factors that determine how readily a given metabolic reaction proceeds and describe how these factors may be expressed quantitatively. Basic principles of protein structure, carbohydrates and lipids are discussed. The ways in which proteins bind other molecules are described.

A discussion of enzyme catalysis emphasizes relationships between macromolecular structure and biochemical function, enabling us to explain the striking effectiveness and high specificity with which these catalytic proteins carry out their functions.

A.H. Blair, C. Mezei and J.A. Instructors:

Verpoorte

Lecture 3 hours; Lab 3 hours Format:

Prerequisites: see above **Biol 3012A** Cross-listing:

limited to 64 students Enrolment:

BIOC 3300B Intermediary Metabolism: Emphasis is chiefly on metabolic pathways common to all organisms, notably the reductive synthesis and organical organical and organi some nitrogen compounds. Other pathways, significant in certain tissues or organisms, are included. Metabolic regulation is surveyed, and factors influencing the rate at which compounds flow through selected pathways are examined. students learn how pathways are compartmentalized, interrelated, and affected by abiotic chemical changes in the environment. laboratory exercises demonstrate the strategies and techniques used to study metabolic pathways.

C. Mezei, F.B. Palmer and W.C. Instructors:

Kimmins (Biology)

Lecture 3 hours, Lab 3 hours Format:

Prerequisites: see above

limited to 64 students Enrolment:

**BIOL 3013B** Cross-listing:

RIOC 3400B (Biology 3014B) Nucleic Acid Biochemistry and Molecular Biology: This class focuses on the relationship of structure to function in RNA and DNA. Methods for studying the primary, secondary, and tertiary structures of nucleic acids are explored in lectures and in the laboratory. Enzymic mechanisms for biosynthesis, rearrangement, degradation, and repair of nucleic acid molecules are studied, as are the processes of replication and transcription. In this context, nucleic acid biochemistry is emphasized as a basis for understanding storage and transfer of biological information.

E.A. Faust, J.M. Wright (Biology) Instructors: and M.J. O'Halloran (Biology) Lecture 3 hours, Lab 3 hours

Prerequisites: see above

limited to 64 students. **Enrolment:** 

4300 Series: Intermediary Metabolism and Control: These half-credit classes continue the study of metabolism begun in Biochemistry 3300, and introduce also some specialized topics of particular interest. Emphasis is on how metabolic systems are related and how the systems and their relations are controlled. Appraisal of experimental evidence and interpretation of data are stressed. Students are asked to note the prerequisites stated in each class description.

**BIOC 4301B Biochemical Communication:** Membranes, Neurotransmitters, and Hormones: This class examines current ideas of biochemical communication mechanisms, especially in the nervous and endocrine systems. The topics include membrane biogenesis, structural and functional relationships between cytoskeleton and membranes, intra- and intercellular trafficking and transduction. Recent advances in our knowledge of

hormonal regulation of gene expression are

emphasized and the mechanisms of action of peptide and steroid hormones and neurotransmitters are discussed in depth. Instructors: C. Lazier and C. Mezei

Format: Lecture 2 hours

Prerequisites: Bioc 3200,3300 and 3400 or

permission of instructors

Enrolment: limited to 64 students

BIOC 4302A Biochemistry of Lipids: The chemistry and physics of insoluble lipids in an aqueous environment are explored. Current evidence for the physical state of lipids in organisms is examined, and problems in the interaction of insoluble lipids with soluble and insoluble enzymes are considered. The metabolism of lipids that have specialized physiological functions, such as glycolipids, eicosanoids, steroids, phospholipids, etc, are studied.

F.B. Palmer and H.W. Cook Instructors:

Format: Lecture 2 hours Bioc 3200 and 3300 Prerequisites: Enrolment: limited to 64 students

**BIOC 4304B Integration and Control of** Metabolism: Topics include: generation and regulation of membrane potentials, roles of membrane potentials in energy generation and in modulating pathways requiring movement of metabolites among cellular compartments, adaptation of metabolic pathways to meet special needs or circumstances, and assessment of flux through competing pathways. Specific mechanisms by which metabolic pathways respond to both internal and external signals such as direct metabolite control, covalent and non-covalent modification of enzymes, enzyme translocation among cellular compartments and enzyme turnover are considered in detail. Interpretation of experimental data is emphasized.

Instructors: F.I. Maclean and F.B. Palmer

Format: Lecture 2 hours Prerequisites: Bioc 3200 and 3300 Enrolment: limited to 64 students

**BIOC 4400R Protein Synthesis and Control** Mechanisms: The class deals with the cell components and reactions involved in the biosynthesis of proteins, with special reference to mechanisms controlling the rate of synthesis and the spectrum of proteins made. Students are expected to undertake independent reading of research reports.

S.D. Wainwright Instructor:

Format: 2 hours

Prerequisite: Permission of instructor.

4403A & 4404B Molecular Biology of the Gene: These half-credit classes consider the duplication, transfer, and expression of genetic material. The experimental evidence for current concepts of gene structure and function is stressed. Students study the language of molecular biology and learn

about the experimental techniques peculiar to it. Lectures adopt a historical perspective so that students come to appreciate how the discipline of molecular biology has developed.

BIOC 4403A Structure, Organization, and Replication of Genes: Topics include basic molecular genetics; evaluation of genetic complexity and gene arrangement; chromosome structure; identification and enumeration of specific genes: mechanisms of replication. recombination, and repair; and manipulation of genes in vivo and in vitro ("genetic engineering"). Instructors: W.F. Doolittle and M.W. Gray

Format: Lecture 3 hours Bioc 3400 Prerequisites: Cross-listing: Micro 4403A

BIOC 4404B Gene Expression: The different mechanisms for regulation of gene expression in bacterial and eukaryotic cells, and their viruses, are emphasized. Particular topics include genomic, transcriptional, and post-transcriptional modes of regulation.

H.-S. Ro and R.A. Singer Instructors: Prerequisites: Bioc 4403A or permission

instructors limited to 25 students **Enrolment:** 

BIOC 4602R Honours Project & Thesis: The class requires laboratory research, at least one day per week and an interim report at the end of the first term. A final written report must be

submitted at the end of the academic year. Instructor: Class coordinator J.A. Verpoorte Lab 1 day per week Format:

Prerequisites: Permission by coordinator and a member of the department who

will serve as supervisor.

from the class coordinator.

**Exclusions:** In exceptional cases the research project can be done outside the biochemistry department, prior approval must then be obtained

**BIOC 4603A Advanced Laboratory in Biochemical** Techniques: The class will consist of a series of laboratory modules (each of 4 weeks' duration, 1 day per week or 72 hours total, with flexibility to accommodate the need to attend other classes) The class is 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. Students in a concentrated Honours Biochemistry programme must complete 1 module from each section. Students in advanced major or other programmes may select their three modules from any section or sections, subject to availability of space. Such students should consult the department regarding prerequisites.

C.J.A. Wallace and members of Instructors:

the departments of Biochemistry, Biology and Microbiology

Format: Lab 1 day Prerequisites: Cross-listing:

Enrolment:

Bioc 3200,3300 and 3400 Biol 4012 and Micro 4601 limited to 16 students

BIOC 4700A Proteins: Selected aspects of the chemistry of proteins are considered. Topics include relationships of structure and bioactivity the forces that stabilize protein structures, and chemical and physical methods used to isolate and study proteins and other macromolecules.

Instructor: J.A. Verpoorte

Lecture 2 hours, Tutorial 1 hour Format: Bioc 3200 and Chem 2310 and Prerequisites: 2320 or permission of instructor

Enrolment: limited to 64 students

BIOC 4701B Enzymes: Our current understanding of enzymic catalysis and its experimental basis are examined. The relationship between structures of catalytic and regulatory sites and their functions is considered for selected enzymes. The kinetics of enzyme-catalysed reactions are studied, as is the way in which binding of regulatory molecules influences kinetic behaviour and thereby regulates cellular metabolism.

Instructor: A.H. Blair Format: Lecture 2 hours, Tutorial 1 hour Prerequisite: Bioc 3200

**Enrolment:** limited to 64 students

\*BIOC 4800R Clinical Medical Biochemistry: To be offered in 1992

**BIOC 4801R Introduction to Pharmacology:** Described under Biol 4401R.

BIOC 4802R Principles of Instrumentation: This class examines the theory and practice of a wide range of modern instrumental techniques for clinical biochemical analysis.

Instructors: Members of the Department of

Pathology

Format: Lecture 3 hours, Lab 4 projects

Prerequisite: **Bioc 3200** Cross-listing: Path 503

Enrolment: consult with the Department of

Pathology

**BIOC 8880 Honours Qualifying Examination:** Honours students must fulfill the requirements of this class (see Regulation 11) by presenting two additional reports on their work in Biochemistry 4602. The first is a Progress Report, and the second an oral presentation at a special year-end Departmental Seminar.

## Biology

Biology Wing, Life Science Centre, Location Main Office, 2nd floor, Room

Telephone (902) 424-3515 (902) 424-3736 Fax

Chair R. G. Boutilier

Indergraduate Programme Advisors

c Beauchamp (494-2145) p Collins (494-3847) v.l. O'Halloran (494-2136) E Staples (494-2464)

Honours Programme Advisors

P Collins (Administration) (494-3847)

R. Freedman (494-3737)

1 Farley, Marine Biology (494-6587)

G. Hicks (494-3563) J. Ogden (494-2158) J. Wright (494-6468)

#### Professors

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

AR.O. Chapman, PhD (Liv.)

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

J. Farley, MSc (W.Ont.), PhD (Man.)

I.C. Fentress, PhD (Cantab.)(Cross-appointment with Psychology)

B. Freedman, MSc, PhD (Tor)

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

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

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

P.A. Lane, MSc (SUNY Binghampton), PhD (SUNY Albany) Chair of Senate

K.E. von Maltzahn, MS, PhD, (Yale) - Carnegie Professor, King's

IA McLaren, MSc, (McG), PhD (Yale) - George S. Campbell Professor

EL. Mills, MS, PhD (Yale) - (Oceanography) R.K. O'Dor, PhD (UBC) Director, Aquatron

IG. Ogden, III, MA (Tenn.), PhD (Yale)

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

LC. Vining, MSc (Auck.), PhD (Cantab.), FRSC,

I.H.M. Willison, PhD (Nottingham) E. Zouros, MSc, PhD (Agri. Coll. Athens), PhD

## Associate Professors

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

R.G. Boutilier, MSc (Acadia), PhD (East Anglia), University Research Fellow

AJ. Hanson, MSc (UBC), PhD (U. Mich.) IES

G.S. Hicks, MSc (Carl.), PhD (Sask.) R.W. Lee, MA (Mass.), PhD (SUNY Stony

T.H. MacRae, MSc, PhD (Windsor) R.P. McBride, MSc (UBC), PhD (Edin.)

J.A. Novitsky, PhD (Ore. S.U.) R.E. Scheibling, PhD (McG)

Associate Professor (Research) G.F. Newkirk, PhD (Duke)

#### **Assistant Professors**

A. Pinder, PhD (U. Mass.) University Research Fellow

W. Pohajdak, MSc. PhD (Manitoba)

S. Walde, PhD (Calgary) University Research

H. Whitehead, PhD (Cantab), University Research Fellow

J.M. Wright, PhD (MUN)

**Adjunct Professors** 

R.G.S. Bidwell, MA, PhD (Queens), FRSC, Atl. Inst. Biotech.

J.D. Castell, MSc (Dal), PhD (Oregon St.), Fish. & Mar. Serv., D.F.O.

J.S. Craigie, MSc, PhD (Queens), Atl. Reg. Laboratory, NRC

K.H. Mann, PhD (Reading), DSc (Lond.), FRSC Mar. Ecol. Laboratory, BIO, D.F.O.

J.L. McLachlan, MA, PhD (Oregon State College), Atl. Reg. Laboratory, NRC

M. Schrempf, PhD (Stuttgart-Hohenheim) M. Silver, PhD (Syracuse)

Senior Instructors

C. Beauchamp BSc., MSc (Memorial), BEd (Dal)

J. Breckenridge, BSc (Queen's)

P. Collins, BSc, MSc (Dal)

P. Harding, BA (Tor.), BEd, MSc (Dal) (on leave)

A. Mills BSc (Carlton)

M.J. O'Halloran, BSc (South), BEd, MSc (Dal)

E. Staples, BSc (Dal), BEd (Mt. St. Vincent)

#### Instructors

C. Corkett, Dip. Ed. (Technical), PhD (London) T. Grignon, BES (Waterloo)

B. Hill, BSc (Carleton) (on leave)

B. Retallack, BSc, MSc (Dal), PhD (Manchester)

#### **Post Doctoral Fellows**

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

A.C. Burke, MA, PhD (Harvard)

G. Claireaux, PhD (Brest) R. Escribano, PhD (Dal)

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

R. McGarvey, MA (Oregon)

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

J. Nelson, PhD (Michigan)

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

S. Smith, MSc, PhD (Ottawa)

C. Staicer, MSc (NAU)

E. Taylor, MSc, PhD (UBC)

#### Areas of Specialty of Biology Faculty Animal Biology: J. Farley, A. Pinder, H. Whitehead

Developmental Biology: B.K. Hall, G.S. Hicks Ecology/Environmental Studies: R.W. Doyle, B. Freedman, P. Lane, I. McLaren, J.G. Ogden, R. Scheibling, S. Walde

Entomology and Parasitology: E. Angelopoulos General Studies: R.P. McBride, K.E. vonMaltzahn Genetics: R.W. Doyle, R.W. Lee, O.P. Kamra, E. Zouros

History of Biology: J. Farley

Marine Biology: J. Farley, R. O'Dor, R. Scheibling Microbiology: R.G. Brown, J. Novitsky, L.C. Vining

Molecular Biology: J. Wright, W. Pohajdak Physiological/Cell Biology: R. Boutilier, T. MacRae, R.K. O'Dor, D. Patriquin, M. Willison Plant Biology: G.S. Hicks, A.R.O. Chapman, M. Willison

### **Degree Programmes**

The department offers the 15- and 20-credit BA or BSc Major degree; unconcentrated, concentrated or combined BA, BSc Honours in Biology; concentrated BSc in Marine Biology.

### Major (15- and 20-Credit) BA, BSc

Consult Regulations 11.1 and 11.3 of the general regulations of the College of Arts and Science. Requirements are:

- 1. A grade of C or better in BIOL 1000R.
- Four full credits (15-credit major) or six full credits (20-credit major) beyond the 1000 level in Biology. At least one half-credit must be selected from each of the 4 discipline areas in Biology at the 2000 level (see regulations below for 2000 level classes).

#### Honours Biology, BA, BSc

Advisors: Consult Regulation 11.3 of the general regulations of the College of Arts and Science. You should register for Honours before selecting the second year classes. For registration and class selection you should complete an application form (available in the Biology Main Office) and then consult with an Honours Advisor (listed above). In addition to the College Regulations, the requirements are:

> 1. BIOL 2020A or B; 2060A or B; 2030A or B; two from 2001A, 2002B and 2100A or B; 3050A. A grade average of B or above must be attained with no

mark lower than B-.

BIOL 4900R (thesis)

For the standing required for honours see section 22.1 in the College of Arts and Science regulations.

The basic Biology Honours Programme provides a broad background in the biological sciences and enough flexibility to allow some degree of specialization in a variety of subdisciplines. A suitable programme of this kind (e.g. cellular and developmental biology, cellular biology and genetics, ecology and evolution. environmental biology, molecular biology, human biology, etc.) worked out with an advisor and leading to a thesis in that area is excellent preparation for advanced studies.

Some students may wish to choose a Combined Honours Programme with Biochemistry Chemistry, Economics, Geology, Mathematics. Microbiology, Psychology or Physics. These programmes must be worked out with the two departments. Special combined programmes exist with some departments. A programme with Economics is particularly applicable to students with an interest in ecology. Students interested in such a programme should take BIOL 1000R and ECON 1100 in their first year.

Students may be interested in programmes that are not oriented toward a traditional discipline but rather emphasize a broad knowledge. For them, an Unconcentrated Honours Programme may offer the best preparation.

#### **Honours in Marine Biology**

Advisor: J. Farley

The Biology Department recognizes the special needs of the rapidly expanding marine field and offers a BSc Honours Degree in Marine Biology.

Details of the programme will be found under a separate listing for Marine Biology.

#### Classes Offered

Please note that BIOL 1000R with a minimum grade of C is the prerequisite for all classes in the Biology Department.

Note: Due to the combined pressures of student numbers and a dearth of available space in some classes, the names of students not appearing on the first day of class may be deleted from class lists. Students are advised that being signed into the class is no guarantee of late admission.

Classes marked with an asterisk (\*) are offered in alternate years. Consult timetable for current year.

Biology classes are grouped into four general

1000 - Level classes: BIOL 1000R. This class is designed as an introductory university-level class in biology. This class, with a minimum grade of C, is required for entrance to all higher level classes in the department.

BIOL 1984R and 1200R may be of interest to non-biologists.

2000-Level Classes: All Biology majors (15, 20 credit and Honours) are required to take a core program at the 2000 level. Students should normally complete these core classes in their second year. The core programme is designed to provide a basis for more advanced studies in Biology as well as to ensure that all majors are exposed to general discipline or subject areas of biology. A variety of skills including writing, oral presentation, computer literacy, library use, and problem solving are integrated into the curriculum of these core classes along with 'hands-on' activities in the laboratory or field. The second-year core programme covers four discipline areas; some evolutionary biology and some physiology will be included in these four areas.

I Cell Biology 2020A/B

II Diversity of Organisms (animals, plants and microbes) 2001A

2002B 2100A/B

III Ecology 2060A/B

IV Genetics and Molecular Biology 2030A/B

All students majoring in Biology are required to take a minimum of four, 2000level, half-credits, with one half-credit class being selected from each of these 4 discipline areas.

Students interested in biochemistry are advised to take the second year biochemistry class offered by the Biology and Biochemistry departments. This class is not part of our core-programme but is a prerequisite for entry into some higher level classes.

Students majoring in subjects other than Biology can design their own programmes and will not have to conform to these 2000-level core requirements. All students should ensure they have the necessary prerequisite classes required for entry into 3000-level classes.

Transition procedures: These 2000-level core requirements were introduced in 1990 and will apply to Biology honours and majors entering their second year from

September 1990 onwards.

Biology honours and majors presently in their third or fourth year will still be able to follow the old regulations which can be obtained on a form available in the Biology main office. Third or fourth year biology majors wishing to take any of the new 2000-level classes should note the regulations given in the class descriptions below concerning which of the old 2000 level classes had similar content. Students that have already taken old 2000-level classes with similar content will be unable to receive additional credit in some of the new core classes.

- 3000-Level Classes: These classes are mainly for second and third year students. No biology major will be allowed to register in any 3000 or 4000-level class without having completed, or being registered in 2000-level classes in biology totalling at least two full credits.
- 4000-Level Classes: These classes are primarily for honours students. They are open to others with the permission of the instructor. Where biology classes are identified as being given in another department (e.g. Anatomy), that department should be consulted for details.

BIOL 1000R Principles of General Biology: The class emphasis is on those features common to all organisms. It examines the requirements for life, its biochemical base and its cellular organization. These are related to the function of whole organisms and their diversity. Considerations of physiology and metabolism lead to questions of genetic control of life processes, including the genetics, organization and control of the individual, evolution, ecology, development and systematics. BIOL 1000R is the basic introductory class in biology. If you are a biology major, BIOL 1000R is the prerequisite for all other classes in the biology department, regardless of previous background in biology. Under certain circumstances, students may apply to be exempted from taking BIOL 1000R.

Format: lecture 1 hour, Study

Centre/laboratory 3 hours, tutorial 1 hour every 2 weeks.

R.G. Brown, T. Grignon, I.A. McLaren

limited to 800 **Enrolment:** 

Instructors:

BIOL 1200R Science for Non-Science Students -An Overview of the Cosmos, Earth and Life: This class meets the science distribution requirement for BA students. There are no prerequisites and the class does not count as a prerequisite for any other science class. Students are introduced to selected concepts central to each of the disciplines of geology, biology and physics. Emphasis is placed on developing an

understanding of the scientific method, its limitations, and its application in society. Where appropriate, written exercises are used as an aid to learning.

Format: lecture 2 hours, tutorial 1 hour G.S. Hicks, R.H. March, P.H. Instructors:

Reynolds.

Cross-listings: GEOL 1200R, PHYS 1200R

limited to 50 Enrolment:

1984R A Citizens Guide to the Biological Issues of our Times: An awareness and comprehension of major developments in biology sufficient for citizen involvement in science-society controversies. Studying topics with major social impact such as genetic engineering, environmental health hazards and modern agriculture, students acquire a scientific vocabulary, insight into the strengths and limitations of science, and an understanding of basic biological concepts.

lecture 2 hours, tutorial 1 hour Format:

R.P. McBride. Instructor:

For BA students only; cannot be Restriction:

used as a prerequisite for other biology classes.

BIOL 2001A Marine Diversity: (Area II) The sea was the cradle of life and the origin of most phyla. This class explores the enormous variety of living and fossil organisms from the sea and looks at the special problems and adaptations of benthic, planktonic and nektonic species. It examines functional and taxonomic relationships using lectures, laboratories with living organisms, and field trips.

Format: lecture 2 hours, tutorial 1 hour, laboratory 3 hours

Instructors: C. Corkett, R. O'Dor

Prerequisite: BIOL 1000R (Grade C or better) Enrolment: limited to 140 (28 per laboratory)

BIOL 2002B Terrestrial Diversity: (Area II) A survey of the terrestrial organisms. The class emphasizes the restrictions imposed on terrestrial adaptations by the aquatic origins of the colonizers, discusses the physiology of living in a terrestrial environment, and finally looks at the domestication of plants and animals by man and speculates on the future diversification of the earth environment and its inhabitants.

lecture 2 hr. tutorial 1 hr. lab 3 hr Format: Instructors: A.H.Mills, D.G. Patriquin, R.

Scheibling

BIOL 1000R (Grade C or better) Prerequisite:

Enrolment: limited to 140

**BIOL 2010B Introductory Biochemistry: This** class is described under Biochemistry, BIOC

BIOL 2020A/B Cell Biology: (Area 1) An introduction to the eukaryotic cell. Major cell components and activities are described at

ultrastructural and molecular levels with emphasia on mammalian systems. The concept of the cell as an integrated structural, functional unit is developed.

lecture 3 hours, laboratory 3 Format: hours every second week.

T.H. MacRae and B. Retallack Instructors: BIOL 1000R (Grade C or better) Prerequisite:

BIOC 2020A/B Cross-listing:

Exclusion: BIOL 2015R/BIOC 2000R

limited to 190 Enrolment:

BIOL 2030A/B Genetics and Molecular Biology: (Area IV) Genes contain the biological information that specifies the cell and the organism. Therefore, genetics, the study of genes is a means to understand the function and propagation of cells and organisms. The power and prominence of modern genetics have grown from a blend of classical and molecular approaches; both of these approaches are emphasized in this class. Major topics discussed include: the structure and function of DNA, the nucleic acid that comprises genes and chromosomes; transmission genetics, concerned with the propagation of genetic information; gene function, the expression of genetic information: and manipulation of DNA (genes) by genetic engineering. A range of organisms is considered including bacteria, single-celled and multicellular eukaryotes, and viruses.

lecture 3 hours, laboratory & Format: tutorial 3 hours

Instructors: O.P. Kamra, R.W. Lee, R.A.

Singer (Biochemistry) E. Staples Prerequisite: BIOL 1000R (Grade C or better) Exclusion: BIOL 2035R (last offered in

1989-90)

**Enrolment:** Limited to 190

BIOL 2060A/B Introductory Ecology: (Area III) Ecology is the study of the interrelationships of organisms and their environments. The broad subject of ecology focuses upon the interactions of plants and animals, including humans, with each other and with their non-living world. Three levels of ecology are studied: (1) Individuals, (2) Populations, (3) Communities and Ecosystems. Assignments and tutorials enlarge upon concepts presented in lectures. Students are instructed in elementary computer techniques and use the computer for most assignments. This class provides an overview of the science of ecology for the informed citizen, and also a good foundation for further work in ecology, marine biology and environmental studies.

Format: lecture 3 hours.

laboratory/tutorial 3 hours,

C. Beauchamp, R. McGarvey, R. Instructors:

Scheibling

BIOL 1000R (Grade C or better) Prerequisite: **Exclusions:** BIOL 2066, BIOL 2046R Enrolment: limited to 200 (25/laboratory)

laboratory section assignments are made during the first lecture period, and space in laboratories is limited, students must attend the first lecture to confirm their admission to the class. All students must be registered prior to admission to laboratory periods beginning in the second week of class. Students who plan to repeat the class must obtain permission from the instructor before they register in the class. lecture 2 hours, laboratory 3 hours Format: J. Breckenridge, J. Novitsky, D. Instructors: Stoltz BIOL 1000R (Grade C or better Prerequisite: or permission) MICR 2100A/B

alOL 2100A/B Introductory Microbiology: (Area

microbiology through lectures, laboratory sessions

and demonstrations. The diversity and uniqueness

in An introduction to the basic concepts of

of different microorganisms is emphasized, in

addition to their structure, growth, metabolism

and interactions. The involvement of

microorganisms in fields each as medicine,

industry and ecology is also discussed. Since

Cross-listing: limited to 120 (40 per laboratory)

RIOL 3012A Introduction to Biological Chemistry: This class is described under Biochemistry, BIOC

BIOL 3013B Intermediary Metabolism: This class is described under Biochemistry, BIOC 3300B.

**BIOL 3014B Nucleic Acid Biochemistry and** Molecular Biology: This class is described under Biochemistry, BIOC 3400B.

BIOL 3020A Advanced Cell Biology: Molecular and organellar aspects of cytoplasmic organization in eukaryotic cells are examined. A number of interrelated topics are discussed providing an opportunity to study new concepts in cell biology and to evaluate established ideas in the context of recent findings. Students must supplement lectures with assigned readings and discuss selected subjects in essays.

Format: 3 lectures of 1.5 hours per week Instructor: T.H. MacRae

Prerequisite: BIOL 2020A/B or BIOL 2015R or permission of the instructor.

Enrolment: limited to 20

**BIOL 3031B Molecular and Evolutionary** Genetics: Topics to be covered in this class include molecular models of genetic recombination, molecular and transmission genetics of chloroplast and mitochondrial DNA, developmental genetics, elements of population genetics, transposable elements, multigene families, pseudogenes and molecular clocks. Examples will be drawn from a wide variety of unicellular and multicellular eukaryotic organisms.

lectures and discussions 3 hours

Instructors: R.W. Lee, E. Zouros Prerequisite: BIOL 2030A/B

Exclusion: BIOL 2035R (last offered in

Enrolment: limited to 50

\*BIOL 3032B Cytogenetics: Detailed consideration of certain genetical and cytological mechanisms in relation to chromosomal modifications, gene mutations and evolution. Not offered in 1991/92.

BIOL 3033A Microbial Genetics: This class is described under Microbiology, MICR 3033A.

\*BIOL 3034B Biological Effects of Radiation: A survey of current knowledge of the effects of ionizing radiation on biological material at three levels: physical, chemical and biological. In addition, methods of dosimetry, autoradiography, somatic and genetic effects, radiometic chemicals and biolasers are discussed. Not offered in 1991/92.

\*BIOL 3039B Human Genetic: Not offered in 1991/92.

BIOL 3050A Developmental Biology: The lectures describe development as a sequence of programed events, in which 'simple' structures such as the fertilized egg are progressively transformed into complex organisms. These events are governed by a set of developmental 'rules'. Our knowledge of these rules comes from experimental study of a variety of developing systems such as sea urchins, frogs, peas, carrots, chick embryos and humans. Laboratories stress the use of live material and give students practice with such techniques as test tube fertilization in echinoderms.

Format: lecture/discussion 3 hours, laboratory 3 hours,

Instructors: P. Collins, B.K. Hall, G.S. Hicks Prerequisite: BIOL 1000R (Grade C or better) BIOL 2050A (last offered 89/90) **Exclusion:** Enrolment: limited to 120 (30/laboratory)

**BIOL 3051B Advanced Animal Development:** This class is the follow-up to BIOL 3050A and deals with the mechanisms and controls which regulate the development of vertebrate and invertebrate embryos. Topics covered include cell determination and differentiation, morphogenesis, mechanisms of organ formation, inductive tissue interactions, growth, regeneration and wound healing. The two laboratory projects involve experiments designed to explore aspects of cell differentiation and morphogenesis; preparation of laboratory reports, and introduce the student to microdissection, sterile techniques, tissue recombinations and whole-embryo staining. Format: lecture 2 hours,

laboratory/discussions 3 hours

Instructors:

P. Collins, B.K. Hall

Prerequisite:

BIOL 3050A (with a minimum grade of B-) plus completed or concurrent registration in second year cell/molecular classes from

the old or new core.

Enrolment:

limited to 25

BIOL 3060B Environmental Ecology: Various topics within the field of Environmental Ecology are discussed. Emphasis is on the organism/ecosystem effects of forestry practices and other types of land management, including recreation. The effects of various types of pollutants, including acid precipitation, oil spills, heavy metals, sulphur dioxide, and pesticides are considered.

Format: lecture 2 hours, laboratory/tutorial

3 hours

Instructor: B. Freedman.

Prerequisite: BIOL 2060A/B (or see instructor).

Enrolment: No limit

BIOL 3062A Behavioural Ecology: This class examines animal behaviour from an evolutionary perspective. Why do animals do what they do? Using the theory of natural selection as a basis, we will examine foraging, grouping patterns, territorial behaviour, parenting, mating behaviour, social organization, aggression and cooperation. There will be tutorials and laboratory/field and essay assignments.

Format: lecture 2 hours, tutorial 1 hour

Instructor: H. Whitehead BIOL 2060 Enrolment: limited to 50

BIOL 3063B Resource Ecology: Introduction to sustainable development and the management of renewable resources. Topics vary from year to year but generally include fisheries population models and bioeconomics, wildlife and forest management, biological control strategies and agro-ecology, genetic containment and the protection of genetic diversity.

Format: lectures & seminars 3 hours
Instructors: R. Doyle, B. Freedman, S. Walde
Introductory ecology, calculus and
statistics classes or half-classes.

Enrolment: limited to 30.

BIOL 3066A Plant Ecology: Various topics within the field of Plant Ecology are discussed. At the ecosystem level, we deal with the cycling of energy and significant nutrients, and with successional changes in these processes. At the autecological level we deal with plant population biology, resource allocation, and physiological ecology. The plant environment is described in terms of energy budgets, soils, and water availability.

Format: lecture 2 hours, laboratory 3 hours, one/two field trips on

weekends

Instructor: B. Freedman
Prerequisite: BIOL 2060
Enrolment: No limit

BIOL 3067B A Survey of Fish Biology: The topics covered include fish systematics, physiology, behaviour and ecology. The primary purpose is to prepare students for Honours research projects in fish biology and to provide the background necessary for entry to 4th-year classes such as Fisheries Population Biology, and Fisheries Oceanography. Although no laboratory is scheduled, practical and library research projects are required.

Format: lecture 2 hours, seminar 1 hour
Instructors: R.G. Boutilier and R.K. O'Dor
Prerequisites: BIOL 2060, BIOL 2020
Enrolment: Limited to 40

BIOL 3069A Population Ecology: An examination of selected topics in population ecology. Topics include the effect of species interactions (predation, competition, mutualism) on population fluctations, cycles and extinction. The relevance of theory to particular case studies such as lynx-hare cycles and biological control of winter moth will be discussed. Recent literature will be emphasized. Assignments, presentations and exams will contribute to the final grades.

Format: lecture/tutorial 2 hours
Instructor: S. Walde

Prerequisites: BIOL 2046 or 2060, MATH 1010

and 1060.

Enrolment: limited to 20

BIOL 3070R Principles of Animal Physiology: A discussion of the mechanisms which coordinate the activities of cells within multi-cellular organisms and permit such organisms to maintain a stable internal environment in a changing external environment. The emphasis is on the mechanisms most widely distributed through the animal kingdom. The laboratories are designed to illustrate these "principles of physiology" in a variety of organisms and to demonstrate the experimental approaches used to study physiology.

Format: lecture 3 hours, laboratory 3

nours

Instructors: R.G. Boutilier, R.K. O'Dor, M.J.

O'Halloran, A. Pinder.
Prerequisite: BIOL 2001A or 2002B

Exclusion: BIOL 3071R Enrolment: Limited to 50

BIOL 3071R Physiology of Marine Animals: The problems of animals in a marine environment are quite different from those found in air or fresh water, but the "physiological principles" are similar. This class deals with the same principles as 3070, but emphasizes the special characteristics of marine animals and the techniques necessary to study them in laboratories and tutorials.

format: lecture 3 hours, laboratory 3 hours R.K. O'Dor, R.G. Boutilier, M.J.

O'Halloran, A. Pinder.

BIOL 2001A or 2002B

exclusion:
Enrolment:

BIOL 3070R

Limited to 40

BIOL 3073B Plant Physiology: Topics include water relations, photosynthesis, respiration, nitrogen metabolism, transport, translocation, and some aspects of plant development, crop physiology and productivity.

Format:

lecture 2 hours, laboratory 3 hours

Instructor:
Prerequisite:

D.G. Patriquin
BIOL 2002 or 2020 or permission

of instructor.

BIOL 3100B Aquatic Microbiology: The main emphasis of this class is on the interactions of microbes and aquatic plants and animals including nutrition, disease, and immunization. The latter part of the class considers the role of microorganisms in nutrient availability and moductivity in aquatic environments.

Format: lecture 2 hours, laboratory 3 hours Instructors: R.G. Brown and J. Novitsky
Prerequisite: Normally, Biology 2100 but Marine Biology Honours students

are exempt.

Enrolment: limited to 24

BIOL 3114A Introduction to Virology: This class is described under Microbiology, MICR 3114A.

BIOL 3115A Introduction to Immunology: This class is described under Microbiology, MICR 3115A.

\*BIOL 3117B Yeasts and Fungi: An introduction to the biology of yeasts and fungi with emphasis on the structure and function of the cell wall and membrane, control of cell metabolism, and the cell cycle.

Not offered in 1991/92.

BIOL 3118B Medical Bacteriology: This class is described under Microbiology, MICR 3118B.

BIOL 3120A Advanced General Microbiology: For students interested in increasing their knowledge and skills in microbiology beyond the introductory level. This class provides excellent background for students continuing in microbiology or entering employment where skills in handling microbes are required. Topics include microbial metabolism, growth, structure, genetics, laxonomy, symbioses, pathogenesis, the environmental effects on microbial activity, and an introduction to soil, food, aquatic, applied, and industrial microbiology. The laboratory stresses basic techniques in microbiology with a strong emphasis on individual students' skills.

Format: lecture 2 hours, laboratory 4

hours

Instructor: J. Novitsky
Prerequisite: Grade B or better in BIOL

2100A/B

BIOL 3211B Systematic Survey of the Algae: An examination of the taxonomic and evolutionary relationships of the algae. Considerable emphasis is placed on practical work (field and laboratory) where students become familiar with the algal components of the local flora.

Format: lecture 2 hours, laboratory 3

hours

Instructors: Staff

Prerequisite: Grade C or better in BIOL 2001

Enrolment: limited to 20

BIOL 3212A Biology of the Algae: A non-systematic examination of the cellular, organismic, population and community organizations of benthic and planktonic algae. Format: lecture 2 hours, laboratory 3

hours

Instructors: Staff

Prerequisite: Grade C or better in BIOL

2001A

Enrolment: limited to 20

3215A Systematics of Higher Plants: This class is largely concerned with the flowering plants. We cover the historical basis of classification from its classical medical origins, through the Renaissance, Linnaeus to the modern theorists. The new analytical techniques of phenetics, cladistics and chemotaxonomy are introduced as well as a critical examination of the Magnoliophyte Hypothesis and the origin of the Angiosperms. While not a class on the plants of Nova Scotia each student has to become familiar with a few plant families and submit a small collection of pressed plants (see instructor for details).

Format: lecture 2 hours, laboratory 3

hours

Instructor: P. Taschereau

Prerequisite: Biology 2002 or instructor's

consent

BIOL 3218B Plant Anatomy: Lectures will explore the internal organization of the leaves, stems, and roots of both the flowering plants and the cone- bearing plants, emphasizing the common plan that is found at the tissue system level of organization. All major cell and tissue types will be reviewed in the light of modern evidence which correlates structure with function. These surveys will embrace both the primary and the secondary plant bodies, and developmental aspects will be emphasized. Laboratory exercises will illustrate these concepts, focussing on the study of a variety of economically important woody and herbaceous crop plants.

Format: lecture 2 hours, lab 3 hours

Instructors: P.A. Collins, G.S. Hicks Prerequisite: **BIO 1000** 

Enrolment: limited to 25

BIOL 3321R Invertebrates: Recent fossil findings in the Burgess Shale of British Columbia and elsewhere plus methods of cladistic analysis have profoundly changed our understanding of the relationships between and within the various invertebrate phyla. Thus this class will not only examine the structure, function, and classification of the invertebrates, using live material from the marine environment as much as possible, but will come to terms with some of the new ideas about their phylogenies. Recommendation: This class is designed not only for honours students in marine biology, but for anyone who loves "mucking about" with some of God's most beautiful organisms.

Format:

lecture 3 hours, laboratory 4 hours

Instructor: J. Farley

Prerequisite:

BIOL 1000R (Third and fourth year Geology students interested in paleontology may take this class without any previous biology

classes.)

Enrolment: Limited to 30

BIOL 3322B Parasitology: The lectures emphasize the parasite-host relationships, evolution of the parasites and adaptations to the host, modifications of physiology, structure and life cycle for a parasitic existence. Examples are taken from all major animal groups where a parasitic mode of existence has developed beginning with the protozoa. Since the most extensive research pertains to parasites of man, the emphasis is on human parasites. Recommended for Ecologists and Pre-Meds. The laboratory stresses recognition and identification of parasites.

Format: lecture 2 hours, laboratory 3 hours

Instructor: E. Angelopoulos

BIOL 2001 and 2002; BIOL 3321 Prerequisites:

is desirable

Enrolment: limited to 48

BIOL 3324R Entomology: Entomology is an important branch of academic biology and also one of the largest divisions of applied biology. The class is an introduction to the study of insects dealing with: (1) The classification and evolutionary diversity of insects. (2) The biology, ecology and behaviour of insects. (3) Applied aspects -- medical, agricultural and forest entomology, harmful and beneficial insects; biological control of insects.

Format: lecture 2 hours, laboratory 3 hours

Instructor: E. Angelopoulos

Enrolment: limited to 24

\*BIOL 3402A The Rise of Modern Science: The modern world has been fundamentally altered by science and technology. In what ways? How has this come to be? This class will attempt to answer

these questions by looking at the origins of modern science and technology in the 16th and 17th centuries, its growth of popularity in the 18th, and the rise of the scientific profession and science-based industry in the 19th and 20th centuries. Recommendation: This class is designed for students in the arts and the sciences who have some interest in history and/or philosophy. Science students in particular should realize that a considerable amount of reading and writing will be required in this class. Not offered in 1991-92.

BIOL 3403B History of Biology: The class deals with the history of the biological sciences in the 19th and 20th centuries, with emphasis on systematics, evolution, genetics, embryology and molecular biology. This class is designed for honours and majors in biology and geology, who have some interest in the history of their discipline.

Format: class 2 hours Instructor: J. Farley Enrolment: limited to 30

BIOL 3404A History of Medicine: This class deals with the history of medicine in the 19th and 20th centuries. It will stress the impact of the medical sciences (physiology, pathology, bacteriology etc.) on the theories and practice of medicine from the 1880's to the present. This class is designed for pre-medical students and students in the health professions.

Format: class 2 hours Instructor: J. Farley Cross-listing: HIST 2995A Enrolment: Limited to 60

BIOL 3410B Man in Nature: The class has evolved from that originally taught by Dr. Kraft von Maltzahn at Dalhousie. It considers the relationships between humanity and natural systems from various perspectives. Topics include: the pursuit of human emancipation from nature, conservation of natural resources and the preservation of nature in the face of human population growth. Discovering the intrinsic value of nature is a consistent theme. For students in the arts and sciences. There are no special prerequisites, but students must deal seriously with questions raised. The class is also useful for students in biology who wish to obtain a broader framework of knowledge.

Format: lecture 2 hours, tutorials 1 hour Instructor:

M. Willison Enrolment: Limited to 90

BIOL 3421B Comparative Vertebrate Histology: An advanced histology course surveying the whole range of vertebrate tissues and organs.

Format: lecture 2 hours, lab 2 hours Instructor: D.M. Chapman (Anatomy Dept.)

Prerequisite: **BIOL 3430A.**  Cross-listed: **ANAT 3421B** Enrolment: Limited to 15

aloL 3430A Introduction to Human Histology: distology is the study of the structure of cells, issues and organ systems, and utilizes information derived from both light and electron microscopy. n complements studies in anatomy, cell biology, physiology and biochemistry, broadening the anderstanding of how organisms function.

Format: lecture 2 hours, laboratory 2 hours instructor: D.H. Dickson (Anatomy Dept.) Prerequisite: BIOL 2020A, or 2015 or permission of instructor.

necommended Background:

Cross-listings: ANAT 2160A, PHYT 2160A limited to 48 (01-24, 02-24)

gIOL 3435R Anatomy: A comprehensive review of the gross anatomy of the human body with special emphasis on musculoskeletal, cardiovascular and respiratory systems.

lecture 3 hours, laboratory 4 hours Format: R.E. Clattenburg (Anatomy Dept.) Instructor:

Prerequisites: BIOL 2020A/B, or 2015R and permission of instructor.

ANAT 2170R, PHYT 2170R Cross-listings:

Enrolment: limited to 18

RIOL 3440B Neuroanatomy: A survey of the histology, development and organization of the central nervous system, with emphasis on the developmental and structural relationships between spinal cord and brainstem. The organization of cranial nerves and microanatomy of the brain stem is discussed. The organization of sensory and motor systems is presented in detail. The cerebral ortex, cerebellum, basal gaglia, and limbic system are also covered. Cross listed with ANAT 2100B. NESC 3440B and PHYT 2100B.

Format: lecture or laboratory 3 hours D.A. Hopkins (Anatomy Dept.) Instructor: Prerequisite: BIOL 2020A/B or 2015R or permission of instructor

**ANAT 0210B** Cross-listed: Enrolment: Limited to 30

PHIL 3580B Philosophy of Biology: This class is described under Philosophy, PHIL 2420B

BIOL 3614C Field Ecology: The class provides Practical experience in techniques of quantitative field ecology, including design of field sampling programmes and manipulative experiments. Students examine specific ecological questions and hypotheses by collecting, analyzing and interpreting field data and writing scientific reports. Projects focus on intertidal and subtidal systems but involve concepts and techniques that have broad application in ecology. Lectures provide the theoretical background to projects and the rationale for methodology and statistical

analysis. Topics include: spatial pattern, zonation, animal movement, disturbance and succession, and herbivore-plant interaction.

5 projects involving 7 days of Format: field work in September;

laboratory or lecture first term

Instructor: R. Scheibling

BIOL 2060 and MATH 1060. Prerequisites:

1070 or equivalent

BIOL 4012A/B, 4022A/4023B Microbial Ultrastructure Project: This class is described under Microbiology, MICR 4022A/4023B.

BIOL 4024A Microscopy: The class deals with some of the principal methods involved in the study of cell structure. Electron microscopy, including ancillary techniques, is considered in depth. The importance of a proper understanding of the physical and/or chemical principles governing technical procedures is emphasized. During laboratory periods students practise, or watch demonstrations of, some of the techniques covered in the lectures.

Format: lecture 2 hours, laboratory 3

hours

J.H.M. Willison, D.B. Stoltz, K.B. Instructors:

Easterbrook and G. Faulkner Prerequisites: A grade of B- or better in

3020A, 3114A, or an equivalent relevant 3000-level course.

Cross-listed: **MICR 4024A** Enrolment: limited to 12

BIOL 4026A The Mammalian Cell: This class is described under Microbiology, MICR 4026A).

BIOL 4027B The Cancer Cell: This class is described under Microbiology, MICR 4027B).

BIOL 4037B Genetics of Industrial Bacteria: This class is described under Microbiology, MICR 4037B.

BIOL 4038B Molecular Biology of Yeast: This class is described under Microbiology, MIRC 4038B.

**BIOL 4039B Topics in Human and Medical** Genetics: An advanced level seminar open to Biology and Medical students. Students present reports based on a research project (experimental or literature search) conducted under the supervision of faculty members in Biology or one of the medical departments. Lectures from the faculty supplement class work and emphasize integration of student seminars into a self-contained unit.

Format: lecture/seminar 2 hours

**Instructors:** O.P. Kamra (Coordinator), R.S. Tonks, J.P. Welch and E. Zouros

Biology 3039A or 1st year Med. Prerequisite:

**BIOL 4064C Pleistocene Biogeography:** 

Lecture, discussion, and laboratory experience in the reconstruction of environmental change during the Pleistocene epoch. Laboratory and field experience pay particular attention to the environmental history of the Maritime region, including environmental changes caused by man. Techniques of pollen and diatom analysis, plant and animal macrofossil study, dendrochronology, geochemical and isotopic dating methods are explored. Field and laboratory work include a class problem in an area in the Halifax region.

Format: laboratory 3 hours J.G. Ogden, III Instructor:

Prerequisites: At least two credits in Biology or Geology; instructor's consent

GEOL 4064C Cross-listing:

BIOL 4068A Limnology: The class is divided into four sections: (A) Physical Limnology -- geology, morphometry, thermal properties, system hydrology & budgets, optical properties, vegetational interactions, history of limnology in N.S.; (B) Chemical limnology -- oxygen, acidity/alkalinity, physical/chemical interactions, major/minor ions and heavy metals, organic molecules, atmospheric geochemistry, ionic budgets and mass balances; (C) Biological limnology -palaeolimnology, microbiology/ phytoplankton, quantitative geochemistry, zooplankton/invertebrates, vertebrates, sampling technology; (D) Cultural limnology -- eutrophication, BOD/COD, phosphorus loading, environmental impact assessments, acid rain, future shock.

Format: lecture 3 hours, laboratory/tutorial

3 hours Instructor: J.G. Ogden

Prerequisite: 2046, 2066 or 2060

**BIOL 4070C Advanced Topics in Animal** Physiology: Whereas the introductory animal physiology classes emphasize common principles, this class emphasizes the diversity of physiological solutions to common problems among animals. A different problem is chosen each year and each student presents a seminar reviewing the literature of a particular animal's solution and applies advanced techniques in an experimental study of the animal. Students choose the animal and the technique.

Format: lecture 2 hours, open laboratory Instructors: R.G. Boutilier, R.K. O'Dor, A. Pinder

Prerequisite: BIOL 3070 or 3071

\*BIOL 4072A/B(R) Animal Nutrition: General principles and techniques of animal nutrition are reviewed and used to examine current literature. Emphasis is on the assessment of nutrition requirements of aquatic and marine species. Not offered 1991-92.

BIOL 4102A Topics in Biotechnology: This class

will deal with the application to industrial processes of microbiological and biochemical research. It will include both standard fermentation technology and the development of recombinant DNA methodology. The main goal of the class will be to assess current developments in biotechnology, evaluating both its promise and its limitations, or risks.

lecture/seminar 2 hours Format:

Instructor: L.C. Vining

BIOL 2010B and 2100 or Prerequisites:

equivalent

Third year biochemistry and Background:

microbiology

BIOL 4113B Biology of the Prokaryotic Cell: Although the class concentrates on the structure and function of the bacterial cell envelope, that is the capsule, cell wall and cell membrane, other topics such as the physiology of obligate anaerobiosis, sporulation, motility etc. are also covered. As part of this class, students will write one essay.

Format: lecture 2 hours R. Brown Instructor:

**Enrolment:** 

BIOL 2100A/B and CHEM 2400 Prerequisite:

or BIOL 2010 limited to 24

4114B Topics in Basic and Medical Virology: This class is described under Microbiology, MICR

BIOL 4115B Immunology: This class is described under Microbiology, MICR 4115B.

\*BIOL 4214B Physiology of Marine Algae: A comparative study of the physiology and biochemistry of the various algae classes is conducted, including studies of carbohydrates, proteins, fats, pigments and nutrition. Not offered in 1991/92.

BIOL 4301A Cellular Immunology: This class is described under Microbiology, MICR 4301A.

BIOL 4302B Advanced Immunology: This class is described under Microbiology, MICR 4302B.

BIOL 4369B Fisheries Oceanography: This class is described under Oceanography, OCEA 4160B.

BIOL 4401R Introduction to Pharmacology: This introductory class is designed to acquaint students with the actions of drugs on physiological and biochemical functions in mammals including man. Interactions of drugs with central and peripheral nervous systems and with the physiologically active chemicals (e.g. prostaglangins, peptides) are stressed. Factors affecting blood levels of drugs (absorption, distribution, metabolism and elimination) are considered, and potential uses. The laboratory consists of prescribed exercises

followed by a project of several weeks duration carried out in the research laboratories of the Department.

Format: Instructor: lecture 2 hours, laboratory 2 1/2

H. Robertson (Co-ordinator for Dept. of Pharmacology).

Prerequisite:

Permission of co-ordinator

nIOL 4403R Human Physiology: A class dealing with the physio-chemical basis of the physiological processes in man.

Format: Instructor: lecture 3 hours N. Morgunov

Prerequisites:

(Physiology/Biophysics Dept.). Introductory classes in Biology, Chemistry and Physics. Permission of the instructor is required.

RIOL 4600B Invertebrate Fisheries and Aquaculture: Subject matter will deal with commercially exploited invertebrates (crustaceans and molluscs) with a heavy emphasis on bivalves. Topics to be covered include: (1) Review of the major invertebrate harvest fisheries (locations, methods, population cycles, fisheries models) (2) Riology and ecology of the Bivalvia (feeding, bioenergetics, growth, and reproduction) (3) Shellfish aquaculture (methods, species, site location, economics). These topics will be covered with respect to the Maritimes as well as non-local fisheries. Course structure will be a mixture of lecture and class discussions, supplemented by visits to aquaculture sites. Course requirements will include a research paper and oral presentations.

Instructors: Format: Prerequisites:

J. Grant, G. Newkirk, R. Mohn lecture/discussion 3 hours BIOL 2001A, 2060A/B, and 3321R; fundamental knowledge of statistics; permission of instructor.

Cross-listing:

Oceanography 4600/5600

**BIOL 4650B Resource Systems and Economic** Development: Major theories of natural resource management have evolved rather separately through economic, behavioural and ecological disciplines. The interphase of ecology with these other disciplines and the criteria which may be used to weigh ecological inputs in economic development planning processes are the major topics to be covered. Current approaches and analytical techniques are described. These illustrate adaptive strategies for long-term resource use, pest and disease control. The course may focus on specialized topics such as fisheries or tropical resource management, as announced in advance. The class includes an introduction to practical problems of project cycles, of defining Objectives and of budget analysis. It is open to students from any faculty by permission of the Instructor.

Format:

lecture/seminar 3 hours

Instructor:

A.J. Hanson (Inst. for Resource & Environmental Studies)

**BIOL 4652A Advanced Ecology Seminar:** Consult Department.

BIOL 4653B Advanced Ecology Seminar: Consult Department.

**BIOL 4660A Introduction to Biological** Oceanography: Quantitative descriptions of biological oceanographic processes are used to explore interactions with physical and chemical processes in various oceanic ecosystems. Topics discussed range from factors affecting rates of microalgal photosynthesis to expected response of the ocean ecosystem to global variation in carbon dioxide and climate. Laboratory emphasizes independent, original research.

lecture 2 hours, laboratory 1 plus Format:

hours.

Instructor: C. Boyd. (Oceanography Dept.) Prerequisites: Biology 2060A/B or 2046R or

equivalent, Math 1000A/B/C. 1010A/B, and instructor's consent

Cross-listing: **OCEA 4330B** 

BIOL 4662B Biology of Phytoplankton: The role of phytoplankton as primary producers of organic material in the sea, and as agents of biogeochemical transformations, is explored in the context of interactions with physical and chemical oceanographic processes. Emphasis is on the current literature. Not offered in 1991/92.

BIOL 4664B History of Oceanography: This class describes the development of Oceanography from biological, chemical, physical, and geological knowledge going back to the 18th century in scientific, political and social contexts. Includes: plankton dynamics, deep sea biology, ocean circulation and plate tectonics.

Format: lecture and seminar

Cross-listing:

Enrolment:

Instructor: E.L. Mills (Oceanography Dept.) Prerequisite: instructor's consent, Science or

> History **OCEA 4331B** no limit

BIOL 4666B Benthic Ecology: This class is described under Oceanography, OCEA 4330B.

BIOL 4800 Special Topics: Available as 4806A, 4807B, 4808C. Arranged by consultation with staff and with approval of the Curriculum Committee.

BIOL 4900R Honours Research and Thesis: Compulsory class in honours programme.

## **Marine Biology**

Programme Coordinator
J. Farley

### **Honours in Marine Biology**

This programme is designed to provide a fundamental background in Biological Science while permitting concentration in marine biology. It prepares students for technical positions in marine biology and fisheries and for advanced research training in graduate school. It combines the resources of the Departments of Biology and Oceanography and other various marine-related sciences (mostly located in the Life Sciences Building, which is equipped with a sophisticated flow-through sea water system). Dalhousie is located very close to the sea coast and this enables many classes to offer extensive field work.

#### Curriculum

Year I: BIOL 1000R (Principles of General Biology)
CHEM 1010R (General Chemistry)
MATH 1000A (Differential and Integral Calculus)
MATH 1010B (Differential and Integral Calculus)
PHYS 1100R (Introduction to Physics)

Year II: BIOL 2060A/B (Introduction to Physics)

BIOL 2001A (Marine Diversity)
BIOL 2020A/B (Cell Biology) BIOL
2030A/B (Genetics and Molecular
Biology) OCEA 2850R (Introduction
to Oceanography)
BIOL 3067B (Survey of Fish Biology)
Electives

Year III: BIOL 3321R (Invertebrates) BIOL 3071R (Physiology of Marine Animals)

BIOL 3212A OR 3211B (Biology of Algae OR Systematic Survey of Algae)

BIOL 3061A OR 3069B (Communities and Ecosystems OR Animal Population Ecology) BIOL 3614C OR 3062B (Field Ecology OR Behavioural Ecology) BIOL 3100B OR 3120A (Aquatic Microbiology OR Advanced General Microbiology) MATH 2060A/2080B OR PSYC 3500R (Introduction to Probability and Statistics I and II OR Statistical Methods in Psychology) Note: All students must complete BIOL 2061A, 2020A or B, 2030A or B, and 2060A or B by the end of Year III. A 'B' average is required in these classes with no mark less than B-.

Year IV: BIOL 4900R (Honours Research and

Thesis)
BIOL 4369B (Fisheries Oceanography)

BIOL 4660A (Introduction to Biological Oceanography)
OCEA 4170B (Introduction to Physical and Chemical Oceanography)
OCEA 4260A (Biology of Zooplankton)
BIOL 4666B (Benthic Ecology) OR
BIOL 4600B (Invertebrate Fisheries & Aquaculture) Elective

Suggested Electives:

BIOL 4650A (Resource Ecology and Economic Development)

BIOL 4379A (Ichthyology)

POLI 3590R (The Politics of the Sea)

GEOL 4280B (Marine Geophysics) BIOL 3073B (Plant Physiology)

BIOL 4214B (Physiology of Marine Algae) BIOL 4070C (Advanced Topics in Animal

Physiology)

BIOL 4662B (Biology of Phytoplankton) BIOL 4616B (Ecosystem Analysis)

OCEA 4664B (History of Oceanography) OCEA 4380B (Marine Modelling)

OCEA 4230B (Biology of Phytoplankton)

# Co-operative Education Programme in Marine Biology

The co-operative education programme is an integrated programme of 8 academic terms and 4 work terms in industry, government laboratories, and institutes etc. The work terms, each of 4 months duration, enables students to apply their knowledge of marine biology and helps them make intelligent career choices. Upon successful completion of the programme the student's transcript indicates the programme was a co-operative one.

This co-op programme is available as an Advanced major (20-credit) degree programme or as an Honours degree programme. The co-op degree normally takes 4 1/3 years to complete. Eligibility

- Students are required to demonstrate sufficient academic potential and maintain a B average or higher with no mark lower than B- in BIOL 2001A, 2020A or B, 2030A or B, 2060A or B.
- A suitability for, and interest in, co-op education.

Normally, students entering their second year of study may apply for admission to these co-op programmes. However, interested first year students are strongly urged to contact the Marine Biology Co-op co-ordinator as early as possible.

## the Work-Study Programme

The work terms are each of four months

auration and alternate with study terms as follows:

Year Fall Winter Summer
AT1 AT2 Free
AT3 AT4 WT1
AT5 WT2 AT6
WT3AT7 WT4
AT8 Graduation

AT - Academic Term WT - Work Term

The Faculty's Co-op placement officer serves to co-ordinate the contacts between student and employer. Students are remunerated according to the employer's policies regarding permanent employees of similar training and education. At the end of each work term, each student must submit an acceptable work report.

The academic programme and required classes for honours co-op are essentially the same as for the B.Sc. degree with Honours in Marine Biology listed below, with a few minor changes in class sequence. Please consult the Marine Biology Co-op cordinator for details of this programme and for the Co-op Advanced Major.

Co-op students enrolled in their second year must attend a few non-credit seminars for co-op students, where various topics relevant to the work terms are discussed. The purpose of these seminars is to better prepare students for their work terms.

#### **Further Information**

For additional information, class selection advice, and entry into one of the co-op progarmmes, contact the Marine Biology Co-op co-ordinator, Biology Department.

## Chemistry

Location: Chemistry Building Telephone: (902) 494-3305 Facsimile: (902) 494-1310

Chairperson of Department J.C.T. Kwak

## **Faculty Undergraduate Advisors**

T.S. Cameron (494-3759)
T.P. Forrest (494-3315)
J.S. Grossert (494-3314)
R.D. Guy (494-7079)
P. Kusalik (494-3627)
J.A. Pincock (494-3324)
L. Ramaley - Chair (494-7078)
R.E. Wasylishen (494-2564)

### **Emeritus Professors**

W.J. Chute, BSc (Acad.), MA, PhD (Tor.)
O. Knop, DSc (Laval), Harry Shirreff Professor of
Chemical Research
D.E. Ryan, BSc (UNB), MA (Tor.), PhD, DSc
(Lond.), DIC

D.R. Arnold, BS (Bethany College), PhD (Roch.)

#### **Professors**

W.A. Aue, PhD (Vienna) R.J. Boyd, BSc (UBC), PhD (McG) T.S. Cameron, BA, MA, DPhil (Oxon.) A. Chatt, BSc (Calcutta), MSc (Roorkee), MSc (Wat.), PhD (Tor.) H.C. Clark, BSc, MSc, PhD (Auckland), PhD, ScD (Cantab.), President, Dalhousie University J.A. Coxon, MA (Cantab.), MSc, PhD (East Anglia) T.P. Forrest, BSc (MtA), MSc (Dal), PhD (UNB) J.S. Grossert, BSc, MSc, PhD (Natal) W.E. Jones, BSc, MSc (MtA), PhD (McG) (on leave of absence) J.C.T. Kwak, BSc, MSc, PhD (Amsterdam) K.T. Leffek, BSc, PhD (Lond.) P.D. Pacey, BSc (McG), PhD (Toronto) J.A. Pincock, BSc, MSc (Man.), PhD (Toronto) R. Stephens, MA (Cantab.), MSc (Bristol), PhD (London), DIC R.E. Wasylishen, BSc (Wat.), MSc, PhD (Man.)

#### **Associate Professors**

T.B. Grindley, BSc, MSc, PhD (Queen's)
K.R. Grundy, BSc, MSc Hons, PhD (Auckland)
R.D. Guy, BSc (SFU), PhD (Carl.)
D.L. Hooper, BSc, MSc, PhD (UNB)
L. Ramaley, BA (Col.), MA, PhD (Prin.)
C.H. Warren, BSc (UWO), PhD (McM)
M.A. White, BSc (UWO), PhD (McM)

#### **Assistant Professors**

N. Burford, BSc (Wales), PhD (Calgary)
P.G. Kusalik, BSc (Lethbridge), MSc, PhD (UBC),
(NSERC University Research Fellow)
P.D. Wentzell BSc (Dal), PhD (Mich. State)
R.L. White BSc (Dal), PhD (McM)

#### Visiting Scientists (1990)

T.C. Chang, National Cheng Kung University,
Tainan, Taiwan
Jouku Kankare, University of Turku, Finland
Aiguo Liu, Shandong Institute of Chemistry, China
C. Sarasola, Euskal Herriko Unibertsitatea, Spain
G.H. Schmid, University of Toronto
J.M. Ugalde, Euskal Herriko Unibertsitatea, Spain
J. Wang, National Cheng Kung University, Taiwan
Liang Chen Wang, East China University of
Chemical Technology, China

#### **Senior Instructors**

C.D. Burkholder, BSc (Wat.)
J. Gabor, MSc (Budapest)
S.A. Sawler, BSc, (MSVU)
D.J. Silvert, MSc (CWRU)
W.D. Tacreiter, MSc (Krakow)
K.E. Thompson, BSc (Acad.)
M.E. Warren, BSc (Western)

#### Instructors

C.M. Byers, BSc Hons (Dal)

#### **Adjunct Professors (1990)**

A.J. Thakkar, UNB, BSc, PhD (Queen's)
K. Vaughan, St. Mary's, BSc (UMIST), PhD (St. Andrew's)

## Honourary Research Assoc. (1990) M. Zaworotko, St. Mary's, BSc (London), PhD

M. Zaworotko, St. Mary's, BSc (London), PhD (Alabama)

## Postdoctoral Fellows and Research Associates/Assistants (1990)

Ruth Cordes, BSc (Dal), MSc (UBC) Hiroshi Furue, BSc (Inter. Christ Univ., Japan), MSc (Osaka Univ., Japan), PhD (Queen's University)

W. Galezowski, PhD (Mickiewicj University, Poznan)

Z. Gao, PhD (Dal)

Photos Hajigeorgiou, BSc (Dal), PhD (Dal)

D. LeBlanc, BSc (StFX)

Mingguang Li (Quinghai Inst. of Salt Lake

Chinese Academy of Science)

K.C. Manthorne, BSc (Dal), BSc Eng (TUNS) Raghunadha Rao, BSc (Andhra, India), PhD (IIT,

Bombay, India)

Z. Shi, BSc (Shandong), PhD (Dal)

R. Thangarasa, PhD (Dal)

#### Introduction

Chemistry is one of the fundamental sciences. It explores the interactions among different forms of matter and energy. Its main purpose is to gain a basic - but also a very useful - understanding of how compounds react and when and why they form particular products. The universe and the world in which we live are composed of chemicals. Therefore, chemical knowledge helps us to influence and protect our environment; chemical principles and procedures are found everywhere in the groundwork of the natural and medical sciences.

The honours BSc is the expected professional requirement for a chemist. Chemists with honours degrees are employed in widely differing areas in industry and government. This degree will provide a background for further graduate work in chemistry or in such diverse areas as medicine, law, business administration, biochemistry, oceanography and geology. A postgraduate degree is essential for independent original research in an industrial career or in university teaching.

Chemistry 1010 (or 1020 or 1030 or 1040) is an introduction to the discipline. All students intending to take classes in chemistry beyond the first-year level should include classes in mathematics and physics in their first year. Final grades in these classes should not be less than C; if they are, the student is bound to find advanced classes in chemistry difficult and frustrating.

At the second-year level the student is exposed to the four traditional areas of specialization in chemistry. Inorganic chemistry deals with all the chemical elements except carbon, and the compounds which these elements form. Organic chemistry is devoted to the study of the almost limitless number of compounds containing carbon. Analytical chemistry is concerned with the determination of the composition of substances, and with the detection of elements in quantities however minute. Physical chemistry is concerned with both macroscopic phenomena, including why and at what rates chemical reactions occur, and with molecular phenomena through the application of spectroscopic techniques. Beyond the second-year level, a student's studies in chemistry become increasingly concentrated in one of these four areas. The student may also be introduced to biochemistry or the chemistry of living organisms, as well as such specialties as structural chemistry, radiochemistry, environmental chemistry and theoretical chemistry.

## **Degree Programmes**

#### Honours in Chemistry

This programme is intended to provide a broad training in chemistry while at the same time making provision for the individual interests of

students. Competence in mathematics as well as chemistry is required. All honours students must consult annually with an Honours Student Advisor obtain approval of their course selection.

All nine required chemistry credits must be passed with a grade of at least C.

## Honours Programme

The following Chemistry classes beyond first must be completed by all honours students: CHEM 2101A/B, 2201B/A, 2301A, 2302B, 2400R, 3101A or B, or 3102B or A, 3201A, 3301A, 3302B and 3401B. In addition, all honours students must complete MATH 1000A, 1010B and 3000R (or equivalent) and PHYS 1100R.

The remaining seven half credits in Chemistry must be chosen from the classes listed below, with at least one half credit from each of the groups A, B, C and D.

Group A: CHEM 3101A or B, or 3102B or A (whichever was not taken earlier), 4101A or B, 4102B or A.

**Group B:** CHEM 3202B, 4201A or B, 4202A or B, 4203A or B.

**Group C:** CHEM 3303A, 4301B, 4304A, 4305B, 4306A or B, 4307B.

Group D: CHEM 3402A, 3403B, 4401A, 4402B, 4403A.

Group E: CHEM 3501B, 4501A or B, 4502A or B, 4503A or B, 4504B.

In order to ensure that the honours requirements can be completed within the usual four year period, students are urged to follow the program outlined below.

Year 1: CHEM 1010R or preferably CHEM 1030R (or equivalent); Mathematics 1000A and 1010B, Physics 1100R, an approved writing class, and one elective.

Year 2: CHEM 2101A/B, 2201B/A, 2301A, 2302B and 2400R; Mathematics 2000R or 2480A/2490B or 2500R; and one elective.

Year 3: CHEM 3101A or B, or 3102B or A, 3201A, 3301A, 3302B, 3401B plus at least one other chemistry half credit from either Group A, B, C, D or E;

and two electives.

Year 4: The remaining six half credits in chemistry from Groups A, B, C, D and E; and two electives. In addition, the non-credit classes CHEM 3880, 4880, and 8880 (21st or honours credit) must be taken.

Two credits beyond the 1000 level must be laken in a minor subject. Minor subjects allowed for this degree are biochemistry, biology, computing science, geology, mathematics, or physics. The minor, the unspecified credits in chemistry, and electives should be chosen according to the future plans of the student.

#### **Combined Honours Programme**

The department has designed a number of programmes which allow a student to obtain a Combined Honours Degree in Chemistry with one of Biochemistry, Biology, Computing Science, Geology, Mathematics or Physics. To obtain an introduction to all the basic areas of chemistry, CHEM 2101A/B, 2201B/A, 2301A, 2302B and 2400R must be part of any combined honours programme involving Chemistry, and must be passed with a grade of at least C.

The additional eight credits in chemistry and the other subject must be chosen in consultation with the two departments involved. Students must consult an Honours Student Advisor of the Department of Chemistry and the Chair of the other area of study before registering in the combined programme. Interested students should also consult the Department's Handbook "Undergraduate Studies in Chemistry" for more information.

#### **Advanced Major in Chemistry**

In order to obtain a general background in Chemistry, the student, after taking CHEM 1010R or 1020R or 1030R or 1040R, must include in his/her programme the classes 2101A/B, 2201B/A, 2301A, 2302B and 2400R as part of the required minimum 6 credits in chemistry beyond first year. These required classes give exposure to the four areas of specialization in chemistry. In addition, all advanced major students must complete MATH 1000A and 1010B (or equivalent).

Of the classes remaining to satisfy the minimum requirements in Chemistry, at least three half classes should be chosen from CHEM 3101A or B, or 3102B or A, 3201A, 3301A, 3302B and 3401B depending on the student's major interests. Advanced Major students in their fourth or higher year of study can also elect to be involved in a literature or experimental project, CHEM 4801A/B/C. Each student who plans to major in chemistry should consult with a Chemistry Counsellor each year regarding a programme of study. The student's programme must also include Mathematics 1000A and 1010B and Physics 1100R.

All chemistry classes to be counted towards the Advanced Major in chemistry must be passed with a grade of C or better.

#### Major in Chemistry

See the above entry for the Advanced Major for a description of the required classes. The remaining single Chemistry credit (minimum) beyond the first year can be taken from any of the 3000 or 4000 level Chemistry classes. Notwithstanding the Faculty regulation that two credits in the major must be at the 3000 or 4000 level, in Chemistry three credits must be at the 2000 level with one credit (minimum) at the 3000 or 4000 level. Note that CHEM 4801A/B/C is not available in the Chemistry Major Programme.

Chemistry

All chemistry classes to be counted towards the Major in chemistry must be passed with a grade of C or better.

#### Classes Offered

A or B indicates that the class is a half credit and is offered in either the A or B term or in exceptional circumstances in both terms. A/B indicates a class offered in both terms. C indicates a half credit class extending over both the fall and winter terms. An asterisk (\*) indicates that the class is not necessarily offered every year. Consult the timetable for up-to-date details.

Early registration for classes is strongly encouraged. In recent years certain classes, particularly CHEM 1010R, 1030R, 2101A/B. 2201B/A and 2400R have reached maximum possible enrolment long before completion of the final registration period in September.

Students who have passed a first-year Chemistry class with a grade of D should consider themselves inadequately prepared for further studies in this subject. Such students may not be allowed to register directly for second-year Chemistry classes but may request that their names be put on a waiting list. Consult the Department for details. Duly registered students, who do not show up for the first two scheduled lectures in a class, may lose their place to students on the waiting list.

#### **Chemistry Resource Centres**

First-Year and Advanced Resource Centres are located in Rooms 167 and 166. The former is staffed with people who can help with Chemistry problems. Facilities include study areas, a computer laboratory with special programmes designed for Chemistry students, molecular models, audio-visual aids and a small library.

CHEM 1000R The Chemical World: This class is intended for students who want to take only a first-year credit in science, and who wish to understand some of the chemical aspects of the world around us. The class does not use a mathematical approach to science, and can be taken by students with no, or limited, previous chemistry experience. The class will cover the development of chemical knowledge from early times to the present. By means of lectures, frequent (and sometimes spectacular!) demonstrations, and laboratory or reading projects, students will be introduced to the world of chemistry and to chemicals and chemical ideas in everyday use. Students contemplating careers, e.g., in law, business, or government could profit from the material studied in this class. Students will be required to do extensive written assignments, which will be marked both on content and writing style. CHEM 1000R is an approved "writing class" in the College of Arts and Science. CHEM 1000R does not serve as a prerequisite for second-year chemistry classes.

Instructor: T.S. Cameron

lectures 2 hours, lab/tutorial 2 Format:

hours

CHEM 1000R cannot be taken concurrently with or after CHEM

1010R, 1020R, 1030R and 1040R

**Enrolment:** limited

**Exclusions:** 

CHEM 1010R General Chemistry (formerly 1100R): A study of the fundamental principles of chemistry with particular reference to stoichiometry, atomic and molecular structure gases, liquids and solids, solutions, thermochemistry, equilibria, chemical properties of common substances, acid-base and oxidation-reduction reactions and chemical kinetics. Students enrolling in this class should have a background in chemistry equivalent to the Nova Scotia XII level. Mature students should consult the Department. It is important that students be familiar with exponents and logarithms, and be able to solve quadratic and simultaneous equations.

Instructors:

N. Burford, T.B. Grindley, K. Grundy, J.C.T. Kwak, P. Wentzell, M.A. White, R.I.

White

Format: lectures 3 hrs, tutorial 1 hr, lab 2

CHEM 1020R General Chemistry for Engineering Students (formerly 1110R): This class is similar to Chem 1010(1100), but with greater emphasis on quantitative topics, including chemical equilibrium, thermodynamics, reaction kinetics and electrochemistry. The class is open only to students enrolled in the Engineering programme, but it serves also as a regular prerequisite for all second-year chemistry classes.

Instructors: Format:

J.A. Coxon, R.E. Wasylishen lectures 3 hours, tutorial 1 hour,

lab 2 hours

CHEM 1030R Principles of Chemistry (formerly 1200R): Similar to CHEM 1010 but with more emphasis on atomic and molecular structure. thermodynamics, equilibria and kinetics. This class is intended for prospective science students and for students wishing to gain a more thorough introduction to the principles of chemistry. Students enrolling in this class must have attained high standing in high school chemistry and are advised to contact the lecturer prior to registering for this class. Concurrent enrolment in Mathematics 1000 and 1010, or in Mathematics 1500 is advised.

Instructor:

Format: lectures 3 hours, lab/tutorial 3

hours

Enrolment:

limited

CHEM 1040R General Chemistry for the Life and Health Sciences (formerly 1120R): The basic ontent and rigour of this class is the same as that of CHEM 1010(1100). However, more emphasis of circumstantial signature of the signa dructures, and topics that are of interest to the life and health sciences are favoured over those of the inanimate variety. Thus, chemical principles are illustrated primarily by examples from living systems. Some additional topics such as enzyme tinetics, ionizing radiation, and several types of bio-analyses are introduced in short and simple form. CHEM 1040 uses the same textbook and laboratory experiments as CHEM 1010 and serves as a regular prerequisite for all second-year Chemistry classes.

W.A. Aue Instructor:

Format:

lectures 3 hours, tutorial 1 hour.

lab 2 hours

Any of CHEM 1010R, 1020R, 1030R or 1040R may erve as a prerequisite for any 2000 level class in themistry, and as a credit in the College of Arts and science. However, credit will only be given for one of 1010, 1020, 1030 or 1040.

CHEM 1410A Introductory Chemistry: A descriptive introduction to chemistry with emphasis on materials related to the life and health sciences. The class requires a background of high school chemistry and mathematics. Topics covered include units, matter, the Periodic Table, stoichiometry of reactions, gases, liquids, solids, solutions, simple concepts of equilibria, acids, hases, radioactivity hydrocarbons, alcohols, ethers, amines, amides, esters and simple carbohydrates and proteins. The organic chemistry deals primarily with structures and introduces molecules of medicinal interest.

Instructor: P.D. Pacev

lectures 3 hours, tutorial 2 hours Note: This class does not serve as a prerequisite for any other chemistry class.

CHEM 1430R Introductory Chemistry and Biochemistry: This class combines CHEM 1410A and Biochemistry 1420B for use by Nursing students and cannot be used for credit in Arts and Science.

CHEM 2101A/B Introductory Inorganic Chemistry (formerly 2110A/B): The fundamentals of inorganic chemistry are covered. Specific topics include: ionic bonding and the nature of solids, the structure of atoms and simple bonding theory, coordination chemistry of the transition metals and selected topics in main group chemistry. The preparation, analysis and observation of inorganic compounds are the laboratory assignments.

Instructor: Format:

lectures 3 hours, lab 3 hours Prerequisite: CHEM 1010(1100) or 1020(1110)

or 1030(1200) or 1040(1120)

Enrolment:

CHEM 2201A/B Introductory Analytical Chemistry (formerly 2200A/B): An introduction to those analytical techniques most often employed in modern chemical analysis. Topics include: acid-base and redox chemistry and the theory of titrations based on these types of reactions; atomic and molecular spectroscopy in the visible and ultraviolet regions of the electromagnetic spectrum; potentiometry and the use of ion selective electrodes; and gas and liquid chromatography. Laboratory experiments will be based on topics selected from the lectures and will introduce the student to a wide variety of methods.

Instructors: Format:

L. Ramaley, R. Guy lectures 3 hours, lab 3 hours

Prerequisite: CHEM 1010(1100) or 1020(1110) or 1030(1200) or 1040(1120)

**CHEM 2301A Chemical Thermodynamics** 

(formerly 2310A): The physical chemist attempts to describe macroscopic systems and chemical reactivity based on an understanding of the atoms and molecules which make up the systems we study. This first class in physical chemistry will start with a discussion of the forces between molecules, and the properties of gases, liquids and solids. Energy relations in macroscopic systems are presented; further topics in thermodynamics include thermochemistry, entropy, and free energy relations, with many applications including phase equilibria, chemical equilibrium, solutions and colligative properties. In the laboratory students will perform experiments based on many of the concepts discussed in class, including an introduction to data handling by computer.

R.J. Boyd Instructor: Format:

lectures 3 hours, lab 3 hours

Prerequisites: CHEM 1010(1100) or 1020(1110) or 1030(1200) or 1040(1120),

Mathematics 1000 and 1010

CHEM 2302B Chemical Kinetics and Dynamics (formerly 2320B): This class examines the dynamics of systems by considering motion and reactivity of molecules. Topics include transport properties such as diffusion and ionic conductivity, the molecular kinetic theory of gases, and rates of chemical reactions. The latter are studied in detail, with applications in atmospheric chemistry. liquid and solid state reactivity, catalysis, enzyme kinetics and polymers. The laboratory experiments emphasize the determination of molecular motion and chemical reactivity using a variety of techniques and instrumental methods. Instructor: P.D. Pacev

Format: Prerequisites:

lecture 3 hours, lab 3 hours CHEM 1010(1100) or 1020(1110)

or 1030(1200) or 1040(1120),

Mathematics 1000

\*CHEM 2303B or A Physical Chemistry for the Life Sciences (formerly 2330B or A): Chemistry majors may not apply credit for CHEM 2303 towards the major requirements for a degree in Chemistry. Those who do not plan a career in chemistry, but who can use the principles and concepts of physical chemistry in related areas, are introduced to the basic ideas of physical chemistry with the necessary mathematical concepts in simple terms. Previous knowledge of calculus is not necessary. The principal topics: thermodynamics, rates of enzyme-catalyzed reactions, chemical equilibrium and spectroscopy are treated by application to examples of biological and environmental interest.

Instructor: Staff

Format: lectures 3 hours, lab/tutorial 3

hours

Prerequisite: CHEM 1010(1100) or 1020(1110)

or 1030(1200) or 1040(1120)

Exclusions:

Credit will not be given for both of CHEM 2301(2310) and CHEM 2303 or for both of CHEM 2302(2320) and CHEM 2303

CHEM 2400R Introductory Organic Chemistry: This class gives a broad introduction to the chemistry of carbon compounds, including molecular shapes and bonding, characteristic reactions of functional groups and the way in which they take place, and the application of spectroscopy to organic chemistry. Laboratory work is designed to teach a broad range of fundamental operations and techniques used in modern organic chemistry laboratories. Students should have a good comprehension of the principles studied in CHEM 1010(1100) or equivalent, as evidenced by a grade of at least C. Instructors:

D.R. Arnold, J.S. Grossert, D.L. Hooper, and J.A. Pincock Format: lecture 3 hours, lab 3 hours Prerequisite: CHEM 1010(1100) or 1020(1110) or 1030(1200) or 1040(1120)

CHEM 3101A/B Chemistry of the Main Group Elements (formerly 3110A): This class gives an overview of the chemistry of the non-metal elements (p block), with particular emphasis on the elements of the second (B - F) and third rows (Al - Cl). Preparative methods, molecular structure, characterization, and bonding are discussed, with some examples examined in detail. The laboratory introduces synthetic procedures for the preparation of inorganic compounds and some study of their reactions. Some of these experiments involve special techniques, such as vacuum line manipulation and high temperature.

Instructor: N. Burford

Format: lecture 3 hours, lab 3 hours Prerequisite: CHEM 2101(2110)

CHEM 3102B/A Coordination Chemistry of the Transition Metals (formerly 3120B): Modern

bonding theories are used to unify discussion of the chemical and physical properties of compounds of the transition elements. The laboratory experiments introduce procedures for the preparation and characterization of compounds of the transition elements. The compounds prepared illustrate the principles discussed in class and exhibit unusual structures geometries, oxidation states and other interesting properties.

Instructor: K. Grundy

lecture 2 hours, tutorial 1 hour. Format:

lab 3 hours

Prerequisite: CHEM 2101(2110)

CHEM 3201A Analytical Spectroscopy and Separations (formerly 3210B): The most commonly employed instrumental techniques in chemical analysis use spectroscopy in some form or involve separations. Qualitative and quantitative analysis and the instrumentation involved are discussed in some detail for spectroscopic methods in the visible, ultraviolet. and X-ray regions of the spectrum. Various methods of separation including precipitation. solvent extraction, and the various types of chromatography are presented. Laboratory experiments illustrate the above techniques with practical examples.

Instructor: R. Guy

Format: lecture 3 hours, lab 3 hours Prerequisite:

CHEM 2201(2200)

CHEM 3202B Instrumental Methods of Analysis (formerly 3220B): This class deals with the application of various important instrumental and computer techniques to problems in chemical analysis. These techniques include electrochemistry, radiochemistry, mass spectrometry, sampling theory, electrophoresis, data analysis and automation. Basic chemical, physical and mathematical principles are explained, instrumentation is described and analytical applications are examined. Laboratory experiments are designed to illustrate the techniques covered in the lectures.

Instructor: L. Ramaley

Format: lecture 3 hours, lab 3 hours Prerequisite: CHEM 3201(3210) or instructor's

consent

CHEM 3301A Quantum Mechanics and Chemical Bonding (formerly 3000A): This class gives an introduction to quantum mechanics and its application to spectroscopy and the electronic structure of atoms and molecules. The postulates of quantum mechanics are presented and applied to some simple physical systems, followed by a discussion of the rotations and vibrations of molecules, and the electronic structure of atoms, concluding with an introduction to the simple Hückel molecular orbital method. The relevance to chemical bonding will be stressed.

instructor: Format: prerequisite: Staff

lectures 3 hours

Mathematics 2000 or 2490B and CHEM 2101(2110) or 2301(2310)

or 2302(2320)

CHEM 3302B Symmetry and Spectroscopy (formerly 3340B): Many different types of ectromagnetic radiation, such as ordinary visible light, microwave radiation, and X-rays, are absorbed and emitted by all atoms and molecules. The understanding and uses of such phenomena constitute the subject of spectroscopy. Spectroscopic methods are used extensively in all areas of chemistry and a wide range of applications have been developed. In recent years, the traditional approaches have been omplemented by dramatic development of newer techniques, such as magnetic resonance and laser spectroscopies. This class provides an introduction to the physical basis and applications of most types of spectroscopy, including microwave, infrared, visible, ultraviolet, laser. Raman, and magnetic resonance techniques. The topics of molecular symmetry and elementary group theory are introduced at an early stage, and provide a satisfying and unifying thread extending over all areas of spectroscopy.

J. A. Coxon Instructor: lecture 3 hours, lab 3 hours CHEM 3301(3000) or permission Prerequisite: of the instructor

CHEM 3303A Materials Science (formerly 3310): The emphasis of this class will be on the exposition of the underlying principles involved in understanding physical properties of materials, such as thermal and mechanical stability, and electrical and optical properties. All phases of matter will be examined: gases, liquids, films, liquid crystals, perfect crystals, defective solids, glasses. The principles of important processes such as photography and Xerography will be

Instructor: M. A. White Format: lecture 3 hours

CHEM 2301(2310) or Physics Prerequisite: 3200A or Geology 2100R or Engineering 2340A or permission

of the instructor.

CHEM 3401B Intermediate Organic Chemistry (formerly 3420B): This class is a continuation of CHEM 2400 and covers many of the topics included in the last third of modern organic chemistry texts. Topics presented include enolate anions, amines, aromatics, heterocycles, carbohydrates, amino acids, and concerted reactions. The synthesis of compounds of chemical and pharmaceutical interest will be used as a focus for these topics. In addition, an introduction to some of the principles of mechanistic organic chemistry will be presented.

Students work independently in the laboratory on the preparation of organic compounds. The success of student syntheses is monitored by the use of spectroscopic and other techniques. Students should have a good comprehension of the principles studied in CHEM 2400R, as evidenced by a grade of at least C.

J. A. Pincock Instructor: lecture 3 hours, lab 3 hours Format: CHEM 2400R (or equivalent) Prerequisite:

CHEM 3402A Identification of Organic Compounds (formerly 3410A): The class develops separation techniques, together with wet chemical and spectroscopic analysis methods, that were introduced in CHEM 2400. Spectral techniques studied include ultraviolet, infrared, Raman, proton and carbon nmr, and mass spectrometry. Students, using a variety of techniques, work independently in the laboratory to identify unknown substances and to separate and identify components of mixtures. Students should have a good comprehension of the principles studied in CHEM 2400R, as evidenced by a grade of at least C.

J.S. Grossert Instructor:

lecture 3 hours, lab 3 hours Format: CHEM 2400 (or equivalent) Prerequisite:

CHEM 3403B Bioorganic Chemistry (formerly 3430B): The principles of organic chemistry that are used by the organic chemist to explain and predict the reactivity of compounds will be used to study the behaviour of organic compounds in nature. To cause a reaction to occur in the laboratory it might be necessary to alter functional groups and provide other conditions necessary to induce particular reactivity. In a natural system the same principles can be considered in the analysis of the reactivity of the organic compounds involved. The basic principles controlling the reactivity of organic compounds will be reviewed and applied to a study of selected naturally occurring reaction pathways.

Instructor: Staff

lecture 3 hours Format: Prerequisite: CHEM 2400 or equivalent

CHEM 3501B Numerical Methods in Chemistry (formerly 3360B): This class provides an introduction to numerical methods that can be applied to various problems in chemistry. Students will utilize these techniques on microcomputers. Topics to be covered include the treatment of experimental data by least squares methods; by curve fitting, smoothing, and interpolation techniques; and by numerical integration. Matrices, determinants, and eigenvalue equations will be studied and applied to problems in quantum chemistry and spectroscopy. Complex equilibria will be examined through the numerical solution of simultaneous equations. Computer graphics will

be introduced and applied to topics such as wave functions, gas laws, potential energy contours, coordinate transformations and molecular geometries. Computer simulation of experiments will also be examined.

Instructor:

C. H. Warren lecture 3 hours

Format: Prerequisites:

CHEM 2301(2310) and

2302(2320) and Mathematics 2000 or 2480A and 2490B or

instructor's consent

CHEM 3880 General Topics in Chemistry: A non-credit seminar class to be given by invited speakers. Attendance at all seminars is required of all 3rd year honours Chemistry students.

\*CHEM 4101A/B Topics in Non-Metal Chemistry: Following a brief overview of the fundamental aspects of preparation, structure and bonding for familiar systems, selected topics are examined in some detail. An emphasis is placed on novel structure and bonding arrangements in comparison with carbon chemistry and other common systems.

N. Burford. Instructor: lectures 3 hours Format: Prerequisite: CHEM 3101(3110)

\*CHEM 4102B/A Advanced Transition Metal Chemistry (formerly 4100A/B): Organotransition metal chemistry has grown over the last several decades into one of the most important areas of research and development in inorganic chemistry. In this class the most important types of organic ligands and their bonding characteristics will be surveyed, as will the most important reaction pathways such as migratory insertion, oxidative addition, nucleophilic addition, etc. The class concludes by examining homogeneous catalysis by organotransition metal complexes. The lab consists of several projects in which the principal reaction pathways are explored and the important characterization techniques are employed.

Instructor: K. R. Grundy

Format: lecture 2 hours, lab 3 hours CHEM 3102(3120) or instructor's Prerequisite:

\*CHEM 4201A/B Advanced Topics in Separations (formerly 4200): Chemistry started as the science of separations and separations are still its most prominent feature in most laboratories around the world. This class will deal mainly with chromatography and associated techniques; in particular, gas chromatography in its regular, capillary and supercritical forms, high-pressure liquid (including ion) chromatographies, capillary electrophoresis, and gas and liquid chromatography combined with other instrumental techniques such as mass spectrometry. The original ideas behind the design of separation media and detection modes will be emphasized, and so will be their consequences for the analysis

of living and environmental systems. This class will not present a survey of the field; rather, it will focus primarily on past (and future) innovation. Please consult the instructor for the detailed content of this class in a given year

Instructor: W. Aue

lecture 2 hours, lab arranged Format: CHEM 3201(3210), or Prerequisite:

instructor's consent

\*CHEM 4202A/B Topics in Advanced Analytical Spectroscopy (formerly 4210): The topics covered are applicable to elemental analysis: atomic absorption, emission, fluorescence; optical rotation; X-ray spectroscopy; neutron activation analysis. The class will cover the theory and application of the different spectroscopic methods and will include discussion on instrument design and performance. The emphasis on different topics may vary from year to year; students are advised to consult with the instructor for further detail.

Instructor: R. Stephens

lecture 2 hours, lab arranged Format:

CHEM 3201(3210) Prerequisite:

\*CHEM 4203A/B Environmental Chemistry: The first part of this class covers the chemical equilibria suitable for the description of metal ion and organic chemical interactions in the environment. Topics to be covered in this section include polyprotic acid equilibria in sufficient depth to describe carbonate and hydrogen sulphide systems (acidity, alkalinity, conservative quantities), redox equilibria (E<sub>b</sub>-pH diagrams), solubility of oxides, hydroxides and carbonates and complexation equilibria. Adsorption equilibria are covered for metal ion and organic interactions with clays, humic and hydrous oxide materials. The second part of the class covers analytical methodology for the determination of metals and organics in environmental systems. Particular interest is paid to analytical methods for the speciation of compounds in waters and sediments. Students should be familiar with or interested in using microcomputers for chemical calculations.

R. Guy Instructor:

Format: lecture 3 hours, lab arranged

Prerequisite: CHEM 3201(3210)

CHEM 4301B Theory of Chemical Bonding (formerly 4000B): This class discusses chemical bonding within the framework of molecular quantum mechanics, the science relating molecular properties to the motions and interactions of electrons and nuclei. The emphasis is on the qualitative features and physical basis of molecular orbital theory and its application to chemistry. The symmetry properties of molecular orbitals are discussed within the context of group theory. Other topics include ladder operators and the addition of angular momenta.

Instructor: Format:

Staff lecture 2 hours

Prerequisite: CHEM 3301(3000) or instructor's

CHEM 4304A Kinetics and Catalysis (formerly 1320A): This class relates the properties of molecules in motion to the rates of chemical changes. Collision, transition state and diffusion theories are applied to significant industrial, biological and atmospheric processes. photochemistry, and its converse, luminescence, are interpreted. Mechanisms of catalyst activity are discussed. The laboratory experiments use sophisticated techniques, including computerized data acquisition.

Instructor: Format:

P. D. Pacey lecture 2 hours, lab 3 hours,

alternate weeks

CHEM 2302(2320) or equivalent Prerequisite:

**CHEM 4305B Introductory Statistical** Thermodynamics (formerly 4300B): The ntinciples of statistical mechanics are introduced and the relationship between the laws of thermodynamics and the underlying microscopic mocesses is examined. Wherever possible applications to chemical systems are emphasised. An overview of modern techniques is also given.

Instructor: P. Kusalik lecture 3 hours Format: Prerequisites: CHEM 2301(2310) and

3301(3000), or instructor's consent

'CHEM 4306A/B Magnetic Resonance: The hasic principles of magnetic resonance will be discussed and reinforced with examples of applications to problems in chemistry and chemical physics. Topics to be discussed include: the magnetic Hamiltonian, chemical shielding, nmr in solids, quantum mechanical approach to spectral analysis of nmr spectra in liquids, esr of organic radicals, relaxation, molecular rate processes, and two dimensional nmr. Students will be assigned problems on a regular basis.

R.E. Wasylishen Instructor: Format: lectures 2 hours

Prerequisite: CHEM 3301(3000) or instructor's

CHEM 4307A/B Biophysical Chemistry (formerly 4330A/B): This class gives a theoretical and Practical introduction necessary for the application of physical chemistry to life sciences and medicine. Topics include the structure and conformation of biological macromolecules, techniques for the study of biological structure and function, lansport processes and biochemical spectroscopy. The laboratory is on an open basis with at least our experiments to be completed during the term. Instructor:

Format:

Lectures 2 hours, lab 3 hours,

alternate weeks

Prerequisite:

CHEM 2301(2310) and 2302(2320) and CHEM 3301(3000) and 3302(3340) or instructor's consent

CHEM 4401A/B Synthesis in Organic Chemistry:

The prerequisite classes provide a foundation of knowledge of many organic reactions that are useful for bringing about specific functional group transformations. This class expands this foundation and shows how these reactions can be combined in well planned, multi-step strategies to synthesize complex molecules. The thought processes involved are illustrated with examples chosen from recently reported syntheses of natural and unnatural products.

T.B. Grindley Instructor: Format: Lectures 3 hours

CHEM 3401(3420) and Prerequisites:

3402(3410) or equivalents, or

instructor's consent

CHEM 4402A/B/C Organic Structure

Determination (formerly 4400A/B/C): This class continues the study of molecular structure and conformation begun in CHEM 3402A, using methods and results from infrared and nuclear magnetic resonance, and mass spectrometry. D.L. Hooper Instructor:

Lecture 3 hours, lab as needed Format:

CHEM 3402(3410) Prerequisite:

CHEM 4403A/B Organic Reaction Mechanisms (formerly 4420A/B): The fundamental concepts of bonding, structure, and dynamic behaviour of organic compounds are discussed. The applications of molecular orbital theory and molecular mechanics calculations are introduced. Methods for determining the mechanisms of organic reactions are discussed. Topics considered include applications of kinetic data, linear free energy relationships and acid and base catalysis, concerted reactions and the importance of orbital symmetry, steric effects, solvent effects, and isotope effects.

Instructors: D. R. Arnold and J. A. Pincock

Format: lecture 3 hours

CHEM 3401(3420) and Prerequisites:

3402(3410) or equivalents, or

instructor's consent

\*CHEM 4501A/B Electronic Instrumentation for Scientists: This class starts with basic electrical concepts and describes simple ac and dc circuits. Semiconductors are introduced, followed by a discussion of power supplies and the various types of amplifiers. Chemical instruments are used as examples whenever possible. Practical aspects of electronics such as basic measurements, the use of various electronic instruments, reading circuit diagrams and troubleshooting are emphasized. No knowledge of physics beyond the first year is required.

**Computing Science** 

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Instructor:

L. Ramalev

lecture 2 hours, lab 3 hours Format:

CHEM 2201(2200) Prerequisite:

CHEM 4502A/B Polymer Science: This class will cover aspects of synthesis, analysis, characterization, structure and application of synthetic and naturally occurring macromolecules. Emphasis will be on the application of standard methods of organic synthesis, analytical separations, and physico-chemical characterization. There is no laboratory, but students will do an independent literature project.

Instructor:

Staff Format: lecture 3 hours

Prerequisites:

CHEM 2201(2200) and 2301(2310) and 2302(2320) and 2400 or instructor's consent

CHEM 4503A/B Group Theory in Chemistry

(formerly 4350A/B): The theory of abstract groups and their representations, crystallographic and non-crystallographic point groups, and an introduction to space groups are given. Examples from stereochemistry, crystallography and spectroscopy illustrate the theory.

Instructor:

Staff

Format: lecture 3 hours Prerequisite: CHEM 3302(3340)

CHEM 4504A/B Diffraction Techniques in Solid State Chemistry (formerly 4120A or B): All chemical elements and compounds can exist as crystalline solids. This class will study the arrangements of atoms and molecules in such solids and will examine the methods used to determine these structures. Particular emphasis will be placed on the techniques of X-ray crystallography.

Instructor:

T. S. Cameron

Format: lecture 2 hours, lab 3 hours Prerequisites: CHEM 2101(2110) and Math 2000

or 2200 or equivalent

CHEM 4801A/B/C Advanced Major Research

**Project:** This class is designed for those students in the Advanced Major programme that wish to participate in original research. It will consist of a literature or experimental research project on some aspect of chemistry in which the student has an interest. The results of the research will be embodied in a report which shall be graded. All advanced majors wishing to take this class should consult with the professor below.

Coordinator: L. Ramaley

CHEM 4880 Advanced Topics in Chemistry: A non-credit seminar class to be given by invited speakers. Attendance at all seminars is required of all 4th year Honours Chemistry students.

**CHEM 8880 Honours Qualifying Examination:** This is an additional class required of all Honours

students in Chemistry in order to satisfy regulation 11. It should be taken in the final year of a concentrated chemistry honours programme All honours students, whether in a concentrated or unconcentrated programme, must consult with the professor in charge of the Honours Thesis Programme.

Coordinator: T.S. Cameron

### **Computing Science**

Chase Building Telephone: (902) 494-2572

**Director of Division** K.J.M. Moriarty

**Faculty Advisors** 

K. Moriarty (Undergraduate) B. Fawcett (Honours) A. Farrag (Graduate) A.E. Sedgwick (Co-op)

**Professors** 

P.Keast, PhD (St. Andrews) K.J.M. Moriarty, MSc (Dal), PhD (London)

**Associate Professors** 

A. Farrag, PhD (Alberta) B.W. Fawcett, MSc, PhD (McMaster) C.S. Hartzman, MS (Purdue), PhD (Colorado) J. Mulder, PhD (UBC) M.A. Shepherd, MSc, PhD (Western)

**Assistant Professors** 

A.E. Sedgwick, MS (Wisconsin), PhD (Tor) D. Tsang, MASc (TUNS), PhD (Penn.)

Computer Systems Manager D. Trueman, MSc (Toronto)

**Adjunct Professors** 

H.S. Heaps, MA (Tor) LL.D (St. F.X.) H.S.P. Jones BSc (Wales) MSc (Southampton) C. R. Watters, MSc (Western), PhD (TUNS)

Please refer to the entry for the Department of Mathematics, Statistics and Computing Science for a full listing of the members of the Department and information on other programmes offered by the Department.

### **General Interest Classes**

The Division offers a number of classes that should be of interest to students whose major field of study while at Dalhousie will not be Computing Science. These classes are:

CS1000A/B: A class designed for the humanities and social sciences but probably of interest to students in other disciplines as well.

CS3090A: A class that should be of interest to students in all disciplines.

CS1200A and CS1210B: The main purpose of these classes is to provide an introduction to computing suitable for science majors. This pair of courses leads naturally into CS3170, CS3210, and CS3350.

negree Programmes

Students who plan to pursue a programme leading to a degree in Computing Science should arrange a programme in consultation with the appropriate Faculty Advisor, listed above. Students should also consult the appropriate sections of the Calendar for specific regulations.

Honours in Computing Science

The Honours programme in Computing science must include the following courses usually taken in the years shown:

Year 1: Math 1000, Math 1010, CS1400, CS1410, CS1670+, CS2670+ Years 2&3: CS2450, CS2350, CS2610, CS2700, CS2670, CS3170, Math 2070, Math 2080, Math 2130 or (Math 2030, Math 2040), CS3040, CS3700, CS3250 Year 4: CS8870, and four 4000-level CS

\*Typically taken within the first two years.

**Combined Honours** 

Students interested in taking honours in Computing Science and another subject as a combined programme should consult the honours advisor through whom a suitable course of study can be arranged.

A combined honours programme may well be an appropriate choice for many students. If a student is contemplating graduate work, it should be borne in mind that the work in either subject of a combined honours programme may be insufficient for entry to a regular graduate programme, and that a qualifying year may be necessary.

Advanced Major in Computing Science

Advanced majors in Computing Science must Obtain at least six (and no more than nine) credits beyond the 1000-level in Computing Science, with <sup>3</sup> full credits beyond the 2000-level. In addition to the necessary first-year prerequisites (i.e. Math 1000, 1010, Computing Science 1400, 1410) the following classes are required:

Year 2: CS 2350, CS 2450, CS 2610, CS 2700, Math 2030 or Math 2130

Year 3: CS 3170, CS 3040, CS 3700, CS

For further information consult sections 11.1, 11.2 and 11.4 of the College of Arts and Science regulations in this calendar.

Major in Computing Science

Majors in Computing Science must obtain at least four (and no more than eight) credits beyond the 1000 level in Computing Science.

In addition to the necessary first-year prerequisites (i.e. Math 1000, 1010, Computing Science 1400, 1410) the following classes are

Year 2: CS 2700, CS 2350, CS 2450, CS 2610, Math 2030 or Math 2130.

Year 3: CS 3170, CS 3700.

Students wishing to major in Computing Science will normally take the pair CS 1400/1410, but it will be possible to proceed from CS 1200/1210 into a Computing Science programme after consultation with the Undergraduate Advisor (see above).

Students who wish to arrange inter-disciplinary programmes (with fields such as Mathematics, Physics, Psychology, and others) are invited to discuss their interests with the

department.

**Cooperative Education Programmes** 

The department offers several Co-op education programmes involving Computing Science, a concentrated programme in Computing Science, a 20-credit major programme and a combined programme with Mathematics.

Computing Science Co-op students are required to take all the classes that non Co-op

students take.

Further information about the Co-op programmes is included under the Calendar entry for Mathematics. Interested students should note that some departmental regulations for Co-op students differ from those regulations for students not in the Co-op programme.

Any student who is interested in enrolling in a Co-op programme is urged to contact the Faculty Advisor for Co-op Education as early as possible in their academic career for advice on

classes and other information.

**Prerequisites** 

If a Computing Science class is listed as a prerequisite for a Computing Science class beyond the first year level, a grade of C or better is required in the listed class for it to count as a prerequisite.

#### Other Information

The Department operates a SUN 4/280 system, running Unix, for Computing Science students. The terminals are located in the Killam Library Building. The University also operates a VAX-8800 running VMS that is used for some

Computing Science courses and has a PC lab and a Macintosh lab available for course work and student use. In addition, a SUN 4/490 system, running Unix and a network of SUN workstations, is available for faculty and graduate students.

Students who complete the first two years of a Dalhousie programme in Computing Science may complete their programmes at Dalhousie or may be able to transfer to the Technical University of Nova Scotia (TUNS) to complete a Bachelor of Computing Science with Engineering options. Further information about the classes required for admission to a TUNS programme may be obtained from TUNS or the Department of Mathematics, Statistics and Computing Science.

Note that credit may not be obtained for the same class twice even if the number has been changed (e.g. 2610 is the same as the former 3690).

#### Classes Offered

Not all classes are necessarily offered every vear. Please consult the current timetable on registration to determine if a class is offered.

COMP1000A/B Microcomputer Applications: The goal of this class is to learn how to make correct use of contemporary computer application software to accurately represent and analyse data, thereby facilitating a deep understanding of the problems from which the data arise. Spreadsheets will be used to carefully design and implement models in mathematics, the sciences, and the social sciences. The proper design of database schemes to accurately represent data and their interrelationships will be introduced through the use of database management systems. Societal issues connected with computing such as matters of privacy, security, and reliability as well as the effect of modern computer technology on society will be a major theme woven into the fabric of the course. Students will write essays based on these issues using word processing software. Format: Lecture 3 hours, tutorial 1 hour Prerequisite: None Exclusion: Note that Computing Science students may not take this course for credit.

COMP1200A Introductory Computing Science: Together with CS1210 this class provides an introduction to Computing Science. No previous knowledge of computing is assumed. The course will teach the elements of programming and algorithm development. The language which will be used is FORTRAN. Throughout the course the emphasis will be on numerical and scientific applications.

Format: Lecture 3 hours, tutorial 1 hour Prerequisite: Nova Scotia Math 441 or

equivalent

Credit will be given for only one **Exclusion:** of CS1200 and CS1400

COMP1210B Scientific Applications and Algorithms: This is a continuation of CS1200 The course will deal mainly with scientific applications of computers and with the development of algorithms for scientific problems Elementary numerical techniques will be taught and deterministic and random simulation will be discussed.

Lecture 3 hours, tutorial 1 hour Format: Prerequisite: CS1200 (or CS1400 and

instructor's consent), and Math

Credit will be given for only one Exclusion:

of CS1210 and CS1410

COMP1400A Introduction to Computing Science This class together with CS1410 provides a general introduction to algorithmic concepts. structured programming, and Computing Science. Students develop programming skills in a higher-level language such as Pascal, with emphasis on structured programming. The exercises involve primarily non-numerical tasks including character manipulation and sequential file processing.

Format: Lecture 3 hours, tutorial 1 hour Prerequisites: Nova Scotia Math 441 or

equivalent

COMP1410B Algorithms and Data Structures: This is a continuation of CS1400. Topics include algorithm development and analysis, sorting and searching techniques, list structures, stacks, queues, recursion, trees.

Format: Lecture 3 hours, tutorial 1 hour Prerequisite: CS1400 (or CS1200 and

permission of the instructor) and Math 1000.

COMP1670A Discrete Structures I: For description see Math 1670A.

Format: Lecture 3 hours

Nova Scotia Mathematics 441 or Prerequisite: equivalent

Cross-listing: Mathematics 1670A

**COMP2300B Introduction to Mathematical** Modelling Using Algebra: For description see Math 2300B.

Format: Lecture 3 hours Corequisite: Math 2030 Mathematics 2300B Cross-listing:

COMP2350B File Structures and Relational Databases: The relational data model is introduced. Efficient retrieval and manipulation of data stored in relational databases motivates the study of file and index structures. The class examines logical file organizations (indexed sequential files, direct files, tree-structure files, etc.), file operations, and their physical implementations. The entity-relationship model, used for proper database design, is introduced.

the class will make use of commercial, micro-computer based relational database software. Lecture 3 hours

prerequisite: CS2610

COMP2450A Introduction to Computer Systems: an introduction to machine architecture from the perspective of an assembly language programmer. condents gain familiarity with an assembly language and the translation process needed to groduce machine code. Common addressing modes, macros and file I/O are discussed, together with the internal structure of memory, control units and processing units.

Format: Lecture 3 hours prerequisite: CS1410

COMP2610A Data Structures and Algorithmic Analysis: Data types and the operations on them are covered in this class. After a review of the data structures covered in CS1410, the class proceeds in detail to examine trees, graphs, sets and strings. Efficient representations and algorithms for these structures are discussed. External file sorting methods are also discussed. Considerable emphasis is placed on the analysis of algorithms.

Lecture 3 hours, tutorial 1 hour Format:

CS1410 Prerequisite:

COMP2670B Discrete Structures II: For description see Math 2670B.

Lecture 3 hours Format: Prerequisite: C.S.1670

Cross-listing: Mathematics 2670B

COMP2700B (formerly 3690) Programming Languages: The emphasis is on fundamental concepts such as block structure and recursion and structured control flow. Exercises are given in several languages such as C, Lisp and Prolog. Recursion and functional programming are extensively discussed as well as an introduction to programme correctness.

Format: Lecture 3 hours Prerequisite: CS2610

COMP3040A Introduction to Computer Organizations: An introduction to logic design and detailed computer architecture. Basic logic elements such as gates and flip-flops are discussed and the design of combinational networks, registers and control mechanisms analyzed. Internal representation and arithmetic, communication between components, instruction letch and sequencing, interrupts and I/O controllers are also discussed.

Lecture 3 hours Prerequisite: CS2450

COMP3090A Computers and Society: The impact of computers on society is discussed in this class. Topics include the history of computing and

technology, the place of the computer in modern society, legal issues such as the copywriting of software, the computer scientist as a professional, the impact of databanks on individual privacy and the public perception of computers and computer scientists.

Format: Lecture 3 hours

Prerequistie: None

COMP3170A (formerly 2270) Introduction to Numerical Linear Algebra: Floating point arithmetic. Numerical solution of linear systems of equations; Gauss elimination methods and iterative methods; condition numbers of problems and of algorithms; estimation of condition numbers. Numerical calculation of eigenvalues; OR and LR algorithms; singular value decomposition; Gram Schmidt orthogonalization. Use is made of program libraries such as Linpack. Eispack and Matlab.

Format: Lecture 3 hours Math 1010, Math 2030, CS 1410 Prerequisites:

Same as Math 3170 Cross-listing:

COMP3210B (formerly part of 320) Introduction to Numerical Analysis: See class description for Mathematics 3210B.

Format: Lecture 3 hours

Prerequisites: Mathematics 2000 and CS3170 Cross-listing: Same as Mathematics 3210B

COMP3250A Data Base Management Systems Design: The concepts and structures necessary to design and implement a data base management system are stressed. Hierarchical, network and relational models are discussed with emphasis on the necessary logical and data structures. Various normal forms and canonical schema are discussed as well as the concepts of relational algebras and relational calculus.

Format: Lecture 3 hours Prerequisites: CS2350

COMP3350A Introduction to Supercomputing: An introduction to the computer architecture of the supercomputers of today: CRAY X-MP, CRAY 2, CDC CYBER 205, ETA-10, FIJITSU VP2000 and NEC SX-3. The software for the efficient implementation of vectorization and parallel processing will be discussed. Format: Lecture 3 hours

COMP3390A/B Statistical Computing: For description see Stats 3390

Format: Lecture 3 hours

Prerequisites:

Statistics 3390, Mathematics 2040, Prerequisites:

CS1210 (or 1410)

CS 3170 and CS2450

Cross-listing: Statistics 3390

COMP3700B Operating Systems I: This class covers the principles of modern operating system design with examples from existing systems.

Specific topics include: concurrent processes, interprocess communication, synchronization, scheduling policies, multi-level storage management, and associated algorithms.

Format: Lecture 3 hours Prerequisite: S2610, 3040

COMP3750A Artificial Intelligence: An introduction to basic concepts and techniques of artificial intelligence systems with insights given into active research areas and applications. Representational issues and notational structures are emphasized and existing systems are surveyed. Students work on assignments and small projects using Lisp.

Format: Lecture 3 hours

CS2700 Prerequisite:

COMP4100A or B Operating Systems II: A further development of the material of Operating Systems I. Topics include concurrent processes, address space management, resource allocation. multiprogramming systems, protecting access to objects, pipelining, user interfaces and networks.

Format: Lecture 3 hours

Prerequisites: CS3700B, Mathematics 2070-2080

COMP4130A Analysis of Algorithms: This class covers algorithmic solutions to a wide variety of problems and a formal analysis of their complexity. It is a continuation of the 2610 class. Problems are taken from combinatorics and numerical computation including algorithms for unordered and ordered sets, graphs, fast multiplication, prime testing, factoring, polynomial arithmetic and metric operations. Other topics include the analysis of algorithms used in systems programming and artificial intelligence, such as pattern matching for text processing and algorithms in natural language processing.

Lecture 3 hours Format: Prerequisite: CS2700

Cross-listing: Same as Math 4130A/B

COMP4140A Software Design and Development: This class involves a formal approach to

state-of-the-art techniques in software design and development. Students work in teams in the organization, development and management of a large software project. Formal models of structured programming, stepwise refinement and top-down design, strength and coupling measures, milestones and estimating, chief-programmer teams, programme libraries and documentation are included.

Lecture 3 hours Format: Prerequisite: CS2700

COMP4150B Theory of Programming Languages: This is a class in the formal treatment of programming language translation and compiler design concepts. Topics include lexical analysis and parsing with emphasis on the theoretical aspects of

parsing context-free languages, translation specification and machine-independent code optimization. Finite state grammars, lexical scanners, and context-free parsing techniques such as LL(k), procedence, LR(k), SLR(k) are included.

Format: Lecture 3 hours Prerequisite: CS2700

COMP4200B Selected Topics in Artificial Intelligence:

Format: Lecture 3 hours Prerequisite: CS3750

COMP4250A/B Information Retrieval: An introduction to online information retrieval systems for textual databases. The major models of information retrieval will be covered as well as such basic tools as automated indexing and performance measures.

Format: Lecture 3 hours Prerequisite: CS2350

COMP4350A/B Topics in Computer Science: An introduction to object-oriented programming (OOP) and C++.

Format: Lecture 3 hours

Prerequisites: Three 3000 level CS courses

COMP4400A Programming Methodology: Techniques for verification of computer

programmes. Formal specification of software. Lecture 3 hours Format:

B average in 3000-level Prerequisite: Computing Science courses

COMP4450B Introduction to Data

Communications: The elements of data communications and the structure of computer networks will be discussed. The course uses the ISO model as a reference and includes an introduction to basic data transmission techniques, computer network topologies and architectures, and a look at some specific implementations and applications. This course will concentrate on the lower layers of the ISO model.

Lecture 3 hours Format: Prerequisites: STATS 2070/2080

COMP4550B Microcomputers: This course provides an overview of microcomputer systems both at the general concept level and by examining specific systems. General architecture topics includeinstruction sets, memory I/O, bus systems and interrupt structures. Specific systems by several different manufacturers are examinedon the basis of both hardware and software.

Format: Lecture 3 hours Corequisite: CS3700

COMP4650A/B Selected Topics in Information Retrieval: Assuming that the student has a broad understanding of the field of information retrieval,

this course takes an in-depth look at selected topics at the forefront of the field. The topics will vary slightly from year to year, but may include: dustering and nearest neighbour matching. information theory, bibliometrics, and new models of information retrieval.

Format: Lecture 3 hours Prerequisite: CS4250A

COMP4660B Automata and Computability: This class deals with finite state, pushdown and linear bounded automata; their correspondents in the chomsky hierarchy for formal grammars and Turing machines. Appropriate closure properties and non- determinism are discussed as well as computable and noncomputable functions and the Halting problem.

Format: Lecture 3 hours

prerequisite: CS2670

cross-listing: Same as Mathematics 4660A/B

COMP4700A/B Advanced Topics in Data Rase nesign: Topics vary from year to year depending on the interests of the students and the instructors. Past topics have included concurrency control, scheduling, query optimization and objectoriented data bases.

Format: Lecture 3 hours Prerequisites: CS3250

COMP4800A Computer Systems Modelling: This œurse develops queueing network models suitable for modelling computer systems. Approximate and exact solutions to these models are developed and single and multiple classes of users are considered. Modelling multiprocessors, I/O, shared memory, swapping, paging, etc. are also considered. Finally, some of the modelling techniquesare applied to other situations such as database performance. The models are developed intuitively and justified igorously using queuing network theory. Lecture 3 hours Prerequisites: CS3700 and Stats 2070/2080

COMP8700 (non credit) Co-op Seminar

**COMP8870C Honours Seminar** 

COMP8891 Co-op Work Term I

COMP8892 Co-op Work Term II

COMP8893 Co-op Work Term III

COMP8894 Co-op Work Term IV

### **Economics**

Location: 6206, 6214 and 6220 University Ave.

Administrative Offices: 6214 University Ave. Telephone: (902) 494-2026

**Chairperson of Department** E. Klein

**Faculty Advisors** 

Michael Bradfield (Undergraduate Coordinator) Melvin Cross Graduate Coordinator Barry Lesser MDE Coordinator

**Emeritus Professor** 

Z.A. Konczacki, BSc (Lond.), B.Econ.Hons. (Natal), PhD (Lond.)

**Professors** 

F.M. Bradfield, BComm (McM), PhD (Brown) R.L. Comeau, BA, MA (St FX), PhD (Brown) J.L. Cornwall, BA (Iowa), MSc (Lond.), PhD (Harv.), McCulloch Professor of Economics E. Klein, LLM (Buenos Aires), MSc (Dal), Dr.Rer.Pol. (Hamburg) C.T. Marfels, Dr.Rer.Pol. (Berlin) R.I. McAllister, MA (Oxon.), MA (Cantab.) L. Osberg, BA Hons (Queen's), MPhil, PhD U.L.G. Rao, MA, MSc (Andhra), PhD (W.Ont.) A.M. Sinclair, BA (Dal), MA, B.Phil. (Oxon.), PhD (Harv.)

**Associate Professors** 

M.L. Cross, AA (Dawson College), BA (Montana), MA (SFU), PhD (Texas A&M.) Coordinator of Graduate Studies S. DasGupta, BA (Calcutta), MA (Delhi), MA, PhD (Rochester) D. Gordon, BA (Lethbridge), MA (Saskatchewan), PhD (UBC) P.B. Huber, BA, MA, PhD (Yale) B. Lesser, BComm (Dal), MA, PhD (Corn.) R.L. Mazany, BSFS (Georgetown), PhD (UBC)

**Assistant Professors** 

P. Burton, BSc (Saskatchewan), MA, Ph.D. S.A. Phipps, BA Hons (Victoria), MA, PhD

Special Lecturer

T.A. Pinfold, BA, MA (W.Ont.), PhD (Minn.)

#### Introduction

Economics is a social science -- a science because it involves a rigorous intellectual effort to derive logical conclusions from basic facts and propositions; a social science because it has human beings and their welfare as its ultimate

concern. The basic facts of Economics cannot be knowable and measurable with the same precision as those of the physical sciences -- human society and its motivations are far too complex to permit this -- but none of the sciences surpasses economics in its relevance to our needs, problems and goals.

Economic man is rational man consuming, organizing and producing within a framework of laws and customs in an effort to use the limited resources of our world efficiently for the greatest satisfaction. It is not an easy science; indeed it is one of the most complex, difficult (and fascinating) areas of study you could choose in the university when you pursue it beyond its elementary levels, but some basic knowledge of economics is essential for any educated person. A more extensive knowledge of the subject is an invaluable complement to other fields of specialization such as law, commerce, politics and other studies in social sciences or humanities, and a specialization in the field can lead to a variety of interesting career opportunities.

#### **Degree Programmes**

The department offers both BA and BSc degree programmes which are described below. A student may graduate with either a BA or a BSc degree but not both. In all programmes the student must ensure that the courses selected satisfy the overall faculty requirements for the relevant general degree (BA or BSc).

#### General Principles

The following programme arrangements are provided to the students as guidelines to facilitate the selection of classes appropriate to particular areas of interest. They should not, however, be construed as straitjackets nor as a reason for not seeking individual guidance from faculty members. In suggesting such programme frameworks, two principles have particular weight: (a) students taking economics as a major, or in an honours programme, should strike a balance between breadth of coverage among disciplines and depth of specialization in economics; (b) students taking economics as a minor or as a component of another specialization, such as commerce, should be allowed a reasonable degree of flexibility in their choice of economics classes.

## BA Honours Degree Programme (Four Years)

Undergraduate Coordinator: M. Bradfield (Tel: 494-2026)

#### Requirements:

- Minimum total number of credits required in Economics (see also note 4 below) beyond the 1000 level: nine (this includes core classes, see 2 below).
- Core classes in Economics: Economics 1100;
   2200A/B (or equivalent), 2201A/B (or

- equivalent), 2228 (or Math 2060A/2080B); either 2232, or 2238A and 2239B; 3338A; 3347A/B; 3348A/B, 4100C, 4420B, 4421A
- Classes in Mathematics: Mathematics 1000A/B; 2030A or equivalent.
- An honours essay graded on a pass/fail basis.

# BSc Honours Degree Programme (Four Years)

Undergraduate Coordinator: M. Bradfield (Tel: 494-2026)

#### Requirements:

- Minimum total number of credits required in Economics (see also note 4 below) beyond the 1000 level: nine (this includes core classes, see 2 below).
- Core classes in Economics: Economics 1100; 2200A/B (or equivalent), 2201A/B (or equivalent), 2228 (or Math 2060A/2080B); either 2232 or 2238A and 2239B; 3338A; 3347A/B; 3348A/B, 4100C, 4420B, 4421A
- Classes in Mathematics: Mathematics 1000A/B; 1010B; 2030A or equivalent.
- 4. An honours essay graded on a pass/fail basis.

#### Notes:

- Classes selected (outside of economics) in the third and fourth year must include at least two classes above the 1000 level.
- 2. The student's programme is chosen in consultation with the department and must have approval of the department.
- Students must arrange their courses to ensure that they satisfy the overall requirements for the 15-credit BSc degree.
- 4. Since mathematics is required for graduate work in most good graduate schools, the value of econometrics and of additional mathematics is stressed. In some instances, the department may permit students to take classes in other subjects in lieu of classes in Economics and may permit minor variations in the required classes.

#### **Combined Honours**

Combined honours programmes, BA or BSc, may be arranged with other departments such as Biology, Geology, History, Mathematics, Political Science, Sociology, etc. For combined honours programmes with Economics, students also should consult the other departments concerned.

## BSc Advanced Major Programme (Four Years)

#### Requirements:

- 1. Total of twenty credits that meet the requirements in regulation 11.3.
- 2. Economics 2200A/B (or equivalent),

Economics 2201A/B (or equivalent), Economics 2228 (or Math 2060A/2080B), 3338A.

Math 1000A/B, 1010B, 2030A/B.

A student who wants to have the option of later converting an advanced major to an honours degree should select classes in accordance with the list of core classes given above and should consult regulations 11.4 and 22. Besides additional core classes, the honours programme requires an honours essay and a higher academic standing than the advanced major. An honours programme can be converted to an advanced major at the student's discretion. The advanced major does, however, allow a maximum of only nine credits in economics while the honours programme allows a maximum of eleven.

## BA Advanced MajorProgramme (Four years)

An advanced major (BA) is available in economics. This program requires a total of twenty credits that meet the requirements given in regulation 11.3. In addition to those requirements, the twenty credits offered for an advanced major in economics (BA) must include Economics 2200A/B and Economics 2201A/B.

While the total number of credits required for the advanced major is the same as for an honours degree, the honours program in economics requires an honours essay and must include a core of classes in economics as given above. In addition, the honours program requires a higher academic standing than does the advanced major. However, the advanced major program does offer students the opportunity to enrol in a comprehensive program not available with the three-year program. Four-year major students are strongly encouraged to consult with members of the department to ensure an integrated and coherent program.

A student who wants to have the option of later converting an advanced major to an honours degree should select classes in accordance with the list of core classes above and should consult regulations 11.4 and 22. An honours program can be converted to an advanced major at the student's discretion. The advanced major does, however, allow a maximum of only nine credits in economics while the honours program allows a maximum of eleven.

#### BA Degree Programme (Three Years) Undergraduate Coordinator: M. Bradfield (494-2026) General Format

Requirements for a major in economics can be satisfied by taking Economics 1100 or equivalent and any four other full-year classes, or equivalent, in economics. Intermediate micro and macro theory (Economics 2200 and 2201, respectively) are not required but serve as

prerequisites for most other classes and should be taken. Students who wish to keep open the option of transferring into the honours or advanced majors programmes should select classes consistent with the requirements of these programmes. No more than one-half credit will be given for Economics 2200A/B and 2220A/B, or for Economics 2201A/B and 2221A/B.

#### BSc Degree Programme (Three Years) Undergraduate Coordinator: M. Bradfield (Tel. 494-2026)

For the general description of the programme see the description of the BA degree programme. The specific requirements are set out below.

#### Requirements:

- 1. Economics 1100, 2200A/B, 2201A/B, 2228 (or Math 2060A/2080B), 3338A,
- 2. Math 1000A, 1010B, 2030A/B,
- A total of at least four full-year classes, or equivalent, in Economics other than Economics 1100,
- Students must arrange their courses to ensure that they satisfy the overall faculty requirements for the general BSc degree.

Several combined programmes may also be arranged, with economics as the major or minor subject in association with such other fields as political science, sociology, history, geology, biology, mathematics - and possibly others.

Final programme approval for all majors' students must be obtained from the appropriate coordinator.

#### Classes Offered

Classes marked \* may not be offered in 1991-92. Please consult the current timetable on registration to determine if any such class is being offered.

ECO 1100R Principles of Economics: For those lacking a background in economics, this class is taken as the first in a series of classes in economics or as a background elective. Emphasis is on developing the basic analytical tools and applying them in the context of contemporary, and generally Canadian, economics problems. Section 5 of Economics 1100 offers a problem-oriented framework in which the analytical tools are developed by examination in each term of a specific question. No more than one credit will be given for 1100 and 1105B.

Format: lecture 3 hours, tutorial 1 hour

(optional)

Instructor: Staff

\*ECO 1101A/B Principles of Microeconomics: This class completes the principles of economics complement. Consult Department.

lecture 3 hours, tutorial 1 hour Format:

(optional) Staff

Instructor: Available only to students who Restriction:

have one half credit of introductory macroeconomics which is being transferred from

another university.

\*ECO 1102A/B Principles of Macroeconomics: This class completes the principles of economics complement. Consult Department.

lecture 3 hours, tutorial 1 hour Format:

(optional)

Instructor: Staff

Available only to students who Restriction: have one half credit of

introductory macroeconomics which is being transferred from

another university

\*ECO 1105B Principles of Economics: For description see Economics 1100. Consult Department. No more than one credit will be given for 1100, 1105B.

Lecture 6 hours, tutorial 2 hours Format:

(optional) Staff Instructor:

Restrictions: Available only to students who are

enrolling for the first time in January or who are declared economics majors, in that order of

priority.

ECO 1106A/B Introductory Statistics for Non-Mathematicians: For description see Mathematics 1060A/B. Format:Lecture 3 hours Nova Scotia Mathematics 442 or Prerequisite:

equivalent

Mathematics 1060A/B Cross-listing:

ECO 2200A/B Intermediate Microeconomics: An introduction to microeconomic theory and its applications which satisfies the minimum microeconomic theory requirements for majors and honours in economics. Of particular interest to Commerce students or others not majoring in economics, it pays particular attention to applications of theory in a practical context. Serves as the microeconomic prerequisite for higher-level classes in economics.

Format: Lecture 3 hours

Instructor:

Prerequisite: Economics 1100 or equivalent Restriction: Students may not receive credit

for both 2200A/B and 2220A/B

ECO 2201A/B Intermediate Macroeconomics: Inflation, unemployment, exchange rate and related macro problems, with emphasis on

Canadian policy experience in these areas. An introduction to macroeconomic theory and its applications which satisfies the minimum macroeconomic theory requirements for majors and honours in economics. Of particular interest to commerce students or others not majoring in economics, it serves as the macroeconomic prerequisite for higher-level classes in economics

Format: Lecture 3 hours

Staff Instructor:

Economics 1100 or equivalent Prerequisite: Students may not receive credit Restriction: for both 2201A/B and 2221A/B

ECO 2222A Economic Statistics I (cross-listed with Commerce 2501A/B): For description see Commerce 2501A/B.

Format: Lecture 3 hours, workshop 2

hours

Staff Instructor:

Instructor:

ECO 2223B Economic Statistics II (cross-listed with Commerce 2502A/B): For description see Commerce 2502A/B.

Fomat: Lecture 3 hours, workshop 2

Staff

\*ECO 2228R Intermediate Statistics: Including the basic theory of mathematical statistics and an introduction to econometrics, this class concentrates on the theory of probability, discrete and continuous probability models, mathematical expection, moment generating functions, and statistical inference. The linear regression model is also discussed. A critique of various problems that arise consequent to violations of the assumptions of the linear regression model is presented as a preparation for applied econometric work and advanced work in econometrics.

Lecture 3 hours Format: Instructor: U.L.G. Rao

Prerequisite: The student is expected to have

at least a one-year course in calculus (Mathematics 1000 and 1010). Students should take Math 2060A and 2080B.

ECO 2232R Canadian Economic History: The development of Canada from the age of discovery to now, presented in relation to the larger system of the relationships between the Old World and the New. As the class proceeds, the focus shifts more and more towards Canada and more formal theory is introduced in discussing Canadian problems and policies, especially in the twentieth century.

Lecture 3 hours Format: B. Lesser Instructor:

A class in economics principles Prerequisite:

and some knowledge of history is

recommended.

SECO 2238A The Industrial Revolution in Burope: Transitions from preindustrial to industrial economies in England, France, Germany and Russia form a broad background for understanding the roots of contemporary society; of particular relevance for those interested in the economic history of Canada, the United States and other countries formerly part of a colonial system. Emphasis is on the economic, social, and technical changes of these industrial "revolutions" to disclose common elements in the experience of industrialization.

Lecture 2 hours Format: Instructor: P.B. Huber

Prerequisite: Introductory Economics or permission of Instructor

FCO 2239B The European Economy in Historical Perspective - After the Industrial Revolution: A self-contained class (may be taken separately from Economics 2238A) examining the contrasting development patterns of various industrialized European countries after their respective industrial revolutions and up to about 1960. Focus is on the development of hypotheses regarding the causes and effects of differences in the experience of growth of mature economies.

Format: Lecture 2 hours Instructor: P.B. Huber

Prerequisite: Introductory Economics or permission of the Instructor

\*ECO 2241A Comparative Economic Systems: National Economies: A detailed background of institutional material on the structure and performance of several economies is featured. Reading on specific countries provides the basis for several short papers. There is no written examination. A student taking this class must understand the interrelated character of economic activity and grasp the nature of the price system.

Format: Seminar 2 hours Instructor: P.B. Huber

Prerequisite: Introductory Economics

\*ECO 2242B Comparative Economic Systems: Economic Organization and Planning: The economic behaviour of organizations and the ways in which this can be controlled provide the basis for consideration of the theory and practice of economic planning at micro-economic and macro-economic levels in various institutional contexts.

Format: Seminar 2 hours Instructor: P.B. Huber

Prerequisite: Introductory Economics, plus an additional half-class in Economics

ECO 2250R Applied Development Economics: Analysis of economic development theory and practice, with particular emphasis on developing countries and regions. There are three main elements: (1) policy and theory for economic

development, focussing on foreign aid and regional aid; (2) development plans, budgets, and programmes -- lessons from experiences of agencies such as CIDA, CUSO, and the World Bank; (3) projects for development -- drawing on case studies and first-hand field work. Experienced advisors from government and the private sector join the instructor during project visits.

Format: Seminar 2 hours and tutorials

Instructor: R.I. McAllister

Prerequisite: Introductory Economics

ECO 3315A Labour Economics: The theory of labour markets is emphasized, in particular the aftermath of alternative viewpoints which seek to explain relative wages, unemployment and the allocation of labour.

Format: Lecture 3 hours

Instructor: L. Osberg or S.A. Phipps Prerequisites: ECON 1100; ECON 2200 and 2201 (or equiv) are recommended

ECO3316B Collective Bargaining and Labour Market Policy: Topics covered are the theory and institutions of collective bargaining and current issues in labour market policy, e.g. discrimination, manpower planning, wage/price controls, impact of unemployment insurance or the negative income tax.

Format: Lecture and seminar

Instructor: L. Osberg

Prerequisite: Economics 3315A

\*ECO 3317B Poverty and Inequality: The extent of poverty and the distribution of income and wealth in contemporary societies are discussed. Most data are drawn from Canada but international evidence is introduced for comparative purposes. The theories underlying alternative measures and explanations of economic inequality are emphasized.

Format: Lecture and seminar

Instructor: L. Osberg

Economics 1100; Economics Prerequisites: 3315A is highly recommended

ECO 3324R Public Finance: The principles of public finance and public policy, i.e. the economics of the public sector. The two major sections are (1) the theory of public goods and public expenditures and (2) the theory of public revenue, principally taxation. Other important areas are public borrowing, fiscal (stabilization) policy, and intergovernmental fiscal relations. Both normative and positive theory are considered. Particular attention is paid to the Canadian federal system, with its three levels of government: federal, provincial and municipal.

Format: Lectures and seminar 3 hours

Instructor: J.F. Graham

Prerequisites: Introductory Economics.

> Economics 2200A/B and 2201A/B (or equivalents) are desirable.

**Economics** 

\*ECO 3326A Money and Banking: The class concerns the nature and operation of the financial system, with particular reference to Canadian experience. It treats financial instruments (including money) and institutions and the social control of the supply of money and credit. This class is complemented by Economics 4426B.

Lecture 3 hours R.L. Comeau Instructor:

Prerequisite: Economics 1100R. It is also

desirable to have completed Economics 2201A/B (or

equivalent).

ECO 3328R Industrial Organization: The application of the models of price theory to economic reality. In any industry, the problems of a firm competing with its rivals in order to survive and acquire a higher market share are far more complex than those in price theory where we have to deal with more or less simplified assumptions. The three main parts are: market structure, market conduct and market performance.

Lecture 2 hours Format: C. Marfels Instructor:

Economics 2200A/B (or Corequisite: equivalent) or instructor's consent

ECO 3330A/B International Trade: The causes of international exchange of goods and services are considered and the effects of international integration on the incomes and growth rates of national economies are analyzed. The theory and practice of commercial policy and other restrictions on trade are considered after the pure theory of international trade and its implications have been explored. Depending upon class interest and availability of time, the subjects of economic integration and of Canadian commercial policy may be discussed in some detail.

Lecture 3 hours Format:

R.L. Mazany or A.M. Sinclair Instructor: Introductory Economics and Prerequisites: 2200A/B (or equivalent)

ECO 3332A/B Resource Economics: This class focuses on intertemporal economics and the economics of market failure as they pertain to the use of natural resources. A selection of resource sectors will also be discussed. Fisheries, agriculture, forestry, and energy represent possibilities, but this will vary from year to year.

Format: Lecture 3 hours M. Cross Instructor:

Introductory Economics. Prerequisite:

Economics 2200A/B (or equivalent) is also desirable.

ECO 3333A/B Theories of Economic Development: A theoretical framework for the understanding of the process of economic development in the more and the less developed countries is provided with a view to its eventual

application to the solution of practical problems The concluding seminars are devoted to the problem of the foundations of the theory of economic development, and the distinction between the concepts of unilinear and multilinear evolution is discussed.

lecture 2 hours Format: B. Lesser Instructor:

Prerequisite:

Introductory Economics. Economics 2201A/B (or equivalent) and Economics 3347 and 3348 are desirable.

\*ECO 3334A/B Economic Development - Recent Debates, Controversics and Conflicts: Whereas Economics 3333A deals with the more rigorously defined theories and models and their appraisal this class focusses on the development policies and related controversies. Important examples of such controversies and conflicts, with far reaching developmental consequences, are provided. Attention is paid to the much debated environmental aspects of growth and development

Format: Lecture 2 hours Staff

Instructor:

Prerequisite:

Economics 1100. Economics 2201 (or equivalent) and Economics 3333A/B are desirable.

\*ECO 3336B Regional Development: Most countries have richer and poorer regions. The energy crisis has raised additional complications. Economic development issues, policies, and theories facing more industrialized nations are analyzed with particular focus on Canada (especially the Atlantic region), the European Economic Community, U.S.A., Japan, and Australia.

Seminar 2 hours and tutorials Format: R.I. McAllister

Instructor:

Introductory Economics. At least Prerequisite: one class in both Political Science

and Canadian History are desirable.

ECO 3338A Introductory Econometrics I: The theory of some quantitative methods commonly used by economists is introduced in the context of the classical linear model. Estimation problems caused by violations of the assumptions of the classical model are discussed including heteroskedasticity, autocorrelation and simultaneous equations bias.

Format: Lecture 3 hours L. Osberg Instructor:

Mathematics 1000 (or equivalent) Prerequisites:

and one of Economics 2228 (or Math 2060A/2080B), Economics 2222A and 2223B or

Mathematics 1060A. Format:

\*BCO 3339B Introductory Econometrics II: practical problems associated with economic data and with model specification and estimation are and wiscussed. The techniques introduced in introductory Econometrics I are used to estimate simple economic models. Some additional methods of estimation and forecasting are introduced. lecture 3 hours

Format: D. Gordon Instructor: Prerequisite: Economics 3338A

RCO 3347A/B Classical Political Economy: The theories of production, value, distribution, and economic growth developed in classical political economy will be discussed in this class. Reactions to classical political economy and links between this body of thought and macroeconomics will be included as time permits.

Lecture 3 hours Format: M.L. Cross Instructor:

Prerequisites:

Economics 1100R; Economics 2200A/B and 2201A/B (or equivalents) are recommended, but not required; though intermediate theory is not a prerequisite, it will be assumed that students taking this class have achieved the level of academic maturity normally expected in third year university students.

FCO 3348A/B Modern Economic Thought: Theories of production, value, and distribution developed since the marginal revolution, which dates from roughly 1870, will be examined in this class. Contributions to this body of thought developed before 1870, while classical political economy was dominant, will also be considered. Theories of equilibrium, stability, and economic growth will be discussed as time permits, but overage of all topics must be selective because of the vastness of modern economic literature.

Format: Lecture 3 hours Instructor: M.L. Cross

Economics 1100 and 2200A/B or Prerequisites: equivalent; Economics 2201 or

equivalent advised.

BCO 3350A/B Social Cost Benefit Analysis: The methodological base of social cost benefit analysis is developed, demonstrating some practical applications. Social cost benefit analysis and capital budgeting are two approaches to investment decision making. The former is used by public sector agencies; the latter is employed by Private sector firms. Similarities and differences in the two approaches are highlighted. Solving problems which illustrate basic concepts and a paper reporting on an actual application of the methods taught are important requisites.

Seminar 3 hours Instructor: T.A. Pinfold

Prerequisite:

Introductory Economics; Intermediate Microeconomics and Introductory Statistics are desirable.

\*ECO 3356A/B Marxian Ecoomics I: Historically, the economics of Karl Marx defined a very important period in the development of economic theory. Recently, several attempts have been made to integrate Marxian economics into the mainstream of modern economic analysis. This class and Economics 3357B constitute an introduction to the economics of Karl Marx. In 3356, special attention will be paid to the labour theory of value; the theory of exploitation and Marx's fundamental theorem on industrial capitalism; and the theory of simple reproduction. Lecture 3 hours Format:

Instructor: Staff

Economics 2200A/B and 2201A/B Prerequisites:

or instructor's consent; Economics 3347A/3348B is recommended.

\*ECO 3357A/B Marxian Economics II: This class is a continuation of Economics 3356. Special attention will be paid to the theory of extended reproduction and accumulation of capital, the socalled transformation problem, and the issue of class struggle in a growing economy.

Format: Lecture 3 hours Instructor:

Economics 3356A/B or Prerequisites: instructor's consent

\*ECO 3432R Regional Economics: A variety of growth theories are examined, followed by a discussion of empirical studies and their assessment from the various theoretical points of view. Policy discussion and the presentation of a seminar paper are involved. A framework for understanding the reasons for regional disparities is provided. Focus is on the underdeveloped regions of developed nations. Students may take Economics 5511A/5512B.

lecture and seminar 3 hours Format:

Instructor: F.M. Bradfield

Prerequisite: Economics 2200A/B (or

equivalent)

\*ECO 4000R Seminar on Economic Policy -Public Policy in the 90's: The discussion centres on the problems of formulating and carrying out economic policy in Canada. Recent budget addresses; industrial policy and tax and expenditure policies are reviewed. Other topics include Canada's reliance on resource exports and capital imports; issues raised by multinational corporations and their consequences for political sovereignty. The choice of a balanced economy or export specialization is examined. The approach is interdisciplinary.

Format: 2 hours

**Economics/Engineering** 

ECO 4100C Honours Seminar: This is a required course for honours students, optional for others. The course is devoted to: a) preparation and presentation of honours papers; b) discussion of policy issues; and c) lectures and discussion by faculty members and occasional invited guests.

Format: Seminar 3 hours

Instructor: Staff

Prerequisites: Economics 2200A/B (or

equivalent) and 2201A/B (or equivalent) and Economics 2228

(or Math 2060A/2080B)

\*ECO 4400A Linear Models I: Exposition of aspects of economic theory from the standpoint of linear economic models. A brief systematic exposition of linear programming, followed by applications such as in: theory of the firm, Leontief inter-industry model, transportation problems, international trade, general equilibrium theory, game theory.

Format: Lecture 3 hours
Instructor: S. Dasgupta

Prerequisites: Instructor's consent if possible;

Economics 2200A/B and/or Economics 2201A/B (or equivalents) and a class in linear

algebra are desirable.

ECO 4408R Competition Policy/Antitrust Economics: In this class the various ways of public policy towards business are discussed. Basically, there are three approaches to public policy towards business -- the competitive approach, the regulatory approach, and the ownership approach. Under the first, the ownership of the means of production is in private hands, and the public interest is assumed to be protected by the free play of competitive forces. Under the second, ownership remains in private hands but in one way or another the state restrains the exercise of private economic power. And under the third, the state not only owns but manages and operates the productive facilities. Specific attention will be paid to the means of implementing the competitive approach to the antitrust laws

Format: Lecture 2 hours Instructor: C. Marfels

Prerequisite: Economics 3328R or instructor's

consent

BCO 4420A/B Microeconomic Theory: A basic but rigorous introduction to modern microeconomic theory. Deals in detail with the theory of choice as applied to consumers and firms, and discusses the working of an economy as a system of interdependent decision-makers. Emphasis is on the comparison of alternative solution concepts for competitive economies ending with an introduction to stability theory.

Format: Lecture 3 hours
Instructor: E. Klein or S. DasGupta

Prerequisite:

Economics 2200 (or equivalent); Mathematics 1000 and 1010 are desirable.

BCO 4421A Macroeconomic Theory: For those who wish to do relatively advanced work in economic theory, possibly with the thought of going on to do graduate work in economics. The class assumes some knowledge of calculus. Topics covered include: classical models of income and employment; Keynesian models of income and employment; the theory of economic growth (including two-sector models); and trade cycle models.

Format: Lecture 3 hours
Instructor: J. Cornwall

Prerequisite: Economics 2201A/B (or equivalent) and Mathematics

1000 and 1010 (or equivalent)

\*BCO 4422B Inflation, Stagflation and Macroeconomic Policy: A consideration of different theories of inflation that have been developed to explain the acceleration of inflation in the past decade. Alternative policy solutions are appraised. Forms of incomes policy are taken up in some detail.

Format: Lecture 3 hours
Instructor: J. Cornwall

Prerequisite: Economics 2201 (or equivalent)

\*ECO 4426B Monetary Policy: Assuming a basic knowledge of monetary institutions and macro-economics, a critical analysis of the objectives and effectiveness of monetary policy is developed. Particular attention is given to the Canadian experience and the effectiveness of Canadian policy.

Format: Lecture 3 hours Instructor: R.L. Comeau

Prerequisite: Economics 2201A/B (or

equivalent); It is advantageous for students to have completed Economics 3326A as well.

ECO 4431A/B International Payments: Selected topics in recent international monetary history are examined, the causes of, and remedies for, external imbalance in national economies are considered, and the reorganization of the international monetary system is discussed. Depending upon class interest, certain issues of international development finance and problems of instability and growth in the international economy may be discussed in detail.

Format: Lecture 3 hours
Instructor: R.L. Mazany or A.M. Sinclair
Prerequisite: Economics 2201A/B (or

equivalent)

ECO 4446A/B Classical Liberalism, and Democracy: For description see Philosophy 4470A/B.

Format: Seminar 2 hours

Instructor: Philosophy 4470A/B, Political Science 4479A/B

BCO 4447B The Theory of Games as an Approach to the Foundations of Ethics and Politics: For description see Philosophy 4430A/B.

Format: Seminar 2 hours

Instructor: Staff

Cross Listing: Philosophy 4430A/B, Political

Science 4480A/B

BCO 4448A Social Choice Theory: For description see Philosophy 4480A/B.

Format: Seminar 2 hours

Instructor: Staff
Cross Listing: Philosophy 4480A/B, Political

Science 4480A/B

### **Engineering**

Location: Sir James Dunn Building, Room

326

Telephone: (902) 494-2344

Chairperson of Department

1C. MacKinnon

#### Professors

J.C. MacKinnon, BEng (TUNS), MScEng (Lond.), PhD (Dal), PEng S.T. Nugent, BSc (Mem.), BEng (NSTC), MASc (Tor.), PhD (UNB), PEng.

#### **Associate Professors**

D.M. Lewis, BEng, MEng (NSTC), PEng
M.H. Mansour, BEng (Cairo), BSc (AIN Shams)
MEng (McM), PhD (TUNS), PEng
E.N. Patterson, BSc (MtA), BEng (NSTC), MSc (Queen's), PEng
D.G. Retallack, BSc (Dal), BEng (NSTC), MSc,
PhD (Manchester), PEng

#### Assistant Professor

C.K.K. Lun, BEng, (McGill), MEng (McGill), PhD (McGill), P. Eng.

#### Introduction

Professional engineers are concerned with making the properties of matter and the sources of energy in nature beneficial to mankind. The curriculum develops "an individual's ability to use the basic sciences, mathematics, engineering sciences, economics and social sciences to convert, use and/or manage resources optimally through effective analysis, interpretation, and decision making to meet objectives". University studies in engineering are concerned with the design of

engineering systems, but the skills learned are widely applicable. Many engineers combine their profession with other activities, most notably management.

The professional degree in Engineering is the Bachelor of Engineering degree which is conferred by the Technical University of Nova Scotia in association with Dalhousie University. The first two years of study are taken at Dalhousie and comprise a programme of 11 credits which lead to the Diploma in Engineering. Upon successful completion of this programme, students will be admitted to the Technical University of Nova Scotia for a further three vears of study leading to the degree of Bachelor of Engineering in Civil, Electrical, Mechanical, Mining, Chemical, Industrial, or Agricultural Engineering. These programmes have been accredited by the Canadian Accreditation Board of the Canadian Council of Professional Engineers.

TUNS offers a combined BEng/MEng programme in Metallurgical Engineering. The admission requirement is the Diploma of Engineering, but admission is limited to ten students per year, on a competitive basis. The programme is accredited by the Canadian Accreditation Board of the Canadian Council of Professional Engineers.

### **Degree Programmes**

Dalhousie offers various programmes for students wishing to pursue studies jointly in Engineering and in Arts or Science. Students may arrange programmes leading to a Bachelor of Science degree, with a major in Biology, Chemistry, Computing Science, Geology, Mathematics or Physics in addition to the Diploma in Engineering. Programmes leading to a Bachelor of Arts Degree in addition to the Diploma in Engineering can be arranged with a major in a language, social science, or humanities subject. These combined programmes require three years of study at Dalhousie. Three years are still required at TUNS in order to receive the Bachelor of Engineering degree.

Students wishing to enroll jointly in the Diploma in Engineering and Bachelor of Science or Bachelor of Arts programmes should consult the Department of Engineering prior to registration in the first year.

Students who graduate from TUNS fulfill the academic requirements for registration as a Professional Engineer in all provinces in Canada. In addition to the academic requirements, the Profession requires that applicants for registration have practical experience relevant to the discipline of engineering. The minimum requirement is two years of experience subsequent to completion of the BEng. It is recommended that, in addition to this, students obtain engineering experience in the summer periods prior to graduation.

## Diploma in Engineering Admission Requirements

Students wishing to enroll in the Diploma in Engineering Programme in the Department of Engineering must satisfy the requirements for admission to the Faculty of Science at Dalhousie and must also satisfy the additional requirements of the Department of Engineering. Students are normally expected to have completed Nova Scotia Grade XII senior matriculation classes, or equivalent, in Mathematics, Physics and Chemistry and should rank well in their class. Students may be admitted with advanced standing.

#### Admission with Advanced Standing

Students wishing admission with advanced standing in the Diploma in Engineering Programme are advised that normally a minimum of seven full credit classes of those described for the programme must be taken at Dalhousie. Transfer credit will not be granted for any class in which the final grade was less than C, or equivalent, or for any class in which a final grade was granted conditionally. Moreover, summer school classes are normally required as part of any Engineering programme incorporating advanced standing. Students must obtain agreement for such programmes, prior to the start of the Summer School session which precedes the next regular session, from the Department of Engineering.

#### Diploma in Engineering Programme

The programme is organized on a term basis although some classes are of two terms duration.

Terms I and II are Year I; Terms III and IV are Year II.

- Term 1: Engineering 1100A, Mathematics 1000A, Chemistry 1020R, Physics 1100R, and one elective<sup>1</sup>.
- Term 2: Engineering 1120B, Mathematics 1010B, Chemistry 1020R, Physics 1100R, and one elective<sup>1</sup>.
- Term 3: Engineering 2121A, Engineering 2331A, Engineering 2240A, Engineering 2340A, Mathematics 2480A, and one elective<sup>1</sup>.
- **Term 4:** Engineering 2222B, Engineering 2101B, Engineering 2230B, Engineering 2341B, Mathematics 2490B, and one elective<sup>1</sup>.

The electives are to be selected from the humanities and social sciences. In the first year the elective must be selected from an approved list of classes in which written work is considered frequently and in detail. Students should seek the advice, and they must obtain the approval, of the Department of Engineering for these electives.

#### BSc/Diploma in Engineering

Students may arrange programmes leading to a BSc with a major in one of the sciences in combination with the Diploma in Engineering. Upon completion of the joint programme, graduates receive both the Diploma in Engineering and a BSc degree.

The programme for the BSc plus Diploma in Engineering consists of fifteen classes. Eleven of the classes are the classes for the Diploma in Engineering. The remaining classes must be chosen to meet the requirements for the BSc One of these requirements is that there must be four classes beyond the first year in the science major. If the science major is mathematics, physics, or chemistry, then the recommended first year programme is the first year of the Diploma in Engineering. The second and third years each consist of approximately half of the remaining requirements for the Diploma and half of the requirements for the BSc. If the science major is computing science, biology, or geology, then students should seek the advice of the Department of Engineering, prior to registration in first year.

#### **BA/Diploma** in Engineering

Students may arrange programmes leading to a BA with a major in one of the arts (humanities, languages, social sciences) in combination with a Diploma in Engineering. Upon completion of the joint program, graduates receive both the Diploma in Engineering and the BA degree.

This joint programme consists of fifteen classes. Eleven of the classes are required for the Diploma in Engineering; two of theses must be in the arts. The remaining four classes must be chosen to meet the requirements for the BA.

Students interested in this type of programme should contact both the Department of Engineering and the department for the BA major subject.

#### Classes Offered

Texts and names of instructors shown are for the previous year.

ENGI 1100A Graphics: In this class the basic problem of representing three-dimensional solid objects on a two-dimensional sheet of paper is solved by a variety of methods. Problems involving points, lines, planes, and objects are tackled using the techniques of multiview drawing, pictorials (oblique, isometric, and perspective), and descriptive geometry.

Instructor: D. G. Retallack

Format: Lecture 2 hours, lab/tutorial 3

hours

Text: Engineering Design Graphics,

Earle

Enrolment: 160 maximum

ENGI 1120B Statics: Statics is the first in a sequence of three classes in Engineering Mechanics. The work in Statics is designed to Mechanics. The work in Statics is designed to instruct the student in concepts of force and equilibrium. Topics include a review of the laws of motion, elements of vector algebra, such quantities as position and force vectors, moments of a force about an axis, couple moments, equivalent force systems, equilibrium of two and three-dimensional structures, two-dimensional trusses, frames and simple machines, shear forces and bending moments in beams, laws of Coulomb friction, centroids and centre of mass area moments, and products of inertia.

Format: Lecture 4 hours, lab/tutorial 2

hours

Instructors: M.H. Mansour, C.K.K. Lun

Prerequisite: Mathematics 1010

Vector Mechanics for Engineers, Vol. 1 Statics, 5th Edition, Beer

and Johnston.
160 maximum

Enrolment: 160 maximum

ENGI 2101B Engineering Design: The work of 1100A (Graphics) is extended to include technical drawings and computer graphics, a design project with working drawings and a technical report, as well as the construction and testing of physical models.

Format: Lecture 3 hours, lab/tutorial 3

hours

Instructors: E.N.Patterson, M.H. Mansour
Prerequisite: Engineering 2121A, 2331A, 2240A,

2340A, Mathematics 1000

Enrolment: 120 maximum

ENGI 2121A Dynamics of Particles: This second class in Engineering Mechanics considers the kinematics and kinetics of a single particle and of systems of particles. The class builds on the concepts introduced in Engineering 1120 (Statics); a vector approach is used. Topics include kinematics of a particle, Newton's laws, work, energy, power, conservative force fields, linear impulse and momentum, impulsive forces, impact, collisions, and angular momentum. All topics are treated using rectangular, path, and cylindrical coordinates.

Format: Lecture 3 hours, lab/tutorial 3

hours

Instructors: E.N.Patterson, S.T. Nugent
Prerequisite: Engineering 1120B, Mathematics

1010

Vector Mechanics for Engineers, Vol. 2 Dynamics, 5th Edition,

Beer and Johnston.

Enrolment: 120 maximum

ENGI 2222B Dynamics of Rigid Bodies: This class completes the study of Engineering Mechanics. The concepts introduced in Engineering 2121 (Dynamics of Particles) are extended to rigid bodies. Topics include kinematics

of a rigid body using both the translating reference frame theory and the general rotating reference frame theory, kinetics of plane motion of rigid bodies including general plane motion, energy methods, impulse and momentum methods and vibrations of single degree of freedom systems.

Format: Lecture 3 hours, lab/tutorial 3

hours

Instructors: D.M. Lewis, D.G. Retallack
Prerequisite: Engineering 2121A, 2240A.

Mathematics 2480

Text: Vector Mechanics for Engineers, Vol. 2 Dynamics, 5th Edition,

Beer and Johnston.

Enrolment: 120 maximum

ENGI 2230B Electric Circuits: An introduction to the fundamental laws of electric circuits and circuit parameters, the concept of time-constants, impedances, admittances, general network theorems, three-phase circuits and transformers. The laboratory periods illustrate the use of electrical measuring devices.

Format: Lecture 3 hours, lab/tutorial 3

hours

Instructor: S.T. Nugent

Prerequisite: Physics 1100, Mathematics 1010
Text: Circuits, Devices and Systems,

4th Edition, Smith

Enrolment: 120 maximum

ENGI 2240A Computer Methods in Engineering: This class first introduces the student to computers in general and to our machines in particular, to the use of an editor for creating computer programmes, and to the design and running of simple programmes. The class then focuses on an algorithm-design process which uses structured programming techniques and is independent of the language chosen for coding. PASCAL is used as the implementation language, and it is taught to an intermediate level. Typical assignments involve computer solutions of engineering and mathematical problems.

Format: Lecture 3 hours, lab/tutorial 3

hours

Instructors: E.N.Patterson, J.C. MacKinnon Prerequisite: Engineering 1120B, Mathematics

1010

Text: Problem Solving in Pascal for

Engineers and Scientists, Etter

Enrolment: 120 maximum

ENGI 2331A Strength of Materials: This class is an introduction to the study of the stresses, strains, and deformation of a solid body which results when static forces are applied to the body. Topics discussed include: the definition and transformation relations of stresses and strains, axial loading applications, torsion of circular sections, stresses and deflection of beams, combined static loading and column action.

Format: Lecture 3 hours, lab/tutorial 3

hours

Instructor: M.H. Mansour

Enrolment:

Prerequisite: Engineering 1120B, Mathematics

1010

Text: Mechanics of Engineering
Materials, 4th Edition, Higdon,

Olsen and Stiles. 120 maximum

ENGI 2340A Classical Thermodynamics: An introduction to the fundamental concepts and principles of thermodynamics as applied to engineering design problems. Topics in this class include: properties and processes of ideal gases and simple compressible substances, work and heat interactions, energy and the first law of thermodynamics -- analysis of control masses and control volumes, entropy and analysis based upon the second law of thermodynamics, performance of selected components (e.g. turbines, compressors, pumps, heat exchangers) and systems (power and refrigeration cycles).

Format: Lecture 3 hours, lab/tutorial 3

hours

Instructor: C.K.K. Lun, E.N. Patterson
Prerequisite: Mathematics 1010, Chemistry 1110

Text: Fundamentals of Engineering Thermodynamics, Howell and

Buckius.

Enrolment: 120 maximum

ENGI 2341B An Introduction to Fluid Mechanics: This class extends the basic concepts of mechanics from solids to fluids. It comprises the study of fluid properties, fluids at rest and in motion. Dimensional analysis is introduced. The fundamental flow-governing equations (conservation of mass, momentum and energy) are derived and applied to a selection of engineering problems.

Format: Lecture 3 hours, lab/tutorial 3

hours

Instructors: C.K.K. Lun, J.C. MacKinnon
Prerequisite: Engineering 1120B, 2121A, 2340A,

Mathematics 1010, 2480

Text: Fundamentals of Fluid Mechancis,

Gerhart and Gross.

Enrolment: 120 maximum

### Geology

Location: Life Sciences Centre, Room 3006
Telephone: (902) 494-2358

**Chairperson of Department** P.J.C. Ryall

Undergraduate Advisor G.K. Muecke (494-6569)

Co-op Co-ordinator J. Hall (494-6510)

Graduate Co-ordinator P. Reynolds (494-2325)

Emeritus Professors
H.B.S. Cooke, MSc, DSc (Witwatersrand)
C.G.I. Friedlaender, PhD (Zurich)

**Professors** 

C. Beaumont, BSc (Sussex), PhD (Dal), (Oceanography)
D.B. Clarke, BSc, MA (Tor.), PhD (Edin.)
J.M. Hall, BSc (Wales), PhD, DIC (Lond.)
R.A. Jamieson, BSc (Dal), PhD, (MUN)
F. Medioli, PhD (Parma) - (on leave)
P.H. Reynolds, BSc (Tor.), PhD (UBC), (jointly with Physics)
P.T. Robinson, BSc (Mich.), PhD (Calif.),
P.E. Schenk, BSc (W.Ont.), MSc, PhD (Wisc.)

**Associate Professors** 

R. Boyd, BSc, PhD (Sydney)
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 (Washington), PhD (Dal)

**Assistant Professors** 

N. Culshaw, BA (Keele), PhD (Ottawa)

M. Zentilli, BSc (Chile), PhD (Queen's)

Senior Instructor P. Wallace, BSc, MSc (McM)

CIDA/NSERC Research Fellow S.O. Akande, BSc (Ibadan), MSc (W. Ont.), PhD (Dal)

Research Associate

C. Beaumont (Major appointment in Oceanography Department)

**Adjunct Professors** 

F. Gradstein, BA, MSc, PhD (Utrecht)
P. Hacquebard, PhD (Groningen)

M. Salisbury, BSc (MIT), PhD. (Washington)

Introduction

Geology is the science of the Earth and deals with many questions, such as: How was the Earth formed? What is its composition? Where do we look for oil? Or nickel? What changes the Earth now? What moves continents? Why are the ages of all the ocean basins less than one-wentieth the age of the Earth itself? Geology is an intellectually exciting discipline, and its study is of enormous economic importance to Canada.

Classes in geology are offered for different

types of students. Some will want to make a career in some aspect of the study of the Earth -as geologists, geochemists, geophysicists, oceanographers or teachers -- and work for private industry or government agencies. Some may need instruction in geology as an aid to other disciplines: for example, a mining engineer, an environmental scientist interested in groundwater problems, a marine engineer interested in coastal processes, or a biologist interested in protozoa. Other students may be interested in a geology degree before they take a professional qualification such as law or business administration. Those whose prime interest is the humanities or social sciences will find that introductory classes in geology stimulate their awareness of their surroundings, and develop their appreciation of science.

**High School Preparation** 

Students in high schools who plan a career in sciences involving the Earth, such as geology or geophysics, should note that it is sensible to try to have the following subjects in Grades XI and XII: Grade XII Mathematics, plus Chemistry and Physics. Note that these are not prerequisites, but are strongly advised. The student should aim to make up deficiencies in high school preparation in the first year at Dalhousie.

### Degree Programmes

Programmes and Classes for Non-Geology Majors

These classes are specially designed for those who want to know something about the Earth, but whose major field of study at Dalhousie will lie elsewhere; an economics student, concerned with resources; a history student, interested in the role played by Canada's geological frame in the development of transportation; a biology student interested in faunal environments on the sea floor. These classes are:

GEOL 1040A/1050B, a class especially designed for students in the arts and social sciences.
GEOL 1200R, interdisciplinary science class designed for non-science majors.
GEOL 2400A, Marine Geology, an evening class

open to all with 1000 or good grades in 1040A. GEOL 2410B, is an evening class, open to all with 1000, or good grades in 1040A.

For engineering students and science students in other disciplines: Biologists - 1000, 2410B/3410B, 2201A/2202B; Chemists - 1000, 2101A/2102B, 3010A, 3020B, 4380A; Physicists and Mathematicians - 1000, 2050B, 3130B, 4270A, 4280B, and 4290B.

#### Field Work

Field excursions are part of several classes and are conducted at appropriate times during the session. In addition, some optional field excursions may be held each year.

Students are charged a contribution towards the cost of all field excursions. Charges for those trips that are held during the session, as part of a class, are payable at registration. As a result of increased costs and uncertainty of external funding, fees for individual field excursions are fixed yearly. (Please consult Department.) The charges for optional field trips are notified, and payable, several months in advance.

Overpayments, in excess of \$5.00, are reimbursed to the student.

**Honours Degree Programmes** 

An honours degree is almost essential for any professional work in earth sciences, and for graduate study. Students must take the second and third year classes of the Geology core programme listed below.

Year 1 will normally consist of: GEOL 1000 or 1040A/1001B; Mathematics 1000A/1010B or 1500; one class in two of Physics, Chemistry or Biology. Recommended classes are: Physics 1100, Chemistry 1100, Biology 1000 or 2001A/2002B; an elective (normally selected to meet the Faculty Writing Requirement).

Note: Physics 1100 and a Mathematics class are prerequisites for GEOL 2050B, which fits best into Year II of the programme.

Year 2 will normally consist of:

- 1. GEOL 2050B, 2101A/2102B, 2110A, 2201A/2202B.
- One class in two of Physics, Chemistry, Biology, Mathematics. Recommended classes are: Biology 2001A and 2002B, 3321; Chemistry 2110A/B, 2200A/B, 2310A, 2320B; Physics 2000A, 2005A, 2010B, 2015B, or 2220A/2230B; Mathematics 2000, 1060A/1070B, 2270A/B.
- Attendance at an approved field school (GEOL 0001).

Year 3 will normally consist of:

- 1. GEOL 3010A, 3020B, 314(A, 3301A/3302B
- One class in Physics, Chemistry, Biology or Mathematics; and an elective.

- Students in the geophysics stream will take GEOL 3130B. This class has a field school, which is an integral part of the course. It is normally held in late April or early May.
- Attendance at the honours field trip (GEOL 0002) just prior to the beginning of Year IV.

#### Year 4 will normally consist of:

- 1. GEOL 4200, 4350A, 4351B, other 4000 level classes in Geology; and an elective.
- 2. To satisfy Regulation 11.5 concerning the Honours Qualifying Examination, a student may select one of three options:
  - a. A thesis as GEOL 4200, followed by an oral examination, based on the general subject area of the thesis. This oral examination then counts as the honours qualifying examination.
  - b. A thesis as GEOL 4200, and a written comprehensive examination, reflecting the content of the 3000 and 4000 level classes which the student has taken.
  - c. An honours thesis in addition to five regular classes in the fourth year, in which case the thesis will count as the honours comprehensive examination.
- 3. Theses must be completed by the second Monday in March of fourth year. Students who complete after this date must re-register for the following academic year in GEOL 4200, pay the fees, and graduate at the spring convocation of the next academic year.

Students should take note that, without a grade of B or better in five advanced classes, that is, classes other than electives, they will not be admitted to the fourth Honours year without Departmental recommendation and prior approval from the Committee on Studies.

Each advanced class in the second, third and fourth year, except electives, must be passed with a grade of C.

In five of the advanced classes, a grade of B or better must be achieved, and in three additional advanced classes, a grade of B or better is required.

A grade of B<sup>-</sup> or better must be achieved on the Honours Qualifying Examination.

For First Class Honours, students must achieve either:

- a. Grades of A or better in four advanced classes and of A or better in four additional advanced classes, or
- b. Grades of A or better in six advanced classes and of B or better in all advanced classes.

A grade of A or better must be achieved on the Honours Qualifying Examination.

#### Co-op Programme

A co-op programme is offered by the department, providing students with an opportunity to gain practical work experience concurrently with their academic training. The student is expected to fulfil the normal twenty credit requirement of an honours degree or advanced major, over eight academic terms that are interspersed with four work terms. A minimum average of B is required for entrance to the programme. The programme commences in the spring term of the second year and interested students should consult with the Co-op Co-ordinator prior to that time.

#### Hydrogeology/Environmental Geology/Marine Geology

In addition to the above normal geology programme, the Department offers special programmes emphasizing hydrogeology/ environmental geology or marine geology in the third and fourth year. Students interested in specializing in these areas should consult with the Undergraduate Advisor.

#### **Combined Honours Programme**

Students wishing to take combined honours in geology and another subject, should discuss this in detail with the undergraduate advisor. Students must attend the field school normally taken at the end of second year (GEOL 0001).

#### **Combined Honours with Biology**

Geology Honours Programme should be followed during Years I-III and students should take either a Biology class or GEOL 4501A/B or 4502A/B or 4503A/B in place of GEOL 3010A/3020B. Suggested Biology classes are 1000 or 2001A and 2002B in Year I; 2030A and 3030B and 2060A/B in Year II; 2001A and 2002B or 3321 or 3323 in Year III.

#### **Combined Honours with Physics**

Students should follow the Geology
Honours Programme in years I to III, including
GEOL 2050B and GEOL 3130B, but should take
a Physics class in place of GEOL 3010A/3020B.
Suggested Physics classes are 1100 in Year I,
2000A, 2005A, 2010B, 2015B in Year II, two of
3090B, 3140A or 3000A/3010B or 3200A/3210B
and 3160A/3170B in Year III. Math 2000 should
also be taken in either Year II or III, and Math
3110A/3120B in Year III or IV.

#### **Combined Honours with Chemistry**

Students should follow the Geology
Honours Programme in Years I-III, but should
take 3000 level Chemistry classes in place of
GEOL 3301A/3302B and 2050B/3130B. Suggested
Chemistry classes are 1010 in Year I,
2201A/B/2101A/B and 2301A/2302B or 2400 in
Year II; any 3000 level in Year III.

### Advanced Major (20-credits)

The programme for an Advanced Major degree in Geology requires four years to complete. Its requirements include those of the 15-credit programme (below) plus the following:

Twelve of twenty credits taken must be beyond the 1000 level.

- Six to nine of the classes beyond the 1000 level must be in the major area, and three of these at the 3000 level or above.
- Students are required to earn a minimum of 16 merit points for this degree.
- 4. Students in this programme are required to attend an approved field school, (GEOL 0001).

A grade of D in a Geology class precludes admission to classes for which the class is a prerequisite. Where several classes are listed as prerequisites, and a grade of C<sup>-</sup> or better was not obtained in all, the instructor's consent may be the basis for admission. Students must satisfy the Faculty of Science Writing Requirement and Mathematics Requirement.

### Major Programme (15-credits)

Three-year programmes with a major in Geology are suitable for students who intend to take further professional training or to enter fields where they are likely to need their geological training as background. A 15-credit degree is of little value as a qualification for a professional career in the earth sciences.

Year 1 will normally include:
GEOL 1000 or 1040A/1001B and four other classes. One programme recommended for students undertaking a 15-credit BSc with a major in Geology is the first three years of the concentrated honours programme (see above). GEOL 1000 or 1040A/1001B must be passed with a grade of B<sup>-</sup> or better to continue in the programme.

Years 2 and 3 must include:

- GEOL 2100R or 2101A/2102B, 2110A, 2200R or 2201A/2202B, 2050B, 3010A, 3020B.
- 2. Participation in an approved field school (GEOL 0001). Normally this is taken at the end of second year.

A grade of D in a Geology class precludes admission to classes for which the class is a prerequisite. Students must satisfy the Faculty of Science Writing Requirement and Mathematics Requirement.

### Classes Offered

GEOL 1000R Introduction to Geology: An introductory class for students who plan to take a degree in geology, or in another science, or in engineering. The lecture material covers the whole

field of geology including the origin of the solar system, earth history, geological time, ocean basin formation, mountain formation, volcanoes, continental drift, natural resources such as metals and petroleum, and environmental pollution. The laboratory component involves work with minerals, rocks, fossils, and geological maps as well as a number of field excursions to observe local geological features. Students who wish to major in Geology but have unresolvable scheduling conflicts with GEOL 1000 should consult the undergraduate advisor.

Instructors: M. Gibling/N. Culshaw
Format: Lectures/Field trips/ Laboratories

GEOL 1001B Beginning Geology: This course is intended primarily for students intending to major in geology. Lectures will cover the classification of Earth materials (minerals, rocks, fossils) and the operation of Earth processes (erosion, deposition, volcanism, metamorphism, earthquakes). They will also deal with the internal structure of the Earth (core, mantle, crust), and the many expressions of plate tectonics (mountain ranges, rift valleys, fracture zones, ocean basins, mid-ocean ridges). Laboratories involve work with minerals, rocks, fossils, and geological maps.

Instructors: M. Gibling/ N. Culshaw Format: Lectures/Laboratories Prerequisite: GEOL 1040A

GEOL 1040A/1050B The Earth and Society: These classes are designed for non-Geology majors. Previous Mathematics, Physics, or Chemistry are not required. These courses do not include formal labs, but 1040A includes three field trips, and some assignments are done in a laboratory environment. GEOL 1040A provides an introduction to some basic concepts about the Earth, including the Earth as a planet, geological time, evolution and extinctions, plate tectonics, and the evolution of the Earth's crust. GEOL 1050B applies the concepts learned in 1040A to understanding how geology affects society. Topics covered include mineral and energy resources, geological catastrophes, geology and landscape of Nova Scotia, and global climate change. GEOL 1040A is a prerequisite. Students with good grades in 1040A may enter GEOL 1001B or GEOL 2410B.

Instructors: R.A. Jamieson/ M. Zentilli/ P.J.C.

Ryall
Format: Lectures/Field trips

GEOL 1200R - Science for Non-Science Students: This is an interdisciplinary class taught by members of the Geology, Biology and Physics Departments. Emphasis is placed on developing an understanding of the scientific method, its limitations and its application in society. This class is cross-listed with Biology 1200 and Physics 1200.

Instructors: P. Reynolds/G. Hicks/R. March Lectures/Tutorials 3 hours Format: Cross-listings: PHYC 1200R/BIOL 1200R

**GEOL 2050B Principles of Geophysics:** Geophysical methods are increasingly important in land- and sea-based geological studies. Understanding the principles of the various techniques (seismics, gravity, magnetics, electromagnetics), their powers, and limitations, provides a foundation for later more practical classes.

Instructor: P.J.C. Ryall

Lecture 3 hours/ Laboratory 1 Format:

Prerequisites: a first year class in Mathematics

and Physics 1100

GEOL 2101A Mineralogy and Crystallography: This class deals with the way in which the chemical components of rocks are organized into specific crystalline compounds (minerals). The lectures cover the crystallographic principles which determine the regular internal and external structure of minerals (crystallography), the relationship between mineral composition and structure (crystal chemistry) and the interaction of polarized light with crystals (optics). The labs involve hand specimen identification of minerals based on their physical properties and associations with other minerals in rocks.

P. Robinson Instructor:

Format: Lecture 3 hours/ Laboratory 3

GEOL 1000 or GEOL 1040A and Prerequisites:

**GEOL 1001B** 

GEOL 2102B Introduction to Petrography and Petrology: In this course we deal with the ways in which minerals interact with melts, solutions and each other to form rocks. Such topics as phase equilibria, solution chemistry and solid-solid reactions will be covered in the lectures as will the basic principles of rock classification based on textures and mineralogical compositions. The labs will emphasize optical identification of minerals and rocks using the petrographic microscope.

P. Robinson Instructor:

Format: Lecture 3 hours/ Laboratory 3

hours

Prerequisite: **GEOL 2101A** 

GEOL 2110A Field Methods: This is intended as an introduction to field techniques useful to the practising geologist, particularly those concepts essential for the accurate field description and identification of rocks and the use and construction of geological maps. Geophysical field techniques and elementary structural geology are also considered.

Instructor: N. Culshaw

Format: Lecture 3 hours/ Laboratory 3

hours/ Field trips

GEOL 1000 or GEOL 1040A Prerequisites: and GEOL 1001B

GEOL 2201A Stratigraphy: We deal with the principles by which people interpret the history of the Earth. Topics include measurement of geologic time, origin of the Earth, construction of mountains, organic evolution, and sedimentary environments. Laboratories give practise in using these principles to interpret Earth history.

Instructor: P.E. Schenk

Lecture 3 hours/ Laboratory 3 Format:

hours

GEOL 1000 or GEOL 1040A Prerequisites:

and GEOL 1001B

GEOL 2202B Earth and Life Through Time-This course deals with many of the important events that have occurred to produce our present physical and organic Earth. These events include early attempts to create organisms, the separation and collision of continents, the changing character of life, and the times of great extinctions. A survey of paleontology and paleoecology is given in the laboratories.

Instructor: P.E. Schenk

Format: Lecture 3 hours/ Laboratory 3

Prerequisites: GEOL 2201A or GEOL 1040A

and Biology 1000

GEOL 2400A Marine Geology: The ocean basins make up nearly three quarters of the Earth's surface and are the loci of many active geologic processes. This course deals with the morphology and tectonic history of the ocean basins, the lithology and geophysical characteristics of oceanic lithosphere and the nature and distribution of marine sediments. Important processes such as oceanic volcanism, hydrothermal circulation, sea floor spreading and marine sedimentation will be discussed, as will environmental, legal and economic aspects of the marine environment. The course is designed to provide an introduction to marine geology for non-geology majors wishing to learn more about geology and for those who plan to take a degree in geology. This class is not recommended for geology honours students.

Instructor: P. Robinson

Lecture/Laboratory 3 hours, one Format:

evening per week

Any first year class in geology Prerequisite:

GEOL 2410B Environmental and Resource Geology: Geology lies behind many of the environmental problems facing humanity today. In this class we consider topics such as energy and mineral resources, geological hazards such as earthquakes, landslides, and volcanic eruptions, the relevance of geology in the fields of foundation engineering, pollution and waste disposal, and the role that geology has to play in planning urban areas, especially in Nova Scotia.

This class is not recommended for geology honours students.

G. K. Muecke

Instructor: Lecture/ Laboratory 3 hours, one Format:

evening per week

GEOL 1000 or GEOL 1040A and

1050B or 1001B

GEOL 0001 Field School: The course provides ten days of training in geological field methods. A wide range of rock types are examined in the field, and are described using traverses, measured sections, and outcrop and structural maps. An individual field mapping project forms part of the course. For students taking combined honours with Physics, participation in the geophysics field school (part of GEOL 3130B) is considered equivalent. Although the field school is a non-credit class, it appears on transcripts and is a compulsory part of the geology programme.

CROL 3010A Igneous Petrology: The study of the field relations, mineralogy, texture, and geochemistry of volcanic and plutonic rocks. Lectures discuss the classification, graphical representation, means of production, differentiation, and emplacement of igneous rocks, and their grouping into co-magmatic provinces. Labs involve using the petrographic microscope to determine the crystallization history of igneous rocks through their mineralogy and texture.

G.K. Muecke Instructor:

Lecture 3 hours/ Laboratory 3 Format:

GEOL 2101A/2102B or 2100R Prerequisite:

GEOL 3020B Metamorphic Petrology: Metamorphic petrology is the study of the way in which pre-existing igneous, sedimentary, and metamorphic rocks respond to changes in pressure, temperature, and geochemical environment. Metamorphic reactions, deformation and recrystallization, the stability relations of minerals and mineral assemblages under various physical and chemical conditions, and the concept of metamorphic facies are discussed. In the labs, microscopic mineralogy and texture are used to decipher the metamorphic history of rocks.

Instructor: R.A. Jamieson

Format: Lecture 3 hours/ Laboratory 3

Prerequisites: GEOL 2100R or 2101A/2102B,

**GEOL 3010A** 

GEOL 3130B Exploration Geophysics: This is a class in exploration geophysics relating largely to the mining industry and designed to follow GEOL 2050B. It is a normal prerequisite for the several 4000 level geophysics classes. Topics include: electrical properties of rocks; resistivity. self-potential and induced polarization exploration methods; electromagnetic exploration; radioactivity as an exploration tool; geophysical well logging;

integrated geophysical problems. The geophysics field school normally conducted during the last week of April is an integral part of this class.

P.H. Reynolds Instructor:

Lecture 3 hours/ Tutorial 3 hours Format:

(Bi-Weekly)

Prerequisite: **GEOL 2050B** 

GEOL 3140A Structural Geology: An introduction to the behaviour of rocks during deformation, stressing the geometrical aspects of rock structures on the scale normally encountered by the exploration geologist, and their interpretation. The laboratory exercises in the construction and interpretation of geological maps develop skill in the interpretation and graphical representation of structures in three dimensions.

Instructor: N. Culshaw

Lecture 3 hours/ Laboratory 3 Format:

hours

GEOL 2100R or 2101A/2102B, Prerequisites:

GEOL 2110A, GEOL 2200R or

2201A/2202B

**GEOL 3301A Sediments and Sedimentary Rocks:** The course deals with physical and biological processes which generate modern siliciclastic, carbonate and evaporite sediments. Materials associated with Quaternary glacial events are discussed. The formation of sedimentary rocks is examined and their petrology illustrated using laboratory techniques. Weekend field trips to selected modern and ancient sedimentary deposits in Nova Scotia take place in the first month of classes.

Instructor: M.R. Gibling

Format: Lecture 3 hours/ Laboratory 3

Prerequisites: GEOL 2200R or 2201A and

**GEOL 3302B Quaternary Sedimentary** 

Environments: The course deals with facies models for Quaternary glacial, coastal, deep sea and alluvial sediment. Emphasis is placed on sedimentation processes typical of each depositional setting and the geometry of the resulting deposits. Ancient deposits, including those resulting from glacial events, are examined, and their association with hydrocarbons, coal and sedimentary ores discussed. The labs provide practical experience of techniques used in facies analysis.

Instructor: R. Boyd

Format: Lecture 3 hours/ Laboratory 3

hours

Prerequisite: Geology 3301A

GEOL 3400A Fundamentals of Hydrogeology: The availability of clean water is absolutely essential for the development and maintenance of modern societies. This course will deal with the mathematical description of groundwater

movement, geophysical and geological methods for groundwater exploration, regional occurrence and chemical quality of groundwater, and the effects of waste disposal on chemical quality. Laboratory work stresses familiarity with techniques employed in the assessment and exploration of groundwater resources, as well as the analysis and interpretation of water quality data.

G.K. Muecke/J. Hall Instructor:

Lecture 3 hours/ Laboratory 3 Format:

Prerequisites: GEOL 2200R or 2201A, 2100R

or 2101A, 2102B

GEOL 3410B Enhanced Environmental Geology: The topics treated in this course are similar to Geology 2410B, but they will be discussed at considerably greater depth during an additional 3 hours lab / tutorial per week. Credit will be given for only one of GEOL 2410B or 3410B.

Instructor: G.K. Muecke

Lecture 3 hours/ Laboratory 3 Format:

hours

Prerequisites: GEOL 2100R or 2201A or 2202B,

3400A, 2101A/2102B

GEOL 0002 Advanced Field School: The class is a field excursion of 7 to 14 days duration which is designed to give the student a regional perspective of Appalachian geology, including metamorphic terrains, igneous intrusions and sedimentary basins of Precambrian to Mesozoic age. Classic field localities in eastern North America will be visited. Exceptionally, a more distant location may be selected. It appears on transcripts and is compulsory for all Honours students.

GEOL 4064C Pleistocene Biogeography:

J.G. Ogden III Instructor: Laboratory 3 hours Format:

Prerequisites: 2 credits in Geology or Biology

Cross Listing: BIOL 4064C

GEOL 4150R Economic Geology: For those interested in mineral exploration. The class starts with a brief introduction to principles of exploration and mining geology, followed by a review of the processes leading to the formation of metallic mineral deposits (e.g. the role of hydrothermal fluids in oceanic black smoker massive sulphide, Archean gold, and Mississippi lead-zinc deposits). Later, and developed mainly as seminars, important examples of ore deposits are discussed with emphasis on their total geological environment and the development of conceptual models for their genesis.

Instructor: M. Zentilli

Format: Lecture 3 hours/ Laboratory 3

hours

Prerequisites: GEOL 3010A, GEOL 3020B,

**GEOL 3140A** 

GEOL 4200R Honours Thesis: This class deals with many aspects of written and oral communication of scientific and technical material In particular, it covers the elements of scientific style (clarity, precision, conciseness, and objectivity), the logical organization and development of ideas and arguments, and the acceptable formats for scientific writing. Some attention will also be given to techniques of oral presentation. This is a compulsory class for students writing an Honours thesis in Geology. but it is open to students from other disciplines. Text: H.M. Weisman, Basic Technical Writing

D.B. Clarke Instructor: Format: Lecture 2 hours

GEOL 4270A Applied Geophysics: The application of geophysical methods to petroleum and mineral exploration as introduced in 2050R and 3130B is here treated at a more advanced level. Assignments attempt to involve the student in interpretation of realistic geophysical data.

Instructor: K. Louden Format: Lecture 3 hours

GEOL 2050B, GEOL 3130B or Prerequisites:

instructor's consent

GEOL 4280B Marine Geophysics: The application of the various geophysical techniques to the study of the sea floor and the principal results obtained are examined. The processes involved in the creation, evolution and destruction of ocean basins and the implications of the experimental observations are also considered.

Instructor: K. Louden Format:

Lecture 3 hours/ Laboratory, occasional sea trip

GEOL 2050B, GEOL 3130B. Prerequisites: GEOL 4270A or instructor's

consent

GEOL 4290A Geodynamics: Essential for geology or physics students who intend to be geophysicists, the class covers the physical state and behaviour of the Earth as a whole. It shows how studies of geomagnetism, the Earth's electrical conductivity, earthquake seismology, the Earth's gravity field and the loss of heat from the Earth contribute to our present detailed picture of the Earth's interior. Methods of absolute age determination and other isotopic studies together with palaeomagnetism allow us to follow aspects of the Earth's evolution to its present state.

C. Beaumont Instructor: Format: Lecture 3 hours

Prerequisites: GEOL 2050B, GEOL 3130B, GEOL 4270A or instructor's

consent

GEOL 4350A Tectonics: This is a required class for Geology Honours students. It is intended to synthesize the various aspects of geology treated in more specialized courses through an analysis of

those processes which have shaped the Earth's those Progress in the past and continue to do so today. Part of the course deals with modern plate tectonic of the processes as observed at active spreading centres, subduction zones, and transform faults. The rest of the course examines the structure, stratigraphy, and petrology of mountain belts like the Cordillera and the Appalachians in order to determine what processes, including plate tectonics processes, created them.

Instructor: J.M. Hall Lecture 3 hours Format:

Prerequisites: All third year Geology core

courses

GEOL 4351B Canadian Regional Tectonics: This course is intended to synthesize the various aspects of geology treated in more specialized courses through an analysis of those processes which have shaped some of the major Canadian geological regions. We will examine the structure. stratigraphy and petrology of mountain belts (Cordillera, Appalachians), Precambrian shield (Grenville, Churchill, Superior), and sedimentary hasins (East Coast shelf, Western Canada, syerdrup) in order to determine what processes, including plate tectonic processes, created them. Staff Instructor:

Format: Lecture 3 hours **GEOL 4350A** Prerequisite:

GEOL 4380A Advanced Geochemistry: Principles of crystal chemistry, isotope fractionation, thermodynamics and solution chemistry are applied to the investigation of hydrothermal solutions, as well as ground and surface waters. Geochemical aspects of ore formation, the exploration for economic mineral deposits, and environmental pollution are covered. Geochemical surveys, element dispersion in the near-surface environment, and the origin and evaluation of geochemical anomalies are also discussed. In the aboratory statistical methods of geochemical data processing are introduced using micro-computers. Instructor: D.B. Clarke

Lecture 3 hours/ Laboratory 3

hours

Prerequisites: GEOL 3010A, GEOL 3020B

GEOL 4390B Advanced Igneous Petrogenesis: Igneous rocks have an extremely large compositional range. Their only common characteristic is their former existence as magmas. This course is devoted to understanding the principles, and using the tools, of igneous petrogenesis to learn how the combination of a lew dominant source rocks, and a rich variety of processes, can account for the compositional diversity of igneous rocks. Examples from divergent plate margins will include mid-ocean fidge basalts, oceanic island basalts, plagiogranites, and ophiolite suites in general; examples from convergent plate margins will include island arc

tholeiites, and especially continental arc volcanic and plutonic suites (including granitoid rocks); and examples from within-plate tectonic settings will include magmatic rocks such as kimberlites, carbonatites, and anorogenic granites and rhyolites.

Text: P.C. Hess, Origins of Igneous

Rocks D.B. Clarke Instructor: Format: Lecture 3 hours

Prerequisites: **GEOL 3010A, GEOL 3020B** 

GEOL 4400B Advanced Metamorphic Petrology: Metamorphic rocks are considered as equilibrium systems. The role of fluids in metamorphism, metasomatism and mass transport, kinetics of metamorphic processes, microstructure, and textural development of metamorphic rocks are discussed. Laboratory projects and special topics are chosen to suit the students' interests.

Instructor: R.A. Jamieson Format: Lecture 3 hours

Prerequisites: **GEOL 3010A, GEOL 3020B** 

GEOL 4501A or B Basin Analysis: The course is designed to present advanced topics of current interest concerning regional and global patterns of sediment accumulation. Topics may include: sequence stratigraphy and continental margin evolution; stratigraphic and geochemical methods used in analysis of burial history; paleoflow patterns; and basinal geology in the context of plate-tectonic theory. This course is not offered every year. Consult department.

Instructor: R. Boyd Format: Lecture 3 hours

Prerequisites: GEOL 3301A and 3302B or

3300R

GEOL 4502A or B Micropaleontology and Global Change: This course provides a systematic study of major groups of microfossils (principally foraminifera, ostracoda and calcareous nannoplankton). Particular emphasis is placed on the distribution and ecology of recent microfossils. and on laboratory techniques for sampling and studying them. Quaternary paleo-oceanography and faunal distribution is examined based on knowledge of the tolerances of the living organisms. This class is not offered every year, consult timetable.

Instructor: D.B. Scott

Format: Lecture 3 hours/ Laboratory 3

Prerequisites: GEOL 3301A and 3302B or

3300R

GEOL 4503A or B Carbonate and Evaporite Petrology: This course deals with carbonate and evaporite depositional and diagenetic environments. Modern environments are surveyed from the deep sea to tidal flat and playa settings. Changes to these records and especially the

development of porosity are considered in the second half. This class is not offered every year; consult timetable.

Instructor: P.E. Schenk Format:

Lecture 3 hours/ Laboratories/Seminars 3 hours

Prerequisites: GEOL 3301A & 3302B or 3300R

GEOL 4510A/4511B Directed Reading: This class is intended to permit further study of a specific topic of interest, or to correct a deficiency in a student's programme.

Instructors: Staff

Format: As required

Prerequisite: Permission of Department

Department seminars are arranged during the term. Other specialized seminars are arranged on an ad hoc basis.

### Marine Biology

See entry in "Biology" section.

### Mathematics, Statistics and Computing Science

Location: Telephone:

Chase Building (902) 494-2572/2573

### **Chairperson of Department**

P.A. Fillmore

#### **Emeritus Professors**

M. Edelstein, MSc (Jerusalem), DSc (Technion-Haifa) A.J. Tingley, PhD (Minnesota)

#### **Professors**

J. Borwein, MSc, DPhil (Oxford)

P. Borwein, MSc, PhD (UBC) J.C. Clements, MA (UBC), PhD (Tor)

M.A.H. Dempster, MS, PhD (Carnegie-Mellon)

(jointly with Business Administration) C.A. Field, MSc, PhD (Northwestern)

P.A. Fillmore, MSc, PhD (Minnesota), FRSC

G. Gabor, MSc, PhD (Eotvos)

L.A. Grünenfelder, PhD (ETH Zurich)

R.P. Gupta, MSc (Agra), PhD (Delhi) (Director of Statistics)

P. Keast, PhD (St. Andrews)

K.J.M. Moriarty, MSc (Dal), PhD (Lond.) (Director of Computing Science)

R. Paré, MSc, PhD (McGill)

H. Radjavi, MA, PhD (Minnesota)

P.N. Stewart, MA (Berkeley), PhD (UBC)

W.R.S. Sutherland, MSc, PhD (Brown) S. Swaminathan, MA, MSc, PhD (Madras) 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.A. Dunn, MSc, PhD (Tor.) A. Farrag, MSc (SFU), PhD (Alberta)

B.W. Fawcett, MSc, PhD (McMaster) J.B. Garner, MSc, PhD (Nottingham) (jointly with

Community Health and Epidemiology) D. Hamilton, MA, PhD (Queen's)

C.S. Hartzman, MS (Purdue), PhD (Colorado) K.P. Johnson, MSc (Tor.), PhD (Brandeis)

J. Mulder, PhD (UBC)

R.J. Nowakowski, MSc, PhD (Calg.)

C.C.A. Sastri, MSc (Andhra), PhD (New York) (Director of Mathematics)

M.A. Shepherd, MSc, PhD (Western) K. Thompson, PhD (Liverpool) (NSERC University Research Fellow) (jointly with Oceanography)

#### **Assistant Professors**

K. Bowen, PhD (California) K. Dilcher, MSc, PhD (Queen's) K.E. Manchester, M.Sc., Ph.D. (Toronto) I.F. Putnam, PhD (Berkeley) (NSERC University Research Fellow)

A. Sedgwick, PhD (Tor.) (Co-op Director) B. Smith, MA (Calgary), PhD (Berkeley)

D. Tsang, MASc (TUNS), PhD (Penn)

#### Lecturers

E. Cameron, MA (Oxon) D. Trueman, MSc (Tor)

### Computer Systems Manager

D. Trueman, MSc (Toronto)

### **Learning Centre Director**

P. Stevens, MSc (Delft)

### Statistical Consultant

W. Stubson, BSc (Manitoba)

#### **Postdoctoral Fellows**

S. Czapor, PhD (Waterloo)

J. Castejon, PhD (London, OMC)

F. Garvan, PhD (Penn State)

F. Lamarche, PhD (McGill) M. Lamoureux, PhD (Berkeley)

S. Lou, PhD (Illinois)

J. Potvin, PhD (Colorado)

E. Vicari, PhD (Pisa)

#### **Visiting Professors**

D. Noll (Stuttgart)

B. Hartnell (SMU)

# Math, Stats, & Computing Science/Mathematics

D. Qing (Inner Mongolia) L. Skula (Masaryk)

## Adjunct Professor

H.S. Heaps, MA (Tor), LLD (St.FX) H.S. Picapy, BSc (Wales), MSc (Southampton) CR. Watters, MSc (Western), PhD (TUNS)

## Honorary Research Associates

M. Beattie (MEA)

P. Cabilio (Acadia)

F. Chipman (Acadia)

D. Ellis (DREA) y, Huse-Eastwood (Acadia)

R. Rosebrugh (MtA)

M. Taylor (Acadia)

## **Cross Appointment**

B. Eastwood (Community Health and Epidemiology)

Information concerning programmes and classes in Mathematics follows immediately below. For Computing Science or Statistics, please refer to the corresponding section of this Calendar.

### **Mathematics**

Location: Telephone:

Chase Building (902) 494-2572

### Director of Division

C.C.A. Sastri

#### **Faculty Advisors**

C.C.A. Sastri (Undergraduate)

R. Paré (Honours)

K. Johnson (Graduate)

A. Sedgwick (Co-op)

### General Interest Classes

The Division offers several classes for non-majors who would like to know something about Mathematics.

Math 1000/1010: This core calculus class is the starting point for any degree programme in the

Math 1001/1002: A class designed especially for B.A. students and others who wish to know something about the historical and cultural aspects

Math 1060: An introduction, through examples drawn from a wide variety of disciplines, to the basic ideas of statistics.

Math 1110/1120: Linear algebra and calculus arranged to meet the needs of commerce students, but of interest to anyone wishing a brief Introduction to either of these topics.

#### **Degree Programmes**

One full credit in Mathematics other than Mathematics 1001/1002 and 1110/1120 is required for a BSc degree.

#### **Honours in Mathematics**

The following programme is normally followed by students who plan to take honours in Mathematics. Entering students who have a strong interest or background in mathematics, or who contemplate taking honours, should enroll in Math 1500 and Math 1670/2670.

> Year 2: Mathematics 2130 and 2500 Years 3 and 4: Mathematics 3030. Mathematics 3500 and five additional classes at least two of which are numbered 4000 or above.

Students may choose programmes with a concentration in Applied Mathematics, Computing Science, Pure Mathematics or Statistics. Students wishing to concentrate in Computing Science should consider Combined Honours in Mathematics and Computing Science, and examine the separate Calendar entry for Computing Science. Students wishing to concentrate in Statistics should consider Honours in Statistics or Combined Honours in Mathematics and Statistics, and examine the separate Calendar entry for Statistics. All honours programmes must be approved by the Chairman. Students wishing to take an Honours degree concentrating in Applied Mathematics are advised to consider a programme similar to the following:

> Year 1: 1500R; 1670A/2670B; CS1400A; CS1410B; 2 elective classes Year 2: 2500R: 2130R: 2060A: 2080B: 2270B; (Co-op Seminar) and 1 1/2 elective classes

Year 3: 3500R; 3030R; 3110A; two of 3210A, 3300A, 3260B, an appropriate statistics class; 1 1/2 elective classes Year 4: 4400; the remaining two of 3210A, 3300A, 3260B, an appropriate statistics class; 1 1/2 other classes at the 4000 level; 2 elective classes.

Students wishing to take an Honours degree concentrating in Pure Mathematics are advised to consider a programme similar to the following:

> Year 1: 1500R; 1670A/2670B; CS1400A; CS1410B; 2 elective classes Year 2: 2500R; 2130R; another full mathematics class; 2 elective classes Year 3: 3500R; 3030R; another full mathematics class; 2 elective classes Year 4: 4010A; 4140A; three other full mathematics classes, at least one of which is at the 4000 level; 1 elective class.

It is recommended that the additional

mathematics classes include a statistics class, an applied class and a class in algebra, topology or complex variables.

Honours Comprehensive Examination: The Honours Comprehensive Examination in mathematics consists of a written paper of about 20-30 pages researched and prepared by the student during the spring term. The topic is decided on in conjunction with the supervisor of the Honours seminar. The paper is also presented to the seminar. The Honours Comprehensive Examination in statistics requires successful completion of Statistics 8880.

#### **Combined Honours**

Students interested in taking honours in mathematics or statistics and another subject as a combined programme should consult the chairman of the department through whom a suitable course of study can be arranged.

A combined honours programme may be appropriate for many. Students contemplating a combined honours course in mathematicsor statistics and another subject should, however, bear in mind that the work in either subject would probably be insufficient for admission to a regular graduate programme. A qualifying year would usually be necessary.

#### Advanced Major and Major in **Mathematics**

Students who plan to major in Mathematics should arrange a programme in consultation with the department.

For both the 15-credit major and the 20-credit advanced major in Mathematics, the following classes are required: Mathematics 2000(or 2480/2490 or 2500) and 2030/2040 (or 2130). In all other respects, the requirements of these programmes are as in Section 11 of the College of Arts and Science regulations.

Those students whose first registration in Arts and Science was for the academic year 87/88 or earlier should consult the calendar of the appropriate year.

Majors in Mathematics are strongly urged to include Computing Science 1400, 1410 as part of their programme.

Students wishing to concentrate in Applied Mathematics, Pure Mathematics or Statistics are advised to consider modelling their programmes on the first three years of the Mathematics or Statistics Honours programmes, after possibly replacing 2130R with 2030A and 2040B, 2500R with 2000R, or 2001A and 2002B, and 3500R with 3090A and 3100B.

Those students who wish to arrange inter-disciplinary programmes (with such fields as Physics, Chemistry, Biology, Engineering, Psychology and Economics) are invited to discuss their interests with the department.

Co-operative Education Programmes

The Co-operative Education Programme is an integrated programme of 8 academic terms and 4 work terms of relevant industrial/laboratory employment. The work terms, each of 4 months duration, are spent in industrial and laboratory positions. The work experience helps students see the applicability of their training in mathematics. statistics and computing science and helps them make intelligent career choices. Upon successful completion of the programme the student's transcript indicates that the programme was a cooperative one.

A Co-op degree normally takes 4 1/3 years. The co-op programmes are available either as an Advanced Major (20-credit) degree programme or as an Honours degree programme.

There are three Advanced Major Co-on programmes; one in each division of the Department.

There are four Honours Co-op programmes available within this Department, in the areas of:

- Mathematics
- Mathematics and Computing Science combined
- Computing Science
- **Statistics**

A Combined Honours Co-op degree. combining Mathematics or Computing Science or Statistics and another appropriate subject, is possible. Students interested in such a programme should consult the Director of Co-op Education. Eligibility: Students must be Canadian citizens or landed immigrants and demonstrate:

- sufficient academic potential
- successful completion of the classes M1000/1010 and CS1400/1410.

Students entering their second year of study may apply for admission to one of the Co-op

Work Terms: It is ultimately the responsibility of the student to arrange the work term. The Programme Director serves to co-ordinate the contacts between student and employer. Students are remunerated according to the employer's policies regarding permanent employees of similartraining and education. At the end of each work term, each student must submit an acceptable work report.

It is important that students realize that successful completion of the work terms is an integral part of the course of study. Indeed, the advantages of Co-op Education derive directly from the successful interplay of academic knowledge and practical implementation. Consequently the work terms are central to Co-op Education.

Work terms are each of four months duration. Work terms alternate with study terms. Sometimes two consecutive work terms are required in order to accommodate full-year classes. This requires prior approval of the Director of Co-op Education.

under normal circumstances, the following criteria apply:

- At least 3 academic terms must be completed before the first work term is begun
- In any twelve-month period (of full-time study) at least one academic term must be completed
- The last semester in the programme must be an academic term.

co-op Seminar: This is a special seminar arranged for the benefit of Co-op students. various topics of relevance to the work terms are discussed. The purpose of the seminar is to better prepare students for their work terms so that everyone involved in the work term -- the student, the employer and the University -- may benefit as much as possible.

Co-op students enrolled in their second year at Dalhousie must attend this non-credit seminar. Additional Information: For additional information, class selection advice, and entry into one of the Co-op programmes, contact the Director, Co-operative Education, Department of Mathematics, Statistics and Computing Science, Dalhousie University, Halifax, Nova Scotia, B3H

First-year students who are interested in a Co-op programme are urged to contact the Director before or during their first year for advice on class selection.

## Prerequisites and Performance

The prerequisites listed in the class descriptions indicate the mathematical background expected of students entering that class, but may be waived with the consent of the instructor. In addition to the listed prerequisites students must write a short preliminary performance test before enrolling in the following classes: 0010R, 1000A/B, 1060A/B, 1110B,& 1120A.

These preliminary tests are held regularly during the summer and during fall registration. Students are urged to make arrangements for taking these tests as soon as possible. Further information is obtainable by contacting the department or the Math Learning Centre (902-494-2484).

### Classes Offered

Class descriptions for Computing Science can be found in the calendar under Computing Science. Class descriptions for Statistics can be found in the calendar under Statistics.

Credit may not be obtained twice for the same class even if the numbers have been

Classes with the designation (MLC) are supported by the tutorial services of the Math Learning Centre.

Classes marked with an asterisk (\*) may not

be offered every year.

MATH0010R Pre-University Mathematics, "Classroom Version": This class does not count as part of the regular student class load. This class is designed for students who do not have the usual prerequisite for first-year math classes (i.e. N.S. Math 441), or for others who wish to strengthen their background in mathematics. The class begins with a review of algebra, use of variables, exponents, absolute value, factoring methods and solution of equations and inequalities. This leads to graphing and the functional approach which is the focus of the class. Functions studied include linear, quadratic, inverse, exponential, logarithmic and trigonometric. Throughout the year, there is strong emphasis on the use of mathematical models to solve application problems. Students completing this class should not only be adept at the mechanics of mathematics, but also have an understanding of the uses of these skills. After successful completion of this class, the student will have the necessary prerequisite for any first-year university mathematics, statistics or computing science class.

Instructor: E. Brennan

University Avenue.

Format: Lecture 3 hours, (non-credit

College, Centre for Continuing Studies, 6100

Students register and pay for this class at Henson

class), MLC Prerequisite: Performance test

MATH0010R Pre-University Mathematics. "Self-Paced Version": This class does not count as part of the regular student class load. This, as the name suggests, is a self-paced programme. There are no classes, but assistance is available during the day and evenings through the Mathematics Learning Centre. The material covered is the same as that of the "classroom version" of the course. Students sign up for a six month period and work at their own pace. After successful completion of this class the student will have the necessary prerequisite for any first-year university mathematics, statistics or computing science class. Students register and pay for this class at Henson College, Centre for Continuing Studies, 6100 University Avenue.

Instructor: E. Brennan

Format: Self paced, (non-credit class),

MLC

Prerequisite: Performance test

Note: Mathematics 1000 and Mathematics 1010 introduce the basic ideas of the calculus, and together constitute a solid foundation for study in the Sciences (Physics, Chemistry, Biology, etc.), as well as for further study in Mathematics. The class Mathematics 1000 is offered in both terms. Students who require one or both of these classes, but are uncertain of their ability to handle them, are invited to make use of the diagnostic and

remedial services offered in the Mathematics Learning Centre, located in the basement of the Chase Building.

MATH1000A/B/C Differential and Integral Calculus: A self-contained introduction to differential and integral calculus. The topics include: functions, limits, differentiation of polynomial, trigonometric, exponential and logarithmic functions, product, quotient and chain rules, applications of differentiation, antiderivatives and definite integrals, integration by substitution. A sequel to this class is Mathematics 1010.

Format: Lecture 3 hours, tutorial 1 hour, MLC

Prerequisite: Nova Scotia Mathematics 441 or

equivalent

Exclusion: Credit will be given for only one

of Mathematics 1000,1120 Limited to 80 per section

Enrolment: Limited to 80 per section

MATH1001A Mathematics for Liberal Arts
Students I: For students who wish to become
acquainted with mathematics as an art rather than
as a tool for the sciences. A selection of
elementary topics will be discussed with a view to
illuminating historical and cultural aspects of the
subject. Required work will include a series of
written reports on assigned readings and a major
essay. This class may not be used to satisfy the
B.Sc. mathematics requirement.

Format: Lecture 3 hours, MLC

Prerequisite: None

MATH1002B Mathematics for Liberal Arts
Students II: As 1001A above, but with a different
set of topics. Either one or both of 1001A and
1002B may be taken for credit.

Format: Lecture 3 hours, MLC

Prerequisite: None

MATH1010A/B Differential and Integral Calculus: A continuation of the study of calculus with topics including: techniques of integration, elementary differential equations and applications, Riemann sums, parametric equations and polar coordinates, sequences and series, Taylor series.

Format: Lecture 3 hours, tutorial 1 hour,

MLC

Prerequisite: Mathematics 1000

Enrolment: Limited to 80 per section

MATH1060A/B Introductory Statistics for Science and Health Sciences: For description see Statistics 1060.

Format: Lecture 3 hours, tutorial 1 hour,

MLC

Prerequisite: Nova Scotia Math 442 or

equivalent

Cross-listing: Statistics 1060A/B Enrolment: May be limited MATH1110B Finite Mathematics for Commerce This class provides an introduction to methods of finite mathematics with special emphasis on applications to business. Topics include linear equations, systems of linear equations, matrices, determinants, matrix inverses, linear programming including the simplex method, an introduction to nonlinear functions and the elements of the mathematics of finance. This class replaces half of the previous class Math 1100R. This class may not be used to partially satisfy the requirement that BSc students must have at least one full university class in mathematics.

Format: Lecture 3 hours, MLC

Prerequisite: Nova Scotia Mathematics 442 or

equivalent

Exclusion: Credit can be given for only one of Math 1110, Math 1100, and

Math 2030

MATH1120A Calculus for Commerce: This is an elementary calculus class with special emphasis on applications to business. Topics include functions, limits, rate of change, derivatives, one variable optimization and curve sketching, exponential functions, logarithmic functions, functions of several variables, Lagrange multipliers, elementary integration. This class replaces half of the previous class Math 1100R. This class may not be used to partially satisfy the requirement that BSc students must have at least one full university class in mathematics.

Format: Lecture 3 hours, MLC
Prerequisite: Nova Scotia Mathematics 442 or

equivalent

Exclusion: Credit can be given for only one of Math 1120. Math 1100, and

Math 1000

MATH1500R Calculus: This class is intended primarily for students who anticipate taking an honours programme in the physical or mathematical sciences. The topics of Mathematics 1000/1010 are covered, but in greater depth. Mathematics 1500 is equivalent as a credit to Mathematics 1000/1010.

Format: Lecture 3 hours, tutorial 1 hour Prerequisite: High standing in Nova Scotia

Exclusion: Mathematics 441 or equivalent
Credit can be given for only one
of Mathematics 1000/1010 and

1500

MATH1670A Discrete Structures I: This class together with Math 2670 offers a survey of those areas in Mathematics which may be classified as dealing with discrete structures. Areas covered include set theory, mathematical induction, number theory, relations, functions, algebraic structures and introductory graph theory. The topics to be discussed are fundamental to most areas of Mathematics and have wide applicability to Computing Science.

Format:
prerequisite:

Lecture 3 hours Nova Scotia Mathematics 441 or

equivalent

Cross-listing: Computing Science 1670

MATH2000R Intermediate Calculus: This class deals with the calculus of functions of several variables. Topics include: continuous functions and their fundamental properties, partial derivatives and applications, multiple integrals, geometry of Euclidean vector spaces with emphasis on three dimensions, elementary differential equations.

Format:
Prerequisite:
Exclusion:

Lecture 3 hours, MLC Mathematics 1010

Students who take Math 2000 may not also receive credit for 2400 or

2480/2490

MATH2030A Matrix Theory and Linear Algebra This class, together with Mathematics 2040, is a self-contained introduction to Matrix Theory and Linear Algebra. Topics include: vector spaces, linear transformations, determinants, systems of linear equations. Students should note that this is a second-year class and, although it has no formal first-year prerequisites, mathematical maturity and an ability to handle formal proofs at the level of a student who has completed Mathematics 1000 is expected.

Format: Lecture 3 hours, MLC
Prerequisite: Nova Scotia Mathematics 441 or

equivalent

Exclusion: Credit can be given for only one

of Math 1110, Math 1100 and

Math 2030

MATH2040B Matrix Theory and Linear Algebra II: This class is a continuation of Mathematics 2030. Topics include: similarity, diagonalization, inner product spaces.

Format:
Prerequisites:
Exclusion:

Lecture 3 hours, MLC
Mathematics 2030 and 1000
No more than one credit can be given for Mathematics 2030/2040

and 2130

\*MATH2050R Problems in Geometry: This class is organized around a sequence of stimulating geometrical problems. A set of approximately 20 challenging problems is given to the students at the beginning of the year. The students are expected to attempt these problems throughout the year. Good students should be able to do some of these problems and are encouraged to present their solutions to the class for extra credit on the final grade. These problems are chosen so that their solutions use a wide variety of geometrical ideas (from Combinatorial, Projective, Inversive, Transformational, Topological, Differential and Non-Euclidean Geometry). Lecture 3 hours Format: Prerequisite: Mathematics 1010

\*MATH2051 A or B Problems in Geometry: A half class on such material from Mathematics 2050R as time permits.

Format: Lecture 3 hours
Prerequisite: Mathematics 1010

MATH2060A Introduction to Probability and
Statistics I: For description see Statistics 2060.
Format: Lecture 3 hours, MLC
Prerequisite: Mathematics 1000/1010
Cross-listings: Same as STAT 2060A

MATH2080B Statistical Methods For Data Analysis & Inference: For description see Statistics 2080.

Format: Lecture 3 hours, MLC
Prerequisite: Math/Statistics 1060
Cross-listings: Same as Statistics 2080B

MATH2130R Linear Algebra: For students who are interested in a broader and more basic understanding of the theory and techniques of linear algebra than is provided by 2030 and 2040. Topics include: the material of 2030 and 2040, canonical forms including the Rational Form and Jordan Form, inner product spaces including the Spectral Theorem for normal operators on finite dimensional vector spaces, linear programming and further topics in pure and applied linear algebra. This class provides an excellent background for further study in Mathematics.

Format: Lecture 3 hours
Prerequisite: Mathematics 1010
Exclusions: Only 1 credit can

Only 1 credit can be given for MATH 2030-2040 & 2130

\*MATH2300B Introduction to Mathematical Modelling Using Algebra: This class is an introduction at an elementary level to the applications of mathematics in the physical and life sciences and in business and management. The class material will include the study of discrete models in biology and physiology as well as an introduction to the application of statistical and operational research methods in science and industry. Areas from which specific problems are drawn include resource management. transportation problems, computer simulation, elementary probability theory, decision processes and game theory. The use of user-friendly computer software packages such as MATLAB, LINDO and MAPLE to aid in the solution of these specific problems will be examined (no prior experience with computers is necessary). Lecture 3 hours, MLC Format:

MATH2400B Vector Calculus: This class provides a careful development in three-dimensional space of the following topics: partial derivatives, gradients, Jacobians, Hessians, Taylor's theorem, iterated integrals, and integral

Math 2030

Corequisite:

theorems. The geometrical and physical applications in three-dimensional space, including the following, will be stressed throughout the class; Netwon's equations - dynamics of systems of particles (including linear and angular momentum, moments of a vector, moments of inertia), scalar and vector fields and the grad, div and curl operators, cartesian coordinates - rotating axes curvilinear coordinates and their applications (coriolis and centripedal forces).

Format: Prerequisite:

Lecture 3 hours

Exclusion:

Mathematics 1010 or 1500 Credit will not be given for more than one of Mathematics 2000,

2400 and 2480-2490

MATH2480A/2490B Intermediate Calculus for the Engineering Programme: The topics for these two half classes include functions of several variables, partial derivatives, multiple integrals, indeterminate forms, improper integrals, infinite series, power series, Taylor and MacLaurin series, matrices, determinants, systems of linear equations, complex numbers, elementary ordinary differential equations.

Format: Prerequisite:

Lecture 3 hours, MLC Mathematics 1290 or 1010

Exclusion: Students who take Math 2480/2490

may not also receive credit for

2000 or 2400

MATH2500R Introductory Analysis: For honours students and other serious students of mathematics. This class forms the first half of a 2-year sequence in analysis and advanced calculus; Mathematics 3500 completes the sequence. Topics include: real and complex numbers, set theory, elementary topology of Euclidean space, limits and continuity, differentiation, the Riemann integral, power series, series of functions.

Format: Lecture 3 hours

Prerequisite: Good standing in Mathematics

\*MATH2540A Basic Set Theory: An introduction to the basic topics of set theory, including equivalence relations, order, recursion, the axiom of choice, ordinals and cardinals.

Format: Lecture 3 hours Prerequisite: Mathematics 1000

\*MATH2600 A or B Theory of Interest: A detailed examination of the theory of simple and compound interest. The syllabus includes the material on which the theory of interest portion of Examination 4 in the Society of Actuaries examination series is based. Someof the topics are: nominal and effective rates of interest and discount, force of interest, annuities, perpetuities, price of bonds, callable bonds, special topics. This class should appeal to students in mathematics, economics and commerce. Students interested in an actuarial career should take this class and are

urged to consult the department for guidance in class selection and additional information. Lecture 3 hours, MLC Mathematics 1010 or 1110 Prerequisite:

MATH2670B Discrete Structures II: This class continues Math1670. This course covers some basic concepts in discrete mathematics which are of particular relevance to students of computer science, engineering, and mathematics. The topics to be covered will include: Solution of Recurrence Relations, Generating Functions, Modular Arithmetic, Chinese remainder theorem, Trees and graphs, Finite state machines, Groups and rings, Boolean algebras.

Lecture 3 hours Format: Math 1670 Prerequisite:

Same as Computing Science Cross-listing:

2670B

\*MATH2800 A or B Applied Mathematics for the Life Sciences: This class is intended as a preparation for the mathematical aspects of advanced classes in ecology, genetics and physiology and is designed primarily for honours students in the biological sciences. The topics to be covered include complex numbers, linear algebra, difference equations and differential equations. Students are introduced to each topic through examples drawn from appropriate areas of biology and physiology. Computer software packages such as MINITAB, MATLAB and MAPLE are used to solve specific problems. This class is not given every year and students interested should consult the department. Students interested in the applications of mathematics should also consider Mathematics 2300 and/or Mathematics 3260.

Lecture 3 hours, MLC Format: Prerequisites: Mathematics 1000 and Biology

1000

MATH3030R Abstract Algebra: In this first class in abstract algebra the following topics are treated: groups, sub-groups, factor groups, homomorphisms, rings, ideals, Euclidean domains, polynomial rings, fields, unique factorization, irreducible polynomials, Sylow theorems, solvability of polynomial equations, Galois theory, and the Jordan canonical form.

Format: Lecture 3 hours

Mathematics 2040 or 2130 Prerequisite:

\*MATH3040 A or B Metric Spaces and Elementary Topology: Topics include: metric spaces: bounded-, totally bounded-, compact- and complete sets in metric spaces; Lipschitz and contraction mappings; topological spaces; open and closed sets, bases; continuity, compactness, connectedness.

Lecture 3 hours Format:

Mathematics 2000 and 2130 (or Prerequisites:

MATH3050R Differential Geometry and Tensor analysis: The material consists of two parts. The first part discusses the theory of curves and surfaces in three-dimensional Euclidean space. Topics include: theory of curves, surfaces, first and second fundamental forms, Gaussian and mean outvature, formulae of Weingarten and Gauss, geodesic curvature and geodesics. The second part onsists of an introduction to Riemannian cometry, and, if time permits, an introduction to general relativity as an application of Riemannian geometry. Topics include: foundations of tensor calculus, differentiable manifolds, foundations of Riemannian geometry, absolute differentiation and connexions.

Lecture 3 hours Format:

Prerequisites: Mathematics 2000 and 2130 (or

MATH3070 A or B Theory of Numbers: The following topics are discussed: congruences and residues; elementary properties of congruences; linear congruences; theorems of Fermat, Euler and wilson: Chinese remainder theorem; quadratic residues; law of quadratic reciprocity; Legendre, lacobi and Kronecker symbols, arithmetic functions; algebraic fields; algebraic numbers and integers; uniqueness of factorization, definition and elementary properties of ideals; ideal classes and dass number.

Lecture 3 hours Format: Prerequisite: Mathematics 2040

MATH3080 A or B Introduction to Complex Variables: An introduction to the basic elements of complex analysis. Topics include: complex numbers, functions, differentiation and integration in the complex plane, some special mappings, series in general. Taylor and Laurent Series. residues, some principles of conformal mapping theory.

Lecture 3 hours Prerequisite: Mathematics 2000

MATH3090A Advanced Calculus I: An introduction to Fourier Series. Topics covered include half range expansions, expansions on other intervals, convergence theorems, differentiation and integration of Fourier Series and the Complex form of Fourier Series. Also an introduction to special functions, including Gamma and Beta functions and orthogonal polynomials and some of their properties is given. Additional topics covered include some implicit function theorems and an introduction to transformations.

Lecture 3 hours

Prerequisites: Mathematics 2000 (or 2200) and

Exclusion: Credit cannot be given for Math

3090A and Math 3500

MATH3100B Advanced Calculus II: Topics covered include some properties of functions defined by integrals: differentiation under the integral sign, tests for convergence of improper integrals, improper multiple integrals and functions defined by improper integrals. Also considered is the Fourier integral and various other integral transforms, a review of multiple integrals and vector field theory. Green's, Stokes' and the divergence theorems and related matters are also considered.

Format: Lecture 3 hours Prerequisite: Mathematics 3090

**Exclusions:** 

Only 1 credit can be given for Mathematics 3500 and 3100B.

MATH3110A Differential Equations: One of the aims of this class is to give students the ability to analyze and solve a number of different types of differential equations. Wherever possible, applications are drawn from the fields of physics, chemistry, biology, and other areas. The class is intended mainly for mathematics students interested in applications and for science students who wish to be able to solve problems arising in their major areas of interest.

Format: Lecture 3 hours, MLC Prerequisite: Mathematics 2000

MATH3120B Differential Equations: The topics discussed are of great importance to any student interested in applied mathematics. Areas include Fourier series, orthogonal polynomials, Sturm-Liouville problems, the classical partial differential equations, and some applications to physics, chemistry and engineering.

Lecture 3 hours Format: Mathematics 3110 Prerequisite:

MATH3170A Introduction to Numerical Linear Algebra: For description see Computing Sciences 3170A.

Lecture 3 hours Format:

Mathematics 1010, 2030 and Prerequisites: Computing Science 1410

Same as Computing Science Cross-listing:

3170A

\*MATH3210B Introduction to Numerical Analysis: Some more advanced aspects of numerical linear algebra, including the Power Method and the QR Algorithm are examined. Various acceleration procedures for iterative processes are examined. Several forms of interpolating polynomials, Newton, Lagrange and Hermite are considered. Finite differences are also introduced. Numerical differentiation and integration is examined. In particular, interpolatory, Gaussian, Romberg and adaptive quadrature are discussed, and error estimates considered. Polynomial splines and some of their properties are introduced. Methods for solving nonlinear equations including the Newton-Raphson method are considered. Special

attention is paid to finding the roots of a polynomial. Throughout, the difficulties of implementing the various methods are discussed, and illustrated via assignments. Finally, some indication of the difficulties involved in multidimensional numerical analysis is given.

Lecture 3 hours Format:

Mathematics 2270, 2000 (or 2200, Prerequisites:

2500)

Same as Computing Science Cross-listing:

3210B, and previously part of

\*MATH3220B Numerical Solutions of Ordinary Differential Equations: Initial Value Problems are considered. Various methods, including Runge-Kutta and Predictor- Corrector are examined. The convergence and stability of the numerical methods is investigated and propagated error bounds and estimates sought. Also considered are starting techniques, variable order and/or variable step length strategies and automatic error control. Systems of equations and Stiff equations are discussed. Various methods for solving Boundary Value Problems (e.g. shooting methods and collocation are also discussed). Throughout, the difficulties of implementing various methods are discussed and illustrated via assignments and the use of various computer packages. A brief introduction to the numerical solution of Partial Differential Equations may also be included.

Lecture 3 hours Format:

Prerequisites: Mathematics 3110, 3210, 3090 (or

concurrent registration in 3500.)

\*MATH3230B Applied Approximation Theory: A review of orthogonal polynomials and their properties is given, and basic concepts, function norms, and orthogonal systems introduced. The best approximation to a function in the Euclidean norm is obtained. The Weierstrass Approximation Theorem is given and Runge's phenomenon discussed. We also consider characterizing the best approximation in the uniform norm and methods for obtaining this best approximation. Economization of power series is also discussed. Fourier approximation is discussed, and the Fast Fourier Transform is examined. An introduction to Rational and Padé approximation is given and these techniques are compared with polynomial approximation techniques. Throughout, the difficulties of implementing the various methods is discussed and illustrated via assignments.

Lecture 3 hours Format:

Prerequisites: Mathematics 3210, 3090 (or concurrent registration in 3500)

\*MATH3260 A or B Introduction to Mathematical Modeling Using Differential Equations: This class is an introduction to the mathematical modelling and analysis of physical systems using difference equations, intermediate

level calculus and differential equations. The emphasis is on the formulation and solution of problems from science and technology using the theory and methods of Math 2000 and Math 3110 Topics covered will include dimensional analysis celestial mechanics, analysis of traffic flow, tidal bores, the mathematics of music and optimal control problems from the theory of economics Lecture 3 hours Format:

Math 3110 Corequisite:

MATH3300A Optimization I: This class is an introduction to the concepts and applications of linear and nonlinear programming. Topics include the simplex method for linear programming. duality and sensitivity analysis, convex programming, Kuhn-Tucker and Lagrange multiplier conditions, numerical algorithms for unconstrained and constrained problems. Some of these topics are illustrated by means of interactive computer packages.

Lecture 3 hours Format: Prerequisites: Mathematics 2000, 2040

MATH3310B Optimization II: This class continues the study of the topics in 3300. Additional topics to be covered include network flow theory, graph theoretic matching problems. shortest route problems, discrete dynamic programming models, and combinatorial optimization with emphasis on integer programming problems.

Lecture 3 hours Format: Prerequisites: Mathematics 2000, 2040

\*MATH3320 A or B Applied Group Theory: This interdisciplinary half-class is intended for third and fourth-year undergraduate and first-year graduate students in Chemistry, Mathematics and Physics, With some additional reading in Physics, it is equivalent to Physics 4480A. Topics include: review of matrices, fundamentals of groups, normal subgroups, homomorphisms, representations, character, orthogonality, symmetry groups in crystallography, role of symmetry groups in quantum physics and chemistry, normal modes and molecular vibrations.

Format: Lecture 3 hours Prerequisites: Mathematics 2000, 2030

\*MATH3330 A or B Graph Theory and Combinatorics: The following topics are discussed: elements of graph theory, paths and cycles, Eulerian graphs, trees, planar graphs and the Euler polyhedral formula, Hamiltonian graphs, chromatic numbers, the five-colour theorems; items to be selected from the following topics to suit class: graphs and matrices, graphs and groups extremal problems, and enumeration problems.

Format: Lecture 3 hours Mathematics 2000, 2040 Prerequisites:

MATH3340 A or B Regression and Analysis of variance: For description see Statistics 3340.

Lecture 3 hours Format:

prerequisites: Statistics 2080, Mathematics 2030, and Math 1010 or Statistics 2060

Same as Statistics 3340

MATH3360 A or B Probability: For description see Statistics 3360.

Lecture 3 hours Format:

Cross-listing:

Prerequisites: Statistics 2060 and Mathematics

Same as Statistics 3360 cross-listing:

WATH3380 A or B Sample Survey Methods: For description see Statistics 3380.

Lecture 3 hours Format: Prerequisites: Statistics 2060

Cross-listing: Same as Statistics 3380

MATH3460 A or B Intermediate Statistical Theory: For description see Statistics 3460.

Lecture 3 hours Format: Prerequisites: Statistics 3360

Same as Statistics 3460 Cross-listing:

MATH3500R Intermediate Analysis: Mathematics 3500 continues the analysis sequence begun in Mathematics 2500. Topics include: number systems, metric spaces, compactness, continuous functions on metric spaces, Stone-Weierstrass theorem, Arzela-Ascoli theorem, sequences and series of functions and their properties, inverse and implicit function theorems, extrema, co-ordinate transformations.

Lecture 3 hours Format: Mathematics 2130, 2500 Prerequisites: **Exclusions:** Credit cannot be given for both

Mathematics 3500 and 3090A, or for both Math 3500 and 3100B

MATH4010/5011 A or B Introduction to Measure Theory and Integration: A discussion of Lebesgue's theory of measure and integration on the real line. The topics include: the extended real number system and its basic properties; the definition of measurable sets, Lebesgue measure and the existence of non-measurable sets; the Lebesgue integral; differentiation of monotonic functions (e.g. the Cantor function), absolute continuity, the classical Lebesque spaces, Fourier

Format: Lecture 3 hours Prerequisite: Mathematics 3500

MATH4020/5021 A or B Analytic Function Theory: A second half-class in complex function heory. Topics include: review of analytic complex functions including topological properties of the plane, Mobius mappings, exponential, logarithmic, higonometric and related functions, integration and the Cauchy theorem. Cauchy's integral formula, residues, harmonic functions, analytic

continuation, entire and meromorphic functions, some results of conformal mapping, including the Riemann mapping theorem.

Format: Lecture 3 hours

Mathematics 3080 and either Prerequisites:

3100B or 3500

MATH4030/5031R Advanced Abstract Algebra: This second class in abstract algebra deals with the structure of groups, rings, fields and modules.

Topics which may be discussed include the Sylow theorems, tensor products, Ext and Tor, modules over a principal ideal domain and Galois Theory.

Lecture 3 hours Format: Prerequisite: Mathematics 3030

\*MATH4050/5051R Introduction to Algebraic Geometry: An introduction to the basic concepts of algebraic geometry.

Format: Lecture 3 hours Prerequisite: Mathematics 3030

\*MATH4080/5080 A or B Statistical Analysis of Spatially Coherent Systems: For description see Statistics 4080.

Format: Lecture 3 hours

Prerequisite: Stats 3460 or permission of

instructor

Cross-listing: Same as Statistics 4080A/B

MATH4090/5090 A or B Probability: A mathematically rigorous treatment of probability theory in Euclidean space. Topics include the definitions and properites of random variables and their distribution functions, various convergence concepts, the Borel-Cantelli lemma, weak and strong laws of large numbers, characteristic functions, central limit theorems. Although the necessary measure theory is introduced, a previous analysis class is an asset.

Format: Lecture 3 hours

Prerequisite: Mathematics 3360 and a third

> year analysis class Same as Statistics 4090

\*MATH4130/5131 A or B Analysis of Algorithms: See class description for CS 4130A/B.

Format: Lecture 3 hours

Cross-listing:

Prerequisites: CS 3690 (with a grade of C-- or

better)

Cross-listing: Same as Computing Science 4130

\*MATH4140/5141 A or B Introduction to Functional Analysis: An introduction to the basic principles of functional analysis including the following topics: infinite dimensional vector spaces, normed spaces, inner-product spaces, Banach and Hilbert spaces, linear and continuous linear functionals, the Hahn-Banach Theorem, the principle of uniform boundedness, dual spaces, weak\* topology, and the Alaoglu theorem, the open mapping and closed graph theorems, and consequences and applications.

Format:

Lecture 3 hours

Prerequisites: Mathematics 2130 and 3040 or

\*MATH4150/5151A/B Functional Analysis:

Topics include: topological vector spaces, locally convex spaces, normability, function spaces, strict convexity, uniform convexity, reflexive spaces, support functionals, geometry of convex sets and other topics.

Format: Lecture 3 hours Prerequisite: Mathematics 4140

\*MATH4160/5161 A or B Operator Theory: An introduction to the theory and applications of continuous linear operators on Hilbert spaces, culminating with the spectral theorem, and including such topics as spectrum; adjoint; symmetric, self-adjoint, unitary, and normal operators; polar decomposition; differential and integral operators; C\* algebras; Gelfand's Theorem; and the spectral theorem. Lecture 3 hours Format:

Prerequisites: Mathematics 4010 and 4140

\*MATH4170/5171 A or B Introduction to General Topology: An introduction to topological spaces, and includes the following topics: classification in terms of cardinality of bases, separation, etc., product spaces, Tychonoff theorem, compactness, compactifications, Tychonoff spaces, metrization. Format: Lecture 3 hours

Prerequisite: Mathematics 3040 or 3500

\*MATH4180/5181 A or B Introduction to Algebraic Topology: An introduction to algebraic topology and including the following topics: homotopy type and the fundamental group, geometry of simplicial complexes, homology theory of complexes, chain complexes, homology groups for complexes, subdivision, induced homomorphisms, axioms for algebraic topology, singular homology, the singular complex, properties of cell complexes.

Format: Lecture 3 hours Prerequisite: Mathematics 4170

\*MATH4190/5191 A or B Differential Equations: Mathematics 3120 is recommended. Topics covered include existence and uniqueness theorems, continuity of solutions, Floquet theory, autonomous differential equations and their relation to dynamical systems and flows, periodic solutions and the Poincaré-Bendixson theorem.

Lecture 3 hours Format: Prerequisites: Mathematics 3500 (3090 and 3100) and 2030/2040 or 2130

\*MATH4200/5201 A or B Differential Equations -Qualitative Theory: Qualitative theory is concerned with what can be determined about the phase-portrait and the general behaviour of solutions of differential equations even though

those solutions are not explicitly exhibited. Topics are selected from Liapunov stability theory, stable and unstable manifolds of singular points and periodic solutions, classification of plane singular points, structural stability, differential equations on manifolds and Hamiltonian systems. Various equations occurring in applications are qualitatively analysed. The precise topics and equations covered depend on the specific interests of the instructor and the students.

Lecture 3 hours Prerequisite: Mathematics 4190

\*MATH4220/5221 A or B Introduction to Partial Differential Equations: This class is the first half of a two term sequence designed to introduce the student to the theoretical and numerical aspects of partial differential equations. Topics to be covered include: review of the theory of ordinary differential equations, classification of partial differential equations, solution of first order equations, the diffusion equation and random walk, Fourier Series and transforms, generalized functions, eigenfunction expansions.

Lecture 3 hours Format: Prerequisite: Mathematics 3110

\*MATH4230/5231 A or B Partial Differential Equations: This class continues the study of partial differential equations begun in 4220A. Topics to be covered include: The Rayleigh-Ritz method, Green's Functions, finite difference methods of solution, an introduction to the finite element method.

Format: Lecture 3 hours Prerequisite: Mathematics 4220

\*MATH4270/5271 A or B Numerical Software: See class description for CS 4270 A/B. Lecture 3 hours Format:

CS 3210 (with a grade of C-- or Prerequisite: better)

Cross-listing: Same as CS 4270

\*MATH4300/5301 A or B Optimal Control Theory and Applications: Initially the classical calculus of variations is studied and the sufficiency conditions emphasized. A constructive solution of the Euler equations is presented. Then the modern theory of optimal control is developed using techniques of mathematical programming. This approach is applied to a variety of problems such as economic growth theory, inventory control and regulator problems. Numerical methods are also presented.

Format: Lecture 3 hours Prerequisite: Consent of instructor

\*MATH4310/5310 A or B Nonlinear

Programming: A complete treatment of the mathematical theory which underlies the general problem of optimization of a real-valued function subject to a system of constraints. Examples and

exercises of an Operations Research nature are used to illustrate the theory. The material studied in this class is a basic prerequisite for in this and contributing to recent developments in mathematical programming. Lecture 3 hours Format: Prerequisite: Consent of Instructor

MATH4400/5401 A or B Mathematical Modelling in Science and Industry: This class is concerned with the construction, analysis and interpretation of mathematical models in the natural sciences with an emphasis on industrial applications. Specific applications of potential theory, diffusion phenomena and wave propagation will be examined in detail. A brief introduction to the calculus of variations approach to the optimal control of dynamical systems will be given and some recent applications discussed. Lecture 3 hours

required Mathematics 3110, Prerequisites: recommended Mathematics 3120

\*WATH4660/5660 A or B Automata and Computability: For description see Computing

Lecture 3 hours Format:

Computer Science 1410; a 3000 Prerequisites: level Mathematics class such as

Same as Computing Science 4660 Cross-listing:

MATH8700 (non-credit) Co-op Seminar I

MATH8891 Co-op Work Term I

MATH8892 Co-op Work Term II

MATH8893 Co-op Work Term III

MATH8894 Co-op Work Term IV

## Meteorology

A one-year diploma programme in meteorology is available to qualified students with a BSc degree in Physics or a related subject. For details see the under "Physics"

### Microbiology

Location:

Sir Charles Tupper Medical Building, 7th Floor

Telephone: (902) 494-3587

**Head of Department** K.B. Easterbrook

**Undergraduate Advisor** D.B. Stoltz (494-2590)

#### **Professors**

R.G. Brown, PhD (Rutgers), (Major Appointment

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), (Diagnostic Virology; Interferon)

D.E. Mahony, PhD (McG), (Bacteriology; Bacteriocins, Toxins and Plasmids of Clostridia) K.R. Rozee, PhD (Dal), Dip.Bact. (Tor.), (Viral

Pathogenesis; Epidemiology) (on leave)

D.B. Stoltz, PhD (McM), Undergraduate Studies Coordinator, (Biology of Parasitic Insects; Insect Virology)

C. Stuttard, PhD (Dublin), (Microbial Genetics) L.C. Vining, PhD (Cantab), (Major Appointment in Biology)

#### **Associate Professors**

R.I. Carr, MD (Tor.), PhD (Rockefeller), Prof., Medicine (Rheumatology) (Immunoregulation; CNS Immune System Interactions) R. Rajaraman, PhD (Dal), Asst. Prof., Medicine, (Cancer Cell Biology, Cell-Extracellular Matrix Interactions)

#### **Assistant Professors**

M.T. Dalton, MBChB (Ireland), (Clinical Bacteriology)

G. Faulkner, PhD (Dal), (Ultrastructural Analysis of Infection and Cancer Cells) D.J.M. Haldane, MBChB (Dundee), FRCP(C),

(Medical Mycology and Parasitology)

P.S. Hoffman, PhD (Virginia Polytechnic Institute and State University) (Microbial Pathogenesis) (Graduate Studies Coordinator)

D.W. Hoskin, PhD (McG), (Immunology; Natural Suppressor Cells; MHC-Unrestricted Killer Cells)

#### Introduction

The field of Microbiology includes the activities of viruses and cellular organisms such as bacteria, fungi, protozoa and algae. Many viruses and microorganisms are potentially pathogenic, and so cannot be considered in isolation; thus,

immunology constitutes a major focus of study too. The Microbiology programme is designed to provide the student with an understanding of microorganisms -- their structures, functions, diversity, and contributions to the biosphere -- and attempts to provide a basic training which may serve as preparation for graduate or professional work in all fields of microbiology. The Department of Microbiology, located in the Sir Charles Tupper Medical Building and in the D.J. Mackenzie Laboratories, offers microbiology programmes in the Faculties of Medicine, Health Professions, Dentistry, Science and Graduate Studies.

#### **Degree Programmes**

There is no 3-4 year programme leading to a Microbiology major; however, a 4-year "advanced major" programme is now in place. Students wishing to include Microbiology in other programmes should take Microbiology/ Biology 2100, which is a prerequisite for most other microbiology classes offered at Dalhousie. Students interested in an honours programme (see below) should consult the departmental advisor, D.B. Stoltz, preferably prior to registration for 2nd-year classes.

#### **BSc** with Honours in Microbiology

This programme is recommended for students wishing to acquire the strongest possible background in the discipline of microbiology. It is particularly suited to individuals who may be interested in pursuing an academic or professional career in microbiology. Students applying for admission to this programme must have obtained a grade of B- or better in both Biology 1000 and Microbiology 2100. Interested students are asked to seek advice from the undergraduate advisor.

Year 1: Biology 1000, Chem 1010, "Writing class," Math 1060A/1070B or 1000A/1010B, and one minor or

Microbiology 2100A/B and if possible an additional 1/2 class in microbiology\*, Biology 2020 and 2030, Biochemistry 2200B, Chemistry 2400, and minor/elect6ive classes.

Microbiology, three classes\*; Biochem 3400B; and minor/elective class. See

Year 4: Microbiology 4900 (Honours research and thesis); Microbiology, 2-21/2 classes\*; and minor/elective classes.

\* To be chosen from any of the classes listed below (see note 2).

Microbiology 3033A Microbial Genetics 3114A Virology 3115A/4115B Immunology 3118B Medical Bacteriology 4022A/B Microbial Ultrastructure Project

4024A Microscopy

4026A The Mammalian Cell

4027B The Cancer Cell

4037A Genetics of Industrial Bacteria

4038B Molecular Biology of Yeast

4114B Topics in Basic and Medical Virology

4118A Molecular Pathogenesis

4301A Cellular Immunology

4302B Advanced Immunology

4601A Laboratory Techniques in Molecular Biology

**Biochemistry** 

4403A Structural Organization and Replication of

4404B Gene Expression

4603A Advanced Laboratory in Biochemical

**Techniques** 

4802R Principles of Instrumentation

Biology

3100B Marine Microbiology

3117A Yeasts and Fungi

3120A Advanced General Microbiology

3322B Parasitology

4102A Developments in Biotechnology

4113B Biology of the Prokaryotic Cell

#### Notes:

- In general, "microbiology" has been used here in the sense of referring to the discipline, rather than the department.
- Required classes: note that the 9 classes required beyond the 1000-level consist of Microbiology 2100, Biology 2020, 2030, Biochemistry 2200B and 3400B, Chemistry 2400 and 51/2 additional classes in the discipline of microbiology.
- Core classes: all students are required to take at least one half-class at the 3-4000 level in each of the following core subjects: bacteriology, virology, immunology, and microbial genetics. In these "core" classes, students must normally maintain a B average, with no grade less than B-. (Note: Microbiology 2100 is also considered to be a core course.)
- The minor can be taken in any subject (except Microbiology); this includes Biology.
- In year 4, the honours research thesis can be done in either the Microbiology or Biology Department, and indeed appropriate supervisors may exist in other departments as well (consult undergraduate advisor), but the work must be microbiological in content.
- Students should be aware of Calendar regulation 22.1, and note further that certain advanced classes (eg 4114B) require that a particular grade be achieved in the prerequisite class.

Note that Calendar regulation 11.3 requires that of the 15 classes taken in years 2 to 4. 2.4 must not be in the major field.

RSc with Combined Honours in Microbiology and Biochemistry

Students in this programme complete core dasses offered by both departments (Biochemistry 2200B, 3200A, 3300B, and 3400B; Microbiology 2100, 3033A, 3114A, 3115A and 3118B, together with Chemistry 2400 (minimum grade: C). Again, 3118B may be replaced by any half class in Bacteriology. Students must also take Biology 2030 and 2020. The remaining 5 credits in niochemistry and Microbiology must include at least one full credit in each discipline (Dept.) at the 4000 level, exclusive of Biochemistry 4602 or Microbiology 4900. Thesis research may be done in either department. Advisors: D.B. Stoltz (Microbiology); J.A. Verpoorte (Biochemistry).

#### **RSc** with Combined Honours in Microbiology and Biology

Students in this programme must complete the core requirements of each department. Students are required to maintain an average grade of B in core classes, with no grade lower than B. Biology 1000 should be taken in year 1. and Microbiology 2100 in year 2. Research thesis work can be carried out in either Department. Advisors: D.B. Stoltz (Microbiology); G.S. Hicks (Biology).

#### Classes Offered

Note: Due to the combined pressures of student numbers and a dearth of available space, the names of students not appearing on the first day of class may be deleted from class lists; students are therefore advised that being signed into the class is no guarantee of late admission.

MICR 2100A/B Introductory Microbiology: An introduction to the basic concepts of microbiology through lectures, laboratory sessions, and demonstrations. Topics include the structure, ecology, growth, genetics and physiology of microorganisms, as well as basic immunology. This class is a prerequisite for all the other microbiology classes listed below, with the exception of 3020. Lab section assignments are made during the first lecture period. Consequently, due to limits in lab space, students not attending that lecture may be denied admission to the class EVEN IF THEY ARE ALREADY REGISTERED; in particular, students must be registered prior to admission to laboratory periods, beginning in the second week of each term. Students wishing to repeat the class must have approval to do so from the Instructor. It should be noted that students wishing to acquire extra experience in microbiology could take 2100A followed by Biology 3100B, and/or

Microbiology 3118B in the same academic year. Instructors: D.B. Stoltz (class coordinator); J.A. Novitsky, J. Breckenridge (instructor)

Format: lecture 2 hours, lab 3 hours Prerequisite: a grade of B- or better in

Biology 1000 Cross-listing: Biology 2100A/B

MICR 3020R General Microbiology: Intended to provide a general knowledge of microbiology at an introductory level for students in the Health Sciences, this class is not considered to represent an alternative to 2100 in Science programmes: students who have taken 2100 may not register for this class. The lecture topics are divided into three sections. The first introduces the microbial world, the basic concepts and facts of structure and function, growth, genetics, and immunology. The second comprises a systematic survey of the medically important groups of microorganisms, with special emphasis on host-parasite relationships. The third section is concerned with applications of microbiology in health sciences, industry and ecology. Laboratory work is designed to complement the lecture materials and to provide experience in the isolation, identification, cultivation and control of microorganisms.

Instructor: S.H.S. Lee (class coordinator) Format: lecture 2 hours, lab 3 hours Prerequisite: Biology 1000 or permission of the instructor

MICR 3033A Microbial Genetics: Heredity in bacteria and their viruses, with principal emphasis on gene transfer and genetic mapping, molecular basis and genetic control of mutation, DNA replication, recombination, restriction and repair, use of microorganisms in molecular approaches to genetic analysis (e.g. gene cloning, DNA sequencing).

Instructor: C. Stuttard; G.C. Johnston Format: lecture 2 hours, lab/tutorial 3

hours Prerequisites: Microbiology 2100, Biology 2030, or permission of the instructor

Cross-listing: Biology 3033A Enrolment: limited to 40

MICR 3114A Virology: Provides an introduction to Virology, and to some extent discusses all kinds of viruses -- animal, bacterial, insect and plant. Important concepts relating to the isolation, biophysical characterization, classification and replication of viruses are considered. Instructors: K.B. Easterbrook; D.B. Stoltz

Format: lecture 3 hours Prerequisite: Microbiology 2100 Cross-listing: Biology 3114A

MICR 3115A Introductory Immunology: This introductory class is designed to provide the student with an understanding of the fundamental principles of cellular and molecular immunology.

Lectures will focus on mechanisms governing the generation and regulation of cell-mediated and humoral immune responses. Topics to be discussed include cells and tissues of the immune system, the structure and synthesis of antibodies. complement pathways. T cell subsets and their functions, hypersensitivity reactions and the genetics of the immune response.

Instructor: D.W. Hoskin (class coordinator)

Format: lecture 3 hours

Prerequisite: Microbiology 2100, a 2000-level class in cell biology, or instructor's

> permission Biology 3115A

Cross-listing: Enrolment: limited to 90

MICR 3118B Medical Bacteriology: A survey of several bacterial groups with particular attention devoted to bacteria of medical interest. Attention is given to those criteria which are regarded as important in the classification of bacteria, and to the techniques used to identify particular species.

Instructors: D.E. Mahony (class coordinator);

M.T. Dalton

lecture 2 hours, lab 3 hours Format: Prerequisite: grade of B- or better in 2100

Cross-listing: Biology 3118B

MICR 4022A/4022B Microbial Ultrastructure Project: A research project using one or more of the skills acquired in Biology/Microbiology 4024A, selected by the student in consultation with the instructor.

Instructors: K.B. Easterbrook; D.B. Stoltz;

G.T. Faulkner

Prerequisites: 4024A or permission of an

instructor

Cross-listing: Biology 4022A/4022B

MICR 4024A Microscopy: The class is concerned with biological ultrastructural analysis concentrating on transmission and scanning electron microscopy. The importance of a proper understanding of the physical and chemical principles governing technical procedures such as fixation, freeze-fracture, colloidal gold probes, stereology, autoradiography, x-ray microanalysis and photography is emphasized. During laboratory periods students have the opportunity through individual projects to participate in some of the techniques covered in the lectures.

Instructors: G.T. Faulkner (class coordinator); K.B. Easterbrook, D.B. Stoltz; M.

Willison

Format: lecture 3 hours, no formal lab Prerequisite: a grade of B- in 2020 or 2100

Cross-listing: Biology 4024A

MICR 4026A The Mammalian Cell: The class considers recent advances and current concepts in cellular and molecular biology with reference to the mammalian cell cultured in vitro. Emphasis is also placed on related laboratory techniques. The

following general areas are discussed: cell cyclesomatic cell aging; extracellular, cytoplasmic and nuclear matrices; transmembrane interactions; gene expression; growth factors and their receptors; differentiation; hybridoma technology. mutagenesis and somatic cell and molecular genetics. Laboratory exercises and projects include techniques of cell culture, cell cycle analysis by fluorescence activated cell sorter, cell hybridization, detection of extracellular and intracellular antigens by immunofluorescence, SDS gel electrophoresis, autoradiography, ELISA western blotting, cytofluorimetry.

Instructor: Format: Prerequisite:

R. Rajaraman (class coordinator) lecture 3 hours, lab 3 hours Biology 2020 and 2030 or permission from the instructor

Biology 4026A Cross-listing:

MICR 4027B The Cancer Cell: The class considers recent cellular and molecular biology of cancer cells viewed as microorganisms in vivo Students participate by giving seminars on recent articles and by writing term papers on selected topics. The following general areas are discussedtypes of tumors; the transformed phenotype: extracellular matrix and neoplasia; hormones and neoplasia; anchorage and growth control; analysis of malignancy by cell fusion; transformation by DNA and RNA viruses, and by radiation; chemical carcinogenesis; oncogenes and the origin of human cancers; interferon and cancer; reverse transformation and chemoprevention of cancer: immunoresponse and cancer; anti-oncogenes. transgenic mice in cancer research and cellular basis of metastasis. Instructor: R. Rajaraman (class coordinator)

lecture/seminar 3 hours Format: Prerequisite: Microbiology 4025A or

permission from the instructor Cross-listing: Biology 4027B

MICR 4037B Genetics of Industrial Bacteria: We review specific aspects of genetic structure, regulation, transmission and recombination in bacteria that are used to synthesize medically and commercially useful products. The principal focus will be on Streptomyces spp., and will include consideration of genome architecture and stability, and genetic control of morphological and physiological development. Seminars will consider recent research in the field.

Instructor: C. Stuttard

lecture/seminar 3 hours Format: Microbiology/Biology 3033A Prerequisite:

MICR 4038B Molecular Biology of Yeast: The class will focus on the use of genetics and molecular genetics in the investigation of a wide variety of cellular activities in the yeast Saccharomyces cerevisiae, including: genome organization, regulation of gene expression at both transcriptional and translational levels, signal

ransduction, role of oncogenes, secretion, and transuation of proliferation. Wherever possible, the role of particular yeast gene products will be compared to genes found in other eukaryotic cells compared mammalian cells. This class will consist of lectures and student seminars and will rely of heavily on the recent primary literature. participants in the class will be encouraged to discuss and evaluate recent advances in the areas of genetics and molecular biology.

instructor: Format:

G.C. Johnston lecture/seminar 4 hours

Prerequisite:

**MICR 3033A** 

MICR 4114B Topics in Basic and Medical virology: A class for advanced students in virology. Several aspects of virology are discussed in detail; e.g., virus structure and replication. viruses and cancer, viral genetics, virus-cell interaction.

Instructors:

D.B. Stoltz; S.H.S. Lee, K.B.

Easterbrook

lecture 2 hours, lab 3 hours Format: Prerequisite: grade of B- or better in 3114A

Cross-listing: Biology 4114B

MICR 4115B Topics in Immunology: An advanced class in which students read and discuss research papers taken from the current literature in immunology. While all major areas of immunology are discussed, particular emphasis is placed on mechanisms involved in the host immune response to pathogens and tumor cells.

D.W. Hoskin Instructor: Format: lecture 2 hours

a minimum grade of B- in Immunology 3115A

Cross-listing: Biology 4115B Enrolment: limited to 24

Prerequisite:

MICR 4118A Molecular Pathogenesis: An advanced course on the molecular basis of bacterial pathogenesis. The course will use selected bacterial pathogens to develop basic principles regarding genes, regulatory mechanisms and the molecular function of gene products in surface colonization, invasion, intracellular growth and toxin production. The course will be taught from reviews and original research papers and will emphasize the use of modern molecular biological lools in problem solving.

Instructor: P.S. Hoffman rerequisites:

Microbiology 3033 plus an advanced class in Bacteriology (3118 preferred)

MICR 4301A Immunobiology: An advanced class designed to examine the biological characteristics of the immune system, including its cells and the literactions between them, the idiotype network, antigen processing and presentation. The ducosal immune system, and normal and Pathologic autoimmunity, as well as CNS-immune

system interactions will also be discussed.

R. Carr; T. Issekutz; A. Issekutz; Instructors:

B. Pohajdk

Format: lecture 3 hours

Prerequisite: prior class(es) in immunology

MICR 4302B Molecular Immunology: An advanced class designed to examine the molecular biology of immunologic phenomena. Topics include the molecular genetics of immunoglobins, the molecular biology of cytokines, the T cell receptor, and other topics to be selected.

Instructors: T. Lee; A.W. Standynk: T. Issekutz; B. Pohaidk

lecture 3 hours

Format: Prerequisite:

prior class(es) in immunology

Cross-listing: Biology 4302B

MICR 4403A Structure, Organization, and Replication of Genes: (see Biochemistry Dept.)

MICR 4404B Gene Expression: (see Biochemistry Dept.)

MICR 4601A Laboratory Techniques in Molecular Biology: This class will consist of a series of laboratory modules covering techniques used in molecular biology (each of 4 weeks duration, 6 hours per week). The class is intended primarily for honours and graduate students. Students should consult the department regarding eligibility and availability of space. Instructor: G.C. Johnston

Format: lab 6 hours

MICR 4700 Special Topics: Consult department.

MICR 4701A/4702B Special Topics: Consult department. This class is intended to permit further study of a specific topic of interest, or to correct a deficiency in a student's programme.

MICR 4900 Honours Research and Thesis Course Coordinator: D.B. Stoltz

### Neuroscience

Location:

Psychology Department Life Sciences Centre

Telephone: (902) 494-3417

Dr. S.R. Shaw (494-2047)

**Programme Advisors** Dr. I.A. Meinertzhagen (494-2131)

#### Introduction

The last two decades have witnessed the remarkable emergence of a new, interdisciplinary field called Neuroscience which has as its primary goal the understanding of the brain. Neuroscience is a rapidly developing research area which includes all aspects of the structure and function of nervous systems. Neuroscience involves a variety of experimental strategies to understand nervous systems. These include molecular, biochemical, behavioural, anatomical, physiological, and developmental approaches. Although firmly grounded in the natural sciences, the scope of Neuroscience also encompasses fundamentally important philosophical issues, such as the nature of human thought and its mechanism. The programme outlined below represents all of these approaches, with an emphasis on behaviour as the adaptive product of neural activity. Knowledge obtained from research in Neuroscience is applied to a variety of human health problems, including neurological conditions such as those occurring in Alzheimer's disease, Parkinsonism, and a variety of drug- or injury- induced behavioural disorders. Research in Neuroscience is also contributing new information related to the major psychiatric disorders, including affective disorders and the schizophrenias.

### The BSc (Honours) Programme

This programme is intended to serve as a preparation for graduate work in neuroscience, biological psychology, medicine, human communication disorders and related fields. Its interdisciplinary nature is reflected in the participation of faculty from several departments in the programme, which is offered through the Department of Psychology. Students interested in the Neuroscience degree programme should consult with either I.A. Meinertzhagen or S.R. Shaw in the Department of Psychology early in their undergraduate career, preferably by the end of their first year of study. Admission is often deferred until the end of the second year, however.

#### Structure

In the first year of study, students are required to take classes which provide a firm grounding in the physical and biological sciences. In subsequent years, the programme includes 9credits in classes drawn from Neuroscience, Psychology and Biology. These include a number of required core classes which emphasize the acquisition and application of laboratory skills. Note that students intending to obtain an Honours degree in Neuroscience may not use Psychology as their minor subject, nor may Psychology Honours students use Neuroscience as a minor subject. It is anticipated, but not required, that Neuroscience Honours students will have Biology as their minor subject. In that case, classes cross-listed with classes in Biology cannot count for credit towards both the Neuroscience programme and the Biology minor.

Students wishing to take Combined Honours in Neuroscience and a second discipline, e.g. Biology, Biochemistry, should consult with a

programme advisor. In general, the required classes of the honours programme in Neuroscience will be required of all such students except Psychology 2000 A. Thus, the minimum programme after year I is NEUR 2071A, one full credit in Biology 2072B, (2020A/B and an extra half credit), NEUR 3370A, 3371B, 3440B. Neuroscience seminar (half credit), and (for those students who take Neuroscience as a major subject of a combined honours programme) **NEUR 4500R.** 

#### Curriculum

Year I: Students entering the Neuroscience Honours programme in their second year will normally have had the following classes in their first year of study: Biology 1000R (Lab): Introduction Chemistry 1100R or 1200R (lab): General Chemistry

Mathematics 1000A/B and 1010A/B, or 1500R. Calculus

Writing class

In addition, the following classes are recommended during the first two years of study. Psychology 1000R or 1010R: Introduction; and Physics 1100R or 1300R: Introduction.

#### Year II Required Classes:

Neuroscience 2071A: Introduction to Neuroscience Neuroscience 2072B: Cellular Neurobiology Psychology 2000A (lab): Research Methods Biology 2020A/B: Cell Biology An additional one-half credit in Biology chosen

from one of the three following: a)Biochemistry 2200B; b) Biology 2030A/B; or c) one of Biology 2001A, 2100A/B or 2002B.

Options: One additional credit from among the following:

Neuroscience 2140A or B: Learning Neuroscience 2150A or B: Perceptual Processes Psychology 2160A or B: Animal Behaviour

Neuroscience 2170A or B: Hormones and Behaviour

Neuroscience 2190A or B: Language and the Brain

Neuroscience 2270A or B: Human Neuropsychology

Neuroscience 2370A or B Drugs and Behaviour Biology 2012A or B (lab): Lab Techniques: Cell & Molecular Biology

One and one-half credits in elective classes.

#### Year III Required Classes:

Neuroscience 3370A (lab): Neuroscience Laboratory I

Neuroscience 3371B (lab): Neuroscience

Laboratory II

Neuroscience 3440B (lab): Neuroanatomy

Recommended:

It is recommended that students take psychology 3500, Statistical Methods in either their third or fourth year of study. options: One and one-half credits from among the following: Neuroscience 3000R (lab): Independent Research

Psychology 3040R (lab): Learning and Motivation Neuroscience 3050R (lab): Perception Neuroscience 3070R (lab): Physiological Psychology

Neuroscience 3071 R: Physiological Psychology Neuroscience 3150A/B: Introduction to Hearing and Speech Mechanisms

Neuroscience 3160R (lab): Ethology

Neuroscience 3260A or B: Biological Rhythms Neuroscience 3270A or B: Developmental

Neuroscience Psychology 3500R: Statistical Methods Neuroscience 3590A or B: Perceptual

Development

Neuroscience 3760A or B: Neuroethology Two credits in elective classes.

#### year IV Required Classes:

Neuroscience 4500R: Honours Thesis Options: One credit in fourth year seminars from among:

Neuroscience 4000A/B: Senior seminar (topic

Neuroscience 4050A/B: Perception Neuroscience 4070A/B: Neuroscience Psychology 4160A/B: Topics in Behavioural

Neuroscience 4370: Introduction to Pharmacology One credit in courses from the third and fourth year lists above

Two credits in electives

#### Notes:

1. In designing the first year of study, students should consider the requirements for a BSc degree as outlined in paragraph 11.1(a) in the College of Arts and Science Regulations.

Biology 2015R (Cell Biology and Biochemistry), Biology 2020A (Cell Biology: Structure and Function) and Biology 3440B (Neuroanatomy; same as Neuroscience 3440B) cannot be counted as credits toward completing a minor in Biology.

Students are encouraged to consider the following classes as electives. Courses marked with an asterisk are recommended electives in the first or second year of study: Biochemistry 4301B: Biochemical Communication; Biology 3012A/Biochemistry 3200A: Introduction to Biol. Chemistry; Biology 3013B/Biochemistry 3300B: Intermediary Metabolism; Biology 3014B/Biochemistry 3400B: Nucleic Acid Biochemistry and Molecular Biology; \*Chemistry 2400R: Organic Chemistry Philosophy 3460A/B: Mind and Brain \*Physics 1100R/1300R: Introductory Physics

#### Classes Offered

NEUR2071A Introduction to Neuroscience: This class introduces a number of aspects of this field emphasizing analyses which are precise at the neuronal level. A general introduction is provided by the vertebrate visual system, concentrating upon the analysis of visual information in the mammalian visual cortex. This is followed by consideration of muscle spindles and other receptors of the motor nervous system; a brief treatment of the anatomy of the mammalian brain and a more detailed analysis of the cerebellum; the other major components of the motor pathways to the spinal cord; spinal reflexes and the integrative action of neurons.

Format: lecture 3 hrs Instructor: I.A. Meinertzhagen

Psychology 1000 or 1010 or Prerequisites:

Biology 1000 and 2020 or consent of instructor.

PSY 2071A Cross-listing:

NEUR2072B Cellular Neurobiology: Building on the knowledge of holistic aspects of brain function gained in Neuroscience 2071A, this class explores the neuronal basis of activity in all nervous systems. Starting with an analysis of the structure of neurons, the function of nerve cells will be explored with respect to the ionic and molecular basis of resting potentials and of electrical activity in nerve cells; synaptic transmission; the release and postsynaptic action of synaptic transmitters; aspects of the neurochemistry of synaptic transmitters and of drug action; and glial cells. Cellular phenomena relevant to neurological dysfunction will be discussed.

Format: lecture 3 hrs Instructor:

Psychology/Neuroscience 2071 or Prerequisites:

consent of instructor

Cross-listing: **PSY 2072** 

NEUR2140A/B Learning: Traces the experimental study of learning from the turn-of-the-century research of Pavlov and Thorndike to the present. Development of the field of animal learning is described in terms of the ways in which particular conceptions of the learning process have guided experimentation, and have in turn been revised on the basis of the outcomes of that experimentation. Some important concepts discussed are: association, attention, biological constraints on learning, classical conditions, discrimination, expectancies, law of effect, learning-performance distinction, operant conditioning, S-S and S-R bonds, and stimulus control. The value of various approaches is discussed with respect to several goals: (1) providing general principles of learning; (2) understanding the behaviour of particular species: (3) direct application to human problems.

Emphasis is on understanding why researchers in animal learning do what they are currently doing (given the goals and the historical context), rather than on learning a number of facts about animal learning.

Format: lecture 3 hours Instructor: V. LoLordo

Psychology 1000 or 1010 Prerequisite:

PSY 2140 Cross-listng:

NEUR2150A/B Perceptual Processes: Perception deals with the way in which our senses provide us with information about our environment. This class focuses on the process by which sensory experiences are coded, how they are interpreted by the nervous system, and how experience modifies perception.

lecture 3 hours Format: Instructor: J. McNulty

Prerequisite: Psychology 1000 or 1010 or

Biology 1000

Cross-listing: PSY 2150

NEUR2170A/B Hormones and Behaviour: An introduction to the endocrinological bases of mammalian social behaviour. Emphasis is on the mechanisms by which the hormones of the hypothalamus, pituitary gland, gonads and adrenal gland control sexual, aggressive and maternal behaviour. Other topics covered are: hormone receptors in the brain; the menstrual cycle and human reproduction; puberty, sex differences in the brain; the pineal gland; neuro-transmitters; pheromones: crowding and social stress.

Format: lecture 3 hours Instructor: R.E. Brown

Prerequisite: PSY 1000 or 1010 or BIOL 1000

Cross-listing: **PSY 2170** 

NEUR2190A/B Language and the Brain: This class is an introduction to the study of languages that are considered as symbolic functions of the human brain. The main topics are the common properties and organizing principles of languages; the acquisition of languages by children; the brain structures involved in language and the effects of brain damage on language disorders.

Format: lecture 3 hours Instructor: M. Yoon

Prerequisite: Psychology 1000 or 1010

Cross-listing: **PSY 2190** 

NEUR2270A/B Human Neuropsychology: This class explores not only normal but also abnormal brain function, as revealed by the consequences of trauma, disease, and surgical intervention. Aphasia, epilepsy, the role of certain brain chemicals in behaviour, cerebral asymmetry, localization of brain function are examples of topics covered.

lecture 3 hours Format: Instructor: M. Ozier

Prerequisite: Psychology 1000 or 1010

Cross-listing: PSY 2270

NEUR2370A/B Drugs and Behaviour: An introduction to behavioural psychopharmacology The lectures involve basic anatomy, physiology and chemistry of the nervous system. Behavioural effects and underlying mechanisms of various psychoactive drugs will be discussed. Specific topics will cover alcohol, tobacco, amphetamines cocaine, opiates, hallucinogens, tranquillizers and antipsychotic drugs.

lecture 3 hours Format: Instructor: S. Nakajima

Prerequisite: Psychology 1000 or 1010

Cross-listing: **PSY 2370** 

NEUR3000R Independent Research in Modern Neuroscience: Primarily for students wishing further experience and understanding of neuroscience research. A student in the class chooses a member of staff who serves as an adviser throughout the academic year, and under whose supervision independent research is conducted.

Format: lab 4 hours Staff Instructor:

Psychology 2000A or Prerequisites:

Neuroscience 2071A and previous or concurrent enrollment in two other 3000-level classes; and the prior consent of the instructor

**PSY 3000** Cross-listing:

NEUR3050R Perception: This class considers the way in which information about the world is provided by the senses and how we use this information in our behaviour. The material falls into four sections. (1) The methodological and theoretical problems peculiar to the study of sensation and perception; (2) The transformation of physical stimulus energy into neural energy; (3) The physiological and psychophysical analysis of the sensory systems with particular emphasis on vision; and (4) The development of perception and its relation to the anatomical and physiological development of the sensory pathways. The experimental work has been selected for its importance in the theoretical understanding of perceptual processes and consists of a general introduction to the apparatus and methods used in perceptual research.

lecture 2 hours Format: D.E. Mitchell Instructor:

Psychology 2000A and 2150 Prerequisites:

Cross-listing: **PSY 3050** 

NEUR3070R Physiological Psychology:

Physiological psychology is concerned with the biological explanation of psychological phenomena. Students should have a working knowledge of concepts and methods in experimental psychology-Emphasis is on psychological issues with the answers sought in physiological terms. Labs will involve stereotaxic surgery on the rat. Format: lecture 2 hours, lab 3 hours

Instructor: S. Nakajima

Prerequisite: Psychology 2000A and permission

of the instructor

**PSY 3070** Cross-listing:

NEUR3071R Physiological Psychology: Students in this class attend the same lectures as students in Psychology 3070, but submit term papers rather than participate in laboratory work. The class is designed for students who wish to learn about physiological aspects of psychological issues, but who do not require the laboratory experience. lecture 2 hours, seminar 1 hour

NEUR3150A/B Introduction to Hearing and

Speech Mechanisms: Hearing and speech are two

Format: S. Nakajima Instructor: Prerequisite: Psychology 2000A Cross-listing:

**PSY 3071** 

behavioural capacities of fundamental importance to normal human communication. This lecture class is designed to provide a basic understanding of the peripheral and central neural mechanisms of hearing, and of some psychological and

physiological processes involved in speech production and speech perception. The class is intended for those students anticipating more advanced training in neural mechanisms of hearing, speech science, human communication disorders and/or audiology. The class emphasizes normal hearing and speech mechanisms, but will address pathology where evidence from nathological subjects is pertinent to understanding normal function. Class content: introductory acoustics: structure and function of the outer and middle ears: structure and function of the cochlea: hair cell physiology and sensory transduction; coding of simple and complex sounds in the auditory nerve; sound localization mechanisms as an example of the correspondence between the physical properties of the stimulus, neural sensitivity and behavioural performance; theories of speech production; theories of speech perception; acoustic and linguistic contributions to

speech perception. Format: lecture 3 hours Instructor: D.P. Phillips

Prerequisites: Psychology 2150 or 3050; Neuroscience 2071A, 2072B strongly recommended

Cross-listing: PSY 3150

NEUR3160R Ethology: Ethology is the biological study of behaviour. It uses psychology, genetics, physiology, ecology and evolutionary theory to solve problems in the development, function and causation of behaviour across all animal species. These diverse approaches to the study of animal behaviour are presented in naturalistic and experimental situations. In laboratory exercises qualitative and quantitative records of behaviour are made in the field and in the laboratory. There are several group research projects (first term)

and an individual research project (second term).

Format: lecture 2 hours, lab 2 hours

J. Fentress Instructor:

Psychology 2160 or Biology 1000 Prerequisites:

Cross-listing: PSY 3160

\*NEUR3260A/B Biological Rhythms: The temporal structure of animal and human physiology is governed by both homeostatic mechanisms and by a system of biological clocks. These internal clocks generate rhythms with various periods in virtually every physiological and behavioural system. Daily (circadian) clocks are the most prominent; they generate rhythms in sleep, reproduction, intellectual performance and many other functions. This class examines the nature of these biological clocks and their physiological substrates, with an emphasis on the neural mechanisms involved in rhythm generation and synchronization in a variety of species. It also explores the hypothesized role of circadian mechanisms in sleep disorders, jet lag and depression.

Format: lecture 3 hours Instructor: B. Rusak

Psychology 1000 or 1010 or Prerequisites:

Biology 1000

PSY 3260 Cross-listing:

NEUR3270A/B Developmental Neuroscience: This class introduces students who are already familiar with the structural organization and functional properties of the mature nervous system to aspects of neural development, especially at the cellular level. The first part of the class will link the early events of neural development to general embryonic development. Cell determination, pattern regulation, cell production, cell-lineage analysis, and neuronal differentiation, movement and migration will be discussed. Special attention will then be given to later developmental events such as neuronal growth cones, cell death, growth factors, neuron-neuron interactions and synapse formation using invertebrate and vertebrate examples.

Format: lecture 3 hrs I.A. Meinertzhagen Instructor: Neuroscience 2071A and 2072B Prerequisites:

PSY 3270

Cross-listing:

NEUR3370A/B Neuroscience Laboratory I: The two classes 3370 and 3371 (see next entry) are coordinated and provide introduction to several techniques used in contemporary neuroscience. The following information applies to these classes as a pair, between which the exact distribution of experimental approaches may vary from year to year according to availability of equipment and material, and numbers enrolled. Usually, electrical recording methods from several types of preparation are emphasized in 3370, while detailed neuroanatomically-based approaches are favoured in 3371. Regularly scheduled labs with students

working in groups of 2 or 3 under supervision are supplemented by occasional lectures, in both classes. Students become familiar with electrical recording and stimulation methods and related techniques, currently using both sensory and motor system preparations. Neuroanatomical analysis is introduced by way of techniques usually selected from the following: Golgi impregnation of neurones, immunocytochemistry, dye-tracing of connections, and electronmicroscopy of the visual system or central nervous system. Lab II (3371) usually runs in the second term for selected. advanced students, building upon foundations laid in 3370 but using different practical approaches. lab 3 hours

Format:

S.R. Shaw Instructor:

Prerequisites: Neuroscience 2071A and 2072B. or 3270A, and consent of

instructor

Cross-listing: **PSY 3370** 

NEUR3371A or B Neuroscience Laboratory II: For a description of this neuroscience lab class,

see the entry under 3370 above; usually, 3371 is coordinated closely with 3370.

Format: Instructor: lecture or lab 3 hours

D.A. Hopkins (Anatomy Dept.) Prerequisites: Biology 2020 or 2015 or

permission of instructor

Cross-listing: **PSY 3371** 

NEUR3440A or B Neuroanatomy: A survey of the histology, development and organization of the central nervous systems, with emphasis on the developmental and structural relationships between spinal cord and brainstem. The organization of cranial nerves and microanatomy of the brain stem is discussed. The organization of sensory and motor systems is presented in detail. The cerebral cortex, cerebellum, basal ganglia, and limbic system are also covered.

Format: lab 3 hours Staff

Instructor:

Prerequisites: Neuroscience 3370 and consent of

instructor PSY 3440 Cross-listing:

NEUR3590A or B Perceptual Development: This class examines the development of visual and auditory capacities in human infants and in a variety of animal species with sensory systems like our own. The neural events that underlie these developmental changes in the various sensory pathways will be discussed. The class will also grapple with the old question of how early sensory experience influences our perceptual abilities.

Format: lecture 3 hours Instructor: D. Mitchell Psychology 2000A Prerequisite: Cross-listing: PSY 3590

\*NEUR3760A or B Neuroethology:

Neuroethology is the study of the neural bases of animal behaviour. The class will emphasize cellular approaches toward understanding the integrative mechanisms of the nervous systems which underlie complex behaviours. Feature detectors, command systems and motor programme generators will be examined in depth using examples from vertebrate preparations. Cellular bases of higher order functions such as motivation, learning and choice will be explored if time permits.

Format:

lecture 2 hours Staff

Instructor:

Cross-listing:

Prerequisites:

Psychology 2000A or 2160 or Neuroscience 2071/2072 or

Biology 2020 or consent of the

instructor **PSY 3760** 

NEUR4000A or B Senior Seminar:

Foramt: lecture 2 hours

Instructor: Staff **PSY 4000** Cross-listing:

\*NEUR4050A or B Topics in Perception: This class explores the neural basis of perception. emphasizing the visual, tactile and auditory senses.

lecture 3 hours Format: Staff Instructor: **PSY 4050** Cross-listing:

NEUR4070A or B Neuroscience Seminar:

lecture 2 hours Format:

Instructor: Staff

Prerequisites: Psychology 2071 and 2072 and 3270 or consent of the instructor.

Cross-listing: PSY 4070

NEUR4160 Topics in Behavioural Biology:

Format: 2 hours Instructor: Staff Cross-listing: **PSY 4160** 

NEUR4370R Introduction to Pharmacology: This introductory class is designed to acquaint students with the actions of drugs on physiological and biochemical functions in mammals including man. Interactions of drugs with central and peripheral nervous systems and with the physiologically active chemicals (e.g. prostaglandins, peptides) are stressed. Factors affecting blood levels of drugs (absorption, distribution, metabolism and elimination) are considered, and potential uses. The laboratory consists of prescribed exercises followed by a project of several weeks duration carried out in the research laboratories of the Department.

lecture 2 hours, lab 2 hours Format: Coordinator: H.A. Robertson, Pharmacology

Department permission of the coordinator

Prerequisite: Cross-listing: PSY 4370

NEUR4500R Honours Thesis: The purpose is to NEUron the student with current experimental problems and research procedures in experimental problems. Each student works with a staff neuroscient who advises the student about research in the major area of interest and closely supervises an original research project carried out by the an original student must submit a formal report of the completed research. The final grade is hased upon the originality and skill displayed in designing the project and upon the submitted report and an oral presentation.

Staff Instructor:

Prerequisite:

Restricted to honours students in

their graduating year

**PSY 4500** Cross-listing:

### oceanography

Location: Telephone:

Life Sciences Centre (902) 494-3557

**Chairperson of Department** F.L. Mills

**Undergraduate Advisor** B.R. Ruddick (494-2505)

Graduate Advisor J. Grant (494-2021)

#### Professors

C. Beaumont, BSc (Sussex), PhD (Dal) AJ. Bowen, MA (Cantab.), PhD (Scripps.) C.M. Boyd, MA (Ind.), PhD (Scripps.) P. Chylek, Diploma (Charles), PhD (Calif.) R.O. Fournier, MSc (Wm. & Mary), PhD (URI) Associate Vice-President (Research) E.L. Mills, BSc (Carl.), MS, PhD (Yale), FLS R.M. Moore, BA (Oxon), PhD (Southampton) P.J. Wangersky, ScB, (Brown), PhD (Yale)

#### **Associate Professors**

M.R. Lewis, BS, MS (UMd), PhD (Dal) K.E. Louden, BA (Oberlin), MEd (Temple), PhD B.R. Ruddick, BSc (UVic), PhD (MIT)

#### **Assistant Professors**

B.P. Boudreau, BSc (UNB), PhD (Yale) (NSERC University Research Fellow) J. Grant, BSc (Duke), PhD (South Carolina) 0. Hertzman BASc, MSc (UBC), PhD (Wash.) Wm. Hyde, BSc (Toronto), MSc (Waterloo), Ph.D. (Toronto) D. Kelley, BSc (Mt A), PhD (Dal.) (NSERC University Research Fellow) G.B. Lesins, BSc, MSc, PhD (U of T) C. Taggart, BSc (Carleton) PhD (McGill) (NSERC University Research Fellow)

K.R. Thompson, BSc. MSc (UManc), PhD (Liv.) (jointly with Mathematics, Statistics and Computing Science)

#### **Research Associates**

N.E. Balch, BA (UNB), MA (OXON), PhD (Dal). Manager Dalhousie Aquatron S. Sathyendranath, BSc (St. Teresa's College), PhD (Univ. P&M Curie)

**Honorary Adjunct Professors** 

R.C. Courtney, BSc, MSc (Dal), PhD (Cambridge) K.T. Frank, BSc, PhD (Toledo)

B.T. Hargrave, BSc, MSc (Dal), PhD (UBC), D.A. Huntley, BA (Cantab), PhD (Bristol) S. Pearre, BSc (Virginia), MSc, PhD (Dal) D.J.W. Piper, BA, MA, PhD (Cantab.)

#### Introduction

Oceanography is an inter-disciplinary science that includes studies of tides and currents, the chemistry of sea water, plants and animals that live in the sea, and ocean bottom sediments and underlying crustal structures. The Atmospheric Science group applies physics, mathematics and other basic sciences to the study of the atmosphere, its weather, and its climate. In addition, they conduct field and laboratory measurement programmes and analyze data from these and other experiments; and as well, model climate-related processes at less than global scale. Career oceanographers are employed in Canada in a few universities, in various federal laboratories that are engaged in both basic research and applied problems which meet a national need, such as fisheries investigations, exploration for offshore mineral resources, and studies of ice in navigable waters, and in a number of private companies interested in marine environmental protection or exploration.

A good background in basic science is a necessary prerequisite to entering the department. Properly prepared undergraduates are permitted to take one or more graduate classes as electives. There are graduate introductory classes which survey the entire field and advanced classes in each of the major specialties - physical, chemical, geological and biological oceanography, fisheries biology and atmospheric sciences.

In addition, several undergraduate classes are offered. Classes marked \* are not offered every year. Please consult the timetable on registration to determine if this class is offered.

#### Classes Offered

OCEA 2850R Introduction to Oceanography: A general survey of Oceanography showing how the oceans, which account for more than 70% of the earth's surface, function as a dominant

environmental force. Consideration also is given to man's impact on this ecological system. Designed to give a background of feeling for the ocean, what oceanography is, and what oceanographers do. It is not a good "background to science" class, since little feeling will be obtained for scientific techniques which would otherwise be acquired in a laboratory class. Most of the material covered is descriptive rather than basic, inasmuch as it is impossible in the time allowed and the material covered to also teach the basic required sciences. Instructors:R.O. Fournier

Format: Lecture 3 hours

Prerequisites: Restricted to second year, or more

advanced students

OCEA 4110B Introduction to Geological

Oceanography: This is a one-term introductory class for new graduate students in oceanography who have little or no knowledge of geology or geophysics. The class content is mainly descriptive, and no subject is treated in great depth.

Instructor: K. Louden
Format: Lecture 3 hours

Prerequisites: Permission of the instructor

**OCEA 4120A Introductory Physical** 

Oceanography: This class explores some of the physical forces driving the oceans, and describes the responses of ocean water to these forces. Scales of ocean motion discussed range from currents of oceanic dimensions, like the Gulf Stream, through tides and waves, right down to very small-scale random movements of water known as turbulence. The class also includes a brief introduction to practical aspects of instruments and methodology, via a field trip and a laboratory session.

Instructor: B. Ruddick
Format: Lecture 3 hours

Prerequisites: Permission of the instructor

**OCEA 4130A Introductory Chemical** 

Oceanography: This class covers the major and minor constitutents of sea water, the controls on its chemical composition, nutrient cycling and the chemical interactions between ocean and atmosphere. Other topics included are chemical tracers, and radiochemical dating methods, stable isotope studies, chemical speciation and chemical models of sea water.

Instructor: R.M. Moore

Format: Lecture 3 hours, some labs
Prerequisites: Permission of the instructor

**OCEA 4150A Introductory Biological** 

Oceanography: Quantitative descriptions of biological oceanographic processes are used to explore interactions with physical and chemical processes in various oceanic ecosystems. Topics discussed range from factors affecting rates of microalgal photosynthesis to expected response of the ocean ecosystem to global variation in carbon dioxide and climate. Laboratory emphasizes independent, original research.

Instructor: C.M. Boyd

Format: Lecture 2 hours, lab 1 plus hours
Prerequisites: Biology 2060 or equivalent and

permission of the instructor.

Cross-listing: BIOL 4660A

OCEA 4160B Fisheries Oceanography: Students who cannot demonstrate competence with fundamental statistical analysis will not be permitted to enroll. Familiarity with the fundamentals of population dynamics, ecology, physical oceanography, calculus, statistics, and computerized analysis is ESSENTIAL. The class will focus on the ecology of marine fisheries (including a consideration of significant advances made in freshwater systems) with emphasis on the biotic and abiotic influences on population dynamics and production. Areas to be covered include reproduction, early life history, feeding. growth, metabolism, mortality, and recruitment variability and forecasting. Emphasis will be placed on how hydrological and meteorological process influence the above. Some emphasis will also be placed on population and community ecology as well as fishery management techniques and models. The class will place emphasis on the primary literature, current problems and hypotheses, and fruitful research directions, approaches, and techniques.

Instructor: C.T. Taggart

Format: Lecture 2 hours, tutorial/lab 1

hour

Prerequisites: Biology 2060; Math/Stats 1060

and/or 1070. Permission of the

instructor

Cross-listing: BIOL 4369B

OCEA 4170A Introductory Physical and Chemical Oceanography: This class outlines concepts in physical and chemical oceanography with special emphasis on topics most relevant to ocean biology. The oceans as a physical system, water properties, basic dynamical concepts, the forces creating oceanic motion, ocean circulation, shelf and coastal processes. The oceans as a chemical system. Composition of sea water, control of pH and redox potential, nutrient chemistry, trace elements, organic materials, distributions and geochemical cycles.

Instructor: Sta

Format: Lecture 3 hours

Prerequisites: A class restricted to third and fourth-year students. Permission

of the instrustor

\*OCEA 4210B Time Series Analysis in

Oceanography: Much of the data collected in oceanography and other earth sciences are in the form of a time series; measurements of variables as they change with time or place. A powerful way of interpreting and comparing time series is to

separate them into contributions in different frequency bands. This class discusses ways in which this can be done, with particular emphasis on applied auto- and cross-spectral analysis, and filtering techniques.

Instructor: Staf

Format: Lecture 3 hours

prerequisites: Permission of the instructor

Cross-listing: STATS 4210B

\*OCEA 4230B Biology of Phytoplankton: The role of phytoplankton as primary producers of organic material in the sea, and as agents of biogeochemical transformations, explored in the context of interactions with physical and chemical oceanographic processes. Emphasis is on the current literature.

Instructor: Staf

Format: Lecture 3 hours, some labs
Prerequisites: Permission of the instructor

Cross-listing: BIOL 4662B

•OCEA 4280A/5280A Chemical Sedimentology and Early Diagenesis: The present course aims at a quantitative understanding of the chemistry of sedimentary systems and the changes that occur during early burial history. Thermodynamic, kinetic and transport models are employed to describe and conceptualize the biological, chemical and physical processes responsible for these modifications. Some topics to be covered include compaction, formation and dissolution of carbonate and siliceous sediments, organic matter degradation and nutrient regeneration, iron and manganese diagenesis and the formation of ferromanganese nodules, and basalt-sediment interactions.

Instructor:

B. Boudreau Lecture 3 hours

Format: Lecture 3 hours
Prerequisites: knowledge of physical chemistry/

OCEA 4311A/4312B Fluid Dynamics I and II: An introduction to the theory of fluid dynamics,

intermediate calc/Prof's consent

with some emphasis on geophysically important aspects. Topics include: flow kinematics, equations of motion, viscous flow, potential flow and basic aerodynamics in the first term, and open channel flow, compressible, rotating and stratified flows, hydrodynamic stability, convection and turbulence in the second term. A knowledge of methods of mathematical physics is a desirable prerequisite. Some laboratory expriments on stratified and rotating flows are included in the second term.

Instructor: Staff

Format: Lecture 3 hours
Prerequisites: Intended for firs

Intended for first year graduate students in physical oceanography, but graduate students or senior undergraduates in Mathematics or Physics are invited to take it (subject to instructor approval)

Cross-listing: PHYC 4311A, PHYC 4312B

\*OCEA 4330B Benthic Ecology: An advanced level class concentrating on the major problem of benthic ecology, such as how food is supplied to benthic animals, what factors control the structure of biological communities, and how the benthos is related to processes in the sediments. Year-to-year the course content changes, keeping up with current problems of research workers in this discipline.

Instructor: J. Grant

Format: Lecture 3 hours

Prerequisites: Permission of the instructor

Cross-listing: BIOL 4666B

\*OCEA 4331B The History of Oceanography: A one-term course for graduate students and senior undergraduates emphasizing the major developments leading to the present state of knowledge in biological, physical, chemical, and geological oceanography. Events and changes are set in cultural and social contexts. How have scientific forces, institutional developments, and social influences affected the acquisition of knowledge about the oceans?

Instructor: E.L. Mills
Format: Lecture 3 hours

Prerequisites: Permission of the instructor

Cross-listing: BIOL 4664B

\*OCEA 4380B Marine Modelling: A graduate level survey of modelling techniques applied to biological-physical problems in oceanography. Lecture material includes: philosophy of modelling, dimensional analysis, parameterization of unresolved processes, numerical representation of ordinary or partial differential equations, model validation and fundamental limits to predictability and frequency domain analysis. Students are given the opportunity to study special topics in the current literature, e.g., prey-predator models, spatial patchiness models, models of the biomass size spectrum, models of pollutant dispersal, etc. Knowledge of computer programming is helpful but not a prerequisite.

Instructor: Staff
Format: Lecture 3 hours

Prerequisites: Permission of the instructor

OCEA 4411A Dynamic Meteorology I: The basic laws of fluid dynamics are applied to studies of atmospheric motion, including the atmospheric boundary layer and synoptic scale weather disturbances (the familiar highs and lows on weather maps). Emphasis will be placed on the blend of mathematical theory and physical reasoning which leads to the best understanding of the dominant physical mechanisms.

Instructors: O. Hertzman, G. Lesins

Format: Lecture 3 hours
Prerequisites: Permission of the instructor

Cross-listing: PHYC 4411A

OCEA 4412B Dynamic Meteorology II: The approach is the same as for 4411A, with emphasis placed on synoptic-scale wave phenomena, frontal motions, and the global circulation. An introduction to numerical techniques and their use in weather forecasting models and studies of climate is included. Additional special topics are covered at the discretion of the instructor.

Instructors: O. Hertzman, G. Lesins
Format: Lecture 3 hours

Prerequisites: Phys/Ocean 4411A or permission

of the instructor

Cross-listing: PHYC 4412B

OCEA 4500A Atmospheric Physics I: Main topics covered in this class are atmospheric thermodynamics and atmospheric radiation.

Instructor: D.F. Goble
Format: Lecture 3 hours
Prerequisites: Permission of the instructor

Cross-listing: PHYC 4500A

OCEA 4510B Atmospheric Physics II: The major topic covered is cloud physics. Other topics include atmospheric optics and acoustics, lightning and radar techniques.

Instructor: D.F. Goble
Format: Lecture 3 hours

Prerequisites: Phys/Ocean 4500A or permission

of the instructor PHYC 4510B

Cross-listing: PHYC 4510B

OCEA 4520A Introduction to Meteorology: This course provides the student with an understanding of the thermal structure of the atmosphere,

airmass and frontal theory, and weather generating physical processes and their consequences. Other topics include microscale phenomena, local wind systems and applications of meteorology to problems in air pollution control, hydrology and

agriculture.

Instructor: Staff

Format: Lecture 3 hours

Prerequisites: Permission of the instructor

Cross-listing: PHYC 4520A

OCEA 4530B Introduction to Radiation and

Climate: This course provides the student with an understanding of the origin, composition and thermal structure of the atmosphere, and radiative transfer through clear and cloudy atmospheres. There will be some discussion of the atmospheric general circulation, radiative transfer, atmosphereocean-biosphere interaction, and climate change.

Instructor: P. Chylek
Format: Lecture 3 hours

Prerequisite: Permission of the instructor

Cross-listing: PHYC 4530B

OCEA 4540B Climate Modelling: Topics discussed include: zero, one and 2-dimensional energy balance models, multiple solutions and stability, the diffusive/radiative length scale,

stochastic and orbital forcing. Radiativeconvective models, 3 dimensional models, predictive equations, general circulation models

Instructor: Wm. Hyde
Format: Lecture 3 hours

Prerequisites: Permission of the instructor

OCEA 4600B Invertebrate Fisheries and Aquaculture: Subject matter will deal with commercially exploited invertebrates (crustaceans and molluscs) with a heavy emphasis on bivalves Topics to be covered include: (1) Review of the major invertebrate harvest fisheries (locations. methods, population cycles, fisheries models) (2) Biology and ecology of the Bivalvia (feeding. bioenergetics, growth, and reproduction) (3) Shellfish aquaculture (methods, species, site location, economics). These topics will be covered with respect to the Maritimes as well as non-local fisheries. Course structure will be a mixture of lecture and class discussions. supplemented by vistis to aquaculture sites. Course requirements will include a research paper and oral presentations.

Instructors: J. Grant, G. Newkirk, R. Mohn
Format: Lecture/discussion 3 hours
Prerequisites: Biology 2001A, 2060A/B, and
3321R; fundamental knowledge of

statistics; permission of instructor

Cross-listing: BIOL 4600B

### **Physics**

Location:

Sir James Dunn Science Building

Telephone: (9)
Fax: (9)

(902) 494-2337 (902) 494-5191

Chairperson of Department A. M. Simpson

Undergraduate Advisor D. F. Goble (494-3582)

Graduate Advisor

R. A. Dunlap (494-2394)

Coordinator, Diploma in Meteorology P. Chylek (494-1456)

Coordinator, Co-Op Programme R. H. March (494-2312)

**Professor Emeritus** 

W. J. Archibald, MA (Dal), Ph.D. (Virg.), DSc. (UNB), DSc. (Dal), FRSC

**Professors** 

D. D. Betts, MSc (Dal), Ph.D. (McG), FRSC

B. L. Blackford, BSc (Acadia), MSc (MIT), PhD (Dal) M. G. Calkin, MSc (Dal), PhD (UBC) P. Chylek, Physics Diploma (Charles U., Czech.), PhD (U. of Calif. at Riverside), FOSA- jointly with Oceanography D. J. W. Geldart, BSc (Acadia), PhD (McM), FRSC - A.C. Fales Professor of Theoretical M. H. Jericho, 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 (London) R. H. March, BSc, MSc (Dal), DPhil (Oxon) B. E. Paton, BSc, MSc (Waterloo), PhD (McG) P. H. Reynolds, BSc (Tor.), PhD (UBC) - jointly with Geology A. M. Simpson, BA (Cantab.), MSc, PhD (Dal) G. Stroink, BSc, MSc (Delft), PhD (McG), PEng

Associate Professors

J. G. Cordes, MSc (Dal), PhD (Cantab.)
R. A. Dunlap, BSc (Worcester), AM (Dart.), PhD (Clark)
D. F. Goble, BSc, MSc (Alta.), PhD (Tor.)
D. A. Tindall, BA, PhD (Cantab.)
C. G. White, BSc, MSc (Dal)

Assistant Professors

W. T. Hyde, BSc (Tor.), MSc (Waterloo), PhD (Tor.) - jointly with Oceanography
D. Labrie, BSc (U. de Mtrl.), MSc, PhD (McM)
G. Lesins, MSc., PhD (Tor.) - jointly with Oceanography

**Cross-Appointments** 

R. Ravindra, BSc, MTech. (ITT), MA (Dal), MSc, PhD (Tor.) - Comparative Religion
M. A. White, BSc (West. Ont.), PhD (McM) - Chemistry

Research Associates

A. K. Das, MSc (Dacea, Bangladesh), DPhil (Oxon)
P. Mulhern, BSc (SFU), MSc, PhD (UBC)
S. H. Payne, BSc, PhD (Canterbury, NZ)
M. R. A. Shegelski, BSc (Calgary), MSc, PhD (UBC)
L. Wang, MSc (E. China)
A. Wierzbicki, MSc, PhD (A. Mickiewicz, Poland)

E. B. Eastburn Fellow N. M. Fujiki, PhD (Dal)

Adjunct Professors

H. W. King, PhD (Birmingham), A. D. J. O'Neill, PhD (Saskatchewan) **MacGregor Teaching Fellows** 

T. Craig L. Gates

L. Levesque

X. Wang

### Introduction

Physics is the study of the fundamental properties of energy and matter, and of the space in which they are found. It seeks to describe and explain the great diversity of nature with the fewest and simplest hypotheses, and to show the underlying similarities of seemingly diverse phenomena. It requires imagination disciplined by logic, and its success is judged by whether or not nature confirms its predictions when tested by experiment. An understanding of physics must be built on a good foundation. The various programmes are arranged to do this in an orderly, efficient way.

#### First Year Classes

There are six first year classes. Physics 1200 and 1450 are general interest classes for BA students and are not acceptable as prerequisites for further classes in physics. Physics 1000, 1100, 1300 and 1500A/1550B all give a general introduction to physics, but each has its own particular approach and selection of topics.

Physics 1000 is a survey class offering a wide range of topics in both classical and modern physics. It is primarily intended for students in arts and science, has regular tutorials, no labs, does not use calculus, and is not normally accepted as a prerequisite for advanced physics classes.

Physics 1100 is primarily for students intending to make a study of a physical science or engineering; it has regular labs, no tutorials, uses calculus, and is the accepted prerequisite for advanced physics classes. Background in physics equivalent to Nova Scotia Grade XII is strongly recommended.

Physics 1300 is an introductory class which is oriented towards the health sciences and is primarily intended for students in biology, premedicine, pre-dentistry and allied health sciences. The class incorporates labs and tutorials, and is accepted as a prerequisite for advanced physics classes when Mathematics 1000A and 1010B are taken concurrently

Physics 1500A/1550B is intended for students considering an honours programme in a physical science. It has regular labs, uses calculus, and is an accepted prerequisite for advanced physics classes. High standing in high school physics and mathematics is required.

### **Degree Programmes**

#### **BSc** with Honours in Physics

All students who intend to take a BSc with Honours in Physics are encouraged to discuss their programme with staff members of the department, and to consult with the Chairperson or Undergraduate Advisor of the department at the beginning of the second year. The following classes will normally be taken.

Year 1: Chemistry 1100 or equivalent; Mathematics 1000A and 1010B or 1500; Physics 1100 or 1500A/1550B; an elective, and a writing requirement

Year 2: Physics 2000A, 2005A, 2010B, 2015B; two Mathematics classes: elective.

Physics 3000A, 3010B, 3140A, 3200A, Year 3: 3210B; Mathematics 3110A, 3120B; elective.

Year 4: Four physics classes at the 4000 level. including 4000A/B, 4100A/B, 4160A, 4151A, 4152B, 4230A/B, and an elective. A comprehensive examination is also required.

Students with special interests must select electives carefully. The following suggestions may serve as a guide.

Applied Physics Option: Physics 3340A, 3440B, 3810B, 4220A, 4800C.

Theoretical Physics Option: Physics 4170B, 4180A/B, 4480A, 4650A/4660B, 4800C; Mathematics classes such as complex variables, modelling, or advanced differential equations.

#### B.Sc. with Honours in Physics (Applied Physics Stream)

Students with an interest in the applications of physics to technology and industry are encouraged to consider the Co-operative Education Programme in Physics. See the description below of the Co-op Programme. It is possible to complete a Co-op degree in 4 years and 1 term, although students should expect to take 5 years.

The following classes describe a typical programme.

Year 1: Physics 1100: Chemistry 1010: **Mathematics** 1000A and 1010B, or 1500; Computer Science 1400A and 1410B; elective.

Year 2: Physics 2000A, 2005A, 2010B, 2015B; **Mathematics** 2000R, or 2480A and 2490B, 2040B; elective.

Year 3: Physics 3000A or 3340A, 3010B, 3140A, 3200A. 3210B, 3250A. 3440B, 3810B; **Mathematics** 3110A, 3120B: Summer work term.

Year 4: Fall work term; Physics 4100B. 4230B; three technical half classes; Summer work term.

Year 5: Physics 4000A. 4151A, 4160A, 4180B, 4800C; five technical elective half classes. A comprehensive exam is also required.

The technical elective classes may be selected from TUNS or Dalhousie classes in Materials Science, Computing Science, Physical Chemistry, Medical Engineering, Oceanography, Meteorology, etc., in consultation with the programme coordinator.

#### **Combined Honours**

Students interested in both physics and another science may wish to take a BSc with Honours in Physics and the other subject combined. Students contemplating such a programme should, in any case, consult the departments before the beginning of their second year of study.

#### Co-operative Education Programme in **Physics**

The Co-operative Programme provides physics students with an integrated pattern of academic study and supervised work terms in industry, government laboratories and institutes, etc. The programme enables students to obtain a better appreciation of the practical problems they will face in their physics careers upon leaving the university. The work term experience gives students an opportunity to orient themselves at an early stage towards the practical application of their newly acquired knowledge, and adds to their motivation for academic study.

#### Eligibility

Students entering their second year of an honours programme in physics or combined honours programme at Dalhousie are eligible for admission.

The Work Study Programme

The Programme consists of 8 academic terms and 4 supervised work terms, at least one of which is not a summer. The academic programme which is the classes are the same as for the BSc and require with Honours in Physics. In addition, in year 2, Co-op students are required to participate year in the non-credit class and lecture series "Scientific Methods".

Further Information

For further information contact the Programme Co-ordinator, Co-operative Education Programme in Physics, Department of Physics, Dalhousie University, Halifax, N.S. B3H 3J5.

### Advanced Major (20-credits)

The department is able to offer a major in the 20-credit programme. For further information refer to specific regulations for the 20-credit programmes on page .

# Rachelor's Degree/Major in Physics (15-

Students intending to major in physics should include Physics 1100 and Mathematics 1000A and 1010B or 1500R in their first-year programme. (Physics 1000 is not normally included in a "Major".) Physics 2450, 3402A. 4020B may not be included in a "Major" to satisfy regulation 11.1(b)(d). (These classes may, however, be taken as additional electives with a "Major"). At least two 3000-level classes must be included, but in any one year, no student in a degree programme may take only Physics 3000A/3010B and Physics 3340A.

#### **BSC Major in Physics**

(Example only, other possibilities exist): Year 1: Physics 1100, (Math 1000A & 1010B), science, arts, elective.

Year 2: Physics 2000A, 2050A, 2010B, 2015B (Math 2000 or other 2000level math), science elective.

Two 3000-level Physics classes; Year 3: one additional Physics class is recommended; electives. A recommended selection includes 3140A or 3170B, 3160A, 3000A and 3010B.

#### BSc Major in Physics, with Diploma in Engineering

The physics content of this programme might be as follows:

Year 1: Physics 1100

Year 2: Physics 2000A, 2005A, 2010B, 2015B.

Year 3: Physics 3160A, 3170B, 3340A, elective. Other possibilities exist.

For the remainder of the programme, consult the Engineering Department.

#### Geophysics

For those interested in Geophysics, refer to classes 2050B, 3130B, 4270A. 4280B, and 4290A, listed under Geology.

#### Diploma in Meteorology

The one-year Diploma in Meteorology programme consists of the following five classes: Physics 4500A/4510B, 4520A, 4530B, 4540A/4550B; Oceanography 4411A/4412Band 4120A, Mathematics 4080B (or Oceanography 4210B).

Students admitted to this programme are eligible for consideration for AES-NSERC Studentships in Meteorology, which, for 1990-91,

are valued at \$5,000 per annum.

For admission into this programme, which has a limited enrollment, a general BSc degree in Physics or other appropriate subject is required. A strong background in Physics and Mathematics is necessary, and classes taken should also include Statistics and Computing Science. For students enrolled in a BSc programme at Dalhousie, the following classes are recommended: Physics 1100, 2000A, 2005A, 2010B, 2015B, 3160A/3170B, 4311A, 4312B; Math 1000A/1010B, 2000, 2030A/2040B, 2070A/2080B, 3110A/3120B; and Computing Science 1400A/1410B.

After completion of the Diploma programme, students are also eligible for admission into a graduate Atmospheric Science programme at

Dalhousie.

### Classes Offered in Physics

Classes marked \* are not offered every vear. Please consult the timetable on registration to determine if this class is offered.

PHYC 1000R Survey of Physics: A survey of physics is not normally accepted as a prerequisite to advanced classes in physics. It is designed for students in arts and science (and possibly for those expecting to continue into medicine or dentistry) who want to be exposed to a wide range of topics in physics. Topics covered include motion, force, momentum, energy, heat electricity and magnetism, waves, light, relativity, quantum theory and atomic radiations, the atomic nucleus and nuclear reactons, astrophysics and cosmology.

Mathematics is used as a language for expressing the basic ideas of physics, but normally this is no more advanced than high school algebra and trigonometry. Problem sets are assigned on a regular basis. Help with these can be obtained in the afternoon tutorial hour or through the Physics Resource Centre. Two or three times each term the tutorial time will be used to carry out some simple laboratory experiments.

C. G. White Instructor:

269

Lectures 3 hours, lab/tutorial 1

hour

Prerequisite: Familiarity with algebra, graphs

and trigonometry

150

Text:

Jones/Childers, Contemporary

College Physics

Enrolment:

PHYC 1100R Introduction to Physics: Primarily for students interested in the physical sciences. Students beginning this class should be familiar with algebra, graphs and trigonometry, and should be taking calculus (Math 1000A/1010B) concurrently. The class concentrates on three main areas: mechanics, oscillations and waves, electricity and magnetism. As far as possible, the basic ideas are introduced through in-class demonstrations, enabling students to relate the verbal and mathematical descriptions to events in the real world. In addition, students are able to explore the physical world via labs every second week.

**Instructors:** 

R. H. March (01)/G. Stroink (02)/D. F. Goble (03- Engineering

students only)

Format:

lecture 3 hours, lab 3 hours (approximately 8 sessions per

term)

Prerequisites:

Students should have a background in Physics equivalent to the Nova Scotia XII level.

Text: Serway, Physics for Scientists and

Engineers, 3rd ed.

Enrolment:

PHYC 1200R Science for Non-Science Students-An Overview of the Cosmos, Earth and Life: This class meets the science distribution requirement for BA students. There are no prerequisites and the class does not count as a prerequisite for any other science class. Students are introduced to selected concepts in each of the disciplines of geology, biology and physics. Emphasis is placed on developing an understanding of the scientific method, its limitations, and its applications in society.

The origin and evolution of the universe is discussed as a prelude to the origin of our solar system, within which our planet Earth evolved to the point where life could occur. The origin of life and the variety of life are the central topics of the second term.

Instructors: G. S. Hicks/R. H. March/P. H. Reynolds

Format: lecture 2 hours, tutorial 1 hour Prerequisite: None

Cross-listings: Biology 1200R; Geology 1200R

Enrolment:

PHYC 1300R Physics In and Around You: An introduction to physics for students in biology, and those preparing for medicine, dentistry and allied health sciences. It is accepted as a prerequisite to

advanced classes in physics when combined with Mathematics 1000A and 1010B. After introducing basic concepts in physics, every opportunity is used to apply these concepts by using realistic biological examples, e.g. forces and torques are directly related to muscle action, fluids to blood circulation, sound to hearing.

Instructor:

G. F. O. Langstroth lecture 3 hours, lab/tutorial 2 Format:

hours

Prerequisite:

Students beginning this class should be familiar with trigonometry and algebraic

equations.

Kane & Sternheim, Physics, 3rd Text:

ed

Enrolment: 110

PHYC 1450R Astronomy: The Evolving Universe This class meets the science distribution requirements for BA students. The class does not count as a prerequisite for any other science class Our world, in the largest sense, is our universe. This class will start by looking at the static night sky, the properties and numbers of stars that are visible. Then stellar evolution, leading up to supernovae, pulsars and black holes, will be studied. Further topics covered will go outward. covering the origin and evolution of the universe itself, and then inward to examine the Solar System. The level is non-calculus with a minimum of mathematics. Included will be some of the historical evolution of the perception of our universe.

Instructor: Format:

W. Zukauskas lecture 3 hours

Prerequisites: None

Text: Pasachoff, Contemporary

Astronomy, 4th ed.

Enrolment:

PHYC 1500A/1550B Principles of Physics: Topics covered are similar to PHYC1100 but are aimed at a deeper understanding. Wherever possible, general techniques such as dimensional analysis, model construction, approximation, analogy, special coordinate frames and symmetry considerations will be illustrated. Appropriate everyday phenomena will be selected for discussion.

This class is intended primarily for those students who anticipate taking an honours programme in the physical sciences. Students enrolling in this class must have attained high standing in high school physics and mathematics, and should seek prior permission from the departmental advisor. Concurrent enrollment in Mathematics 1000A and 1010B, or in Mathematics 1500 is advised.

Instructor:

D. Kiang

Format: lecture 3 hours, lab 3 hours Prerequisites: See above description

Enrolment: 25 PHYC 2000A Oscillations and Waves: Topics discussed include the description of sinusoidal oscillations, vibrations of different physical systems, resonance, standing waves, wave synthesis, systems, waves, interference and diffraction.

A. M. Simpson Instructor: lecture 3 hours, lab 3 hours

Format: Prerequisites:

PHYC1100 or 1500A/1550B, a 1000-level calculus class, or permission of the instructor.

French, Vibrations and Waves. Text:

Enrolment:

PHYC 2005A Mechanics and Relativity: Topics include coordinate systems, collisions in three dimensions, angular momentum, rigid body motion, central force motion and orbits, the special theory of relativity, relativistic coordinate transformations, relativistic momentum and energy.

Instructor: Format: Prerequisites:

Text:

D. A. Tindall lecture 3 hours, tutorial 3 hours PHYC1100 or 1500A/1550B, a

1000-level calculus class, or permission of the instructor. Kittel, Knight, Ruderman et al., Mechanics (Berkeley Physics

Course), 2nd ed.

Enrolment:

PHYC 2010B Electricity and Magnetism: This class begins by studying electrostatics, electric fields and electric potential, then conductors in static fields, energy storage and capacitance. Magnetic fields and forces, electromagnetic induction and Maxwell's equations are discussed. A. M. Simpson

Instructor: Format: Prerequisites:

lecture 3 hours, lab 3 hours PHYC1100 or 1500A/1550B

(PHYC2000A and PHYC2005A recommended), and a 1000 level calculus class

Purcell, Electricity and Magnetism Text: **Enrolment:** 

PHYC 2015B Modern Physics: This introduction to quantum physics discusses some of the difficulties of classical physics in explaining blackbody radiation, photoelectric effect, Compton effect, particle pair production, and annihilation. The concept of wave-particle duality is introduced for light and particles, de Broglie waves and electron diffraction, quantisation of angular momentum. The Schrodinger equation is applied to one-dimensional examples. Applications of modern physics are discussed and illustrated through the tutorial sessions.

Instructor: D. Labrie Format:

lecture 3 hours, tutorial 3 hours PHYC1100 or 1500A/1550B Prerequisite: (PHYC2000A and PHYC2005A recommended) and a 1000 level

calculus class

Enrolment: 60 \*PHYC 2220A Radiation Physics: Topics include the nature and origin of radiation, radioactive decay, the interaction of radiation with matter, and detection and measurement of radiation.

G. F. O. Langstroth Instructor: lecture 3 hours Format:

First year physics or the approval Prerequisite: of the instructor

Johns & Cunningham, The Physics of Radiology, 4th ed.

Enrolment:

Text:

\*Offered in alternate years beginning in 1990-91.

\*PHYC 2230B Radiation Physics, Applications: Emphasis is on applications in biology, physiology and medicine; discussion will focus on methods and devices employed in the investigation and treatment of living organisms, with particular attention to imaging techniques for the examination of internal organs.

G. F. O. Langstroth Instructor: lecture 3 hours Format:

First year Physics or approval of Prerequisite:

the instructor, with preference given to students who have taken Physics 2220A

Same as PHYC2220A Text:

Enrolment:

\*Offered in alternate years beginning in 1990-91.

PHYC 2450R Astronomy: An introduction to astronomy for science students. Topics discussed include: the observation and exploration of the planets, the origin and evolution of stars (including white dwarfs, pulsars, quasars, black holes), the structure of galaxies, and cosmology.

P. H. Reynolds Instructor: lecture 3 hours Format:

One first-year science class Prerequisite: Kaufmann, Universe, 2nd ed. Text:

Enrolment:

PHYC 3000A and 3010B Experimental Physics: Designed to give students a chance to do non-set experiments and thereby encounter and solve, on their own, the problems of experimentation. As the number of experiments is small (four to six), students should achieve a real understanding of a few physical phenomena. Topics cover a wide range of fields such as atomic physics, nuclear physics, solid state physics and electronics. A measurement of one of the fundamental constants such as c, G or e is required. Other than this, the student is free to choose the field of experimental study.

R. A. Dunlap Instructor:

lecture 3 hours, lab 6 hours Format: PHYC2000A, PHYC2005A, Prerequisites:

PHYC2010B and PHYC2015B.

Dunlap, Experimental Physics: Text: Modern Methods, 1st ed.

20

**Enrolment:** 

PHYC 3090B Advanced Classical Mechanics:

Topics include the principle of least action, Lagrange's equation, Hamilton's equation, Canonical transformations, Hamilton-Jacobi equation, motion of a rigid body, small oscillation.

Instructor: M. G. Calkin Format: lecture 3 hours Prerequisite: PHYC2005A

Text: Landau & Lifshitz, Mechanics

Enrolment:

PHYC 3140A Introduction to Quantum Physics:

The experimental basis of the wave-particle duality of light is discussed and the existence of diffraction patterns for particles is used to motivate the construction of wave equations for particles. The determination and interpretation of solutions of Schrodinger's equation are illustrated by simple examples. The three dimensional Schrodinger equation is discussed, with special emphasis on the hydrogen atom. The concept of electron spin is also introduced.

Instructor: Format:

M. G. Calkin lecture 3 hours

Prerequisite: Mathematics 2000 or its equivalent; PHYC2015B

Text: French & Taylor, An Introduction

to Quantum Physics

Enrolment:

PHYC 3160A Topics in Physics: An introduction to thermodynamics, statistical mechanics, and selected relevant topics.

R. H. March Instructor: lecture 3 hours Format:

At least one second-year level Prerequisite:

physics class.

Text: Students may select either K.

Stowe, Introduction to Statistical Mechanics and Thermodynamics

or Sears and Salinger,

Thermodynamics, Kinetic Theory and Statistical Thermodynamics

Enrolment:

PHYC 3170B Topics in Physics: This is complementary to PHYC3160A. An introduction

to optics and modern physics. Instructor: D. Labrie

Format: lecture 3 hours Prerequisite: At least one second-year level

physics class.

Serway, Moses & Moyer, Modern Text:

**Physics** 

30 Enrolment:

PHYC 3200A Thermodynamics: An introduction to the laws and basic concepts in classical thermodynamics. Topics include equation of state, heat engines, thermodynamic functions, and phase equilibriums.

Instructor: H. J. Kreuzer Format: lecture 3 hours Prerequisites: Some knowledge of partial

derivatives; Mathematics 2000 or its equivalent, which may be taken concurrently with the class

Callen, Thermodynamics and An

Introduction to Statistics

**Enrolment:** 

PHYC 3210B Statistical Mechanics: In this class the tools are developed to link the physical laws of the microscopic world to those of the macroscopic world, and the underlying atomic processes of the laws of thermodynamics are

explored. Instructor: Format:

D. D. Betts lecture 3 hours

PHYC3200A, or its equivalent: Prerequisites:

Mathematics 2000, or its

equivalent.

Text: Kittel & Kroemer, Thermal

**Physics** 

**Enrolment:** 20

\*PHYC 3250A/B Computational Methods in Physics: This course will provide experience in computer-based techniques for problem solving in physics. An essential part of the course is the use of computer facilities to replace conventional laboratory experiences. Topics include data analysis, numerical and algebraic solutions of analtyic problems, and computer simulations.

B. L. Blackford Instructor:

Format: lecture 3 hours, lab 3 hours Prerequisites: Completion of a second year

> programme in physics, including Mathematics 2000 or 2500, or special permission of the

instructor.

Text: Gould & Tobochink, Part I: Computer Simulation Methods

**Enrolment:** 

PHYC3340A Electronics: Topics include: carrier transport in semiconductors, properties of diodes and transistors, amplifiers, oscillators, modulation, demodulation and rectification, operational amplifiers, linear and nonlinear analog systems.

Instructor: S. T. Nugent

lecture 3 hours, lab 2 hours Format: PHYC2010B; or Mathematics Prerequisites:

2000R or 2500R, or 2480A/2490B.

Brophy, Basic Electronics for Text:

**Scientists** 

20 Enrolment:

\*PHYC3402A The Rise of Modern Science: The modern world has been fundamentally altered by science and technology. In what ways? How has this come to be? This class will attempt to answer these questions by looking at the origins of modern science in the 16th and 17th centuries, its growth of popularity in the 18th, and the rise of

the scientific profession and sicence-based industry in the 19th and 20th centuries. Recommendation: This class is designed for students in the arts and This can be some interest in history and/or sciences who have some interest in history and/or philosophy. Science students in particular should philosophia a considerable amount of reading and writing will be required in this class.

R. Ravindra (Comparative Instructors: Religion)/J. Farley (Biology)

lecture/seminar 2 hours

Format: There are no formal prerequisites, Prerequisites: but students should be in their third year or above, and have at

least a B average.

Westphal, The Construction of

Text: Modern Science

BIOL3402A, HIST3072A, Cross-listings:

CREL3502A

20 Enrolment: Not offered in 1991/92

PHYC 3440A/B Optics: Topics are selected from areas such as the radiation from accelerated charges, the statistical properties of the fields from assemblies of radiators, interference, diffraction, and the application of Fourier transforms to the structure of images, the resolving power of instruments, and the characterisation of coherence.

B. E. Paton Instructor: lecture 3 hours

Format: PHYC2010B; MATH2500. The Prerequisites:

student should be familiar with vector analysis, Maxwell's equations, and the use of complex exponential functions.

Hecht, Optics Text: 20

Enrolment:

PHYC 3810B Microcomputers and the Real World: Subject material: measurement theory, modern sensors, microcomputer architecture, single chip computers; software simulation of digital electronic circuits; machine language programming; assembly language programming; interfacing techniques; development of "intelligent" instruments.

B. E. Paton Instructor:

lecture 3 hours, computer Format:

programming 1 hour PHYC2000A/2010B Prerequisites: Newell, Introduction to Text:

Microcomputing

Cross-listing: CS3810B

Enrolment: 30

PHYC 4000A/B Advanced Lab: This is a physics and engineering-physics laboratory class in which students in groups of two work largely on their own initiative. The student may select experiments from the fields of optics, acoustics, solid state devices, and low temperature physics. Detailed laboratory reports on the experiments are

required and students are expected to demonstrate a good grasp of underlying physical principles.

M. H. Jericho Instructor: lab 6 hours Format:

Fourth-year standing in physics or Prerequisites: engineering-physics, or permission

from the instructor.

Enrolment:

\*PHYC 4020B Special Topics in the History and Philosophy of Science:

Instructor: R. Ravindra Seminar 3 hours Format:

3rd year standing or above Prerequisites:

10 Enrolment:

\*This class will not be given in 1991/92

\*PHYC 4100A/B Electrodynamics: Topics include the wave equation and solutions, waves at metallic boundaries, the inhomogeneous wave equation, radiation from moving charges, scattering and dispersion.

D.A. Tindall Instructor: lecture 3 hours Format: PHYC2010B Prerequisites:

Panofsky and Phillips, Classical Electricity and Magnetism.

Enrolment:

Text:

\*PHYC 4110B Special Relativity: Topics include Lorentz transformations, Minkowski space-time diagrams, 4-tensor formulation and applications of the basic laws of mechanics, optics and

electrodynamics. C. G. White Instructor: lecture 3 hours Format:

PHYC2000A/2010B and Prerequisites: PHYC2005A/2015B

Rindler, Introduction to Special Text:

Relativity.

Enrolment:

PHYC 4151A Quantum Mechanics: General formulation of quantum-mechanics, illustrated by spin system and one-dimensional problems; simple harmonic oscillation, coherent states; variational methods, WKB approximation.

D. Kiang Instructor: lecture 3 hours Format: **PHYC 3140A** Prerequiste:

Sakurai, Modern Quantum Text:

Mechanics

Enrolment:

PHYC 4152B Quantum Mechanics: This is a continuation of PHYC4151A. Path integral approach to quantum mechanics, angular momentum theory and applications; density operators, systematic development of timeindependent peturbation theory; identical particles; and scattering theory.

D.J.W. Geldart Instructor: lecture 3 hours Format:

Prerequisites: PHYC4151A

Text: Same as for PHYC4151A

Enrolment:

PHYC 4160A Mathematical Methods of Physics: Topics discussed include: complex variable theory, Fourier and Laplace transform techniques, special functions, partial differential equations.

Instructor J. G. Cordes Format: lecture 3 hours

Prerequisites: MATH3110A/3120B, or

permission from the instructor. Text: Arfken, Mathematical Methods for Physicists, 3rd ed.

Enrolment:

PHYC 4170B Topics in Mathematical Physics: This class is a continuation of PHYC4160A and deals with special topics in mathematical physics selected from areas such as the Green's function technique for solving ordinary and partial differential equations, scattering theory and phase shift analysis, diffraction theory, group theory, tensor analysis, and general relativity.

Instructor: J. G. Cordes Format: lecture 3 hours

Prerequisite: PHYC4160A or permission from

the instructor.

Text: Same as for PHYC4160A

PHYC4180A or B Nuclear and Particle Physics: This is an introductory class. Topics discussed include: nucleon-nucleon interactions, nuclear structure, gamma transitions, alpha decay, beta decay, nuclear reactions and elementary particle physics.

Instructor: D. Kiang Format: lecture 3 hours Prerequisite: PHYC3140A

Text: Cottingham & Greenwood, An Introduction of Nuclear Physics

Enrolment:

\*PHYC 4220A Microcomputer-Based

Instrumentation: Subject material: instrument design; analog to digital and digital to analog techniques; custom interfacing to sensors; algorithms; parallel and serial output data links; software testing and debugging; hardware testing and debugging; research project.

\*This class is not offered every year. Instructor: B. E. Paton Format: lecture 3 hours

PHYC3140A Text: Zaks, Microcomputer Interfacing

Enrolment: 20

Prerequisite:

PHYC 4230A/B Introduction to Solid State Physics: An introduction to the basic concepts of solid state physics which are related to the periodic nature of the crystalline lattice. Topics include crystal structure, X-ray diffraction, phonons and lattice vibrations, the free electron

theory of metals, and energy bands. Instructor

D. A. Tindall Format: lecture 3 hours

Text:

PHYC3140A or permission from Prerequisite: the instructor.

Kittel, Introduction to Solid State Physics, 6th ed.

PHYC 4311A/4312B Fluid Mechanics I/II: An introduction to the theory of fluid dynamics, with some emphasis on geophysically important aspects, Topics include: flow kinematics, equations of motion, viscous flow, potential flow and basic aerodynamics in the first term, and open channel flow, compressible rotating and stratified flows. hydrodynamic stability, convection and turbulence. in the second term.

Instructor: C. Garrett

Format: lecture 3 hours; some laboratory

experiments on stratified and rotating flows are included in the second term.

Prequisite: A knowledge of mathematical

physics

Cross-listing: OCEA4311A/4312B

Enrolment: 15

PHYC 4411A Dynamic Meteorology I: The basic laws of fluid dynamics are applied to studies of atmospheric motion, including the atmospheric boundary layer and synoptic scale weather disturbances (the familiar highs and lows on weather maps). Emphasis will be placed on the blend of mathematical theory and physical reasoning which leads to the best understanding of the dominant physical mechanisms.

Instructor: Format:

G. Lesins lecture 3 hours

Prerequisite: Permission of the instructor Text: Holton, An Introduction to

Dynamic Meteorology

Cross-listing: OCEA4411A

Enrolment:

PHYC 4412B Dynamic Meteorology II: The approach is the same as PHYC4411A with emphasis placed on synoptic-scale wave phenomena, frontal motions, and global circulation. An introduction to numerical techniques and their use in weather forecasting models and studies of climate is included. Additional special topics are covered at the discretion of the instuctor. Instructors: G. Lesins/O. Hertzman

Format: lecture 3 hours

Prerequisites: PHYC4411A or permission from the instructor

Text: Same as for PHYC4411A

Cross-listing: OCEA4412B

Enrolment: 15 PHYC 4460A/B Optics: A continuation of pHYC3440A, dealing with coherence, polarization, scattering by matter, the electromagnetic properties of matter, including crystals, reflection, refraction and double refraction.

Format:

lecture 3 hours

Prerequisites:

PHYC3440A or B; registration requires prior departmental

consent.

Enrolment:

PHYC 4480A/B Applied Group Theory: This inter-disciplinary half-class is intended for third and fourth-year undergraduates and first-year graduate students in Chemistry, Mathematics and physics. Topics include: review of matrices. fundamentals of groups, normal subgroups, homomorphisms, representation, character. orthogonality, symmetry groups in crystallography. role of symmetry groups in quantum physics and chemistry, normal modes and molecular vibrations. For students enrolled in PHYC4480, there will be some additional reading.

lecture 3 hours Format: MATH2000, 2030 Prerequisites: Cross-listing: MATH3320A 15

Enrolment:

PHYC 4500A Atmospheric Physics I: Main topics covered in this class are atmospheric thermodynamics and atmospheric radiation.

Instructor: D. F. Goble lecture 3 hours Format:

Prerequisites: At least one 3rd year physics class Reference: Iribarne & Godson. Text: Atmospheric Thermodynamics

Cross-listing: OCEA4500A

Enrolment:

PHYC4 510B Atmospheric Physics II: The major topic covered in this class is cloud physics. Other topics include atmospheric optics, atmospheric acoustics, lightning and radar techniques.

Instructor: D. F. Goble Format: lecture 3 hours Prerequisite: PHYC4500A

Text: Reference: Rogers, A Short Course in Cloud Physics: Battan. Radar Observation of the Atmosphere; Atmospheric Physics

> Readings from Scientific American OCEA4510B

Cross-listing: Enrolment: 15

PHYC 4520A Introduction to Meteorology: This class provides the student with an understanding of the thermal structure of the atmosphere, air mass and frontal theory, and weather generating physical processes and their consequences. Other topics include microscale phenomena, local wind systems and applications of meteorology to problems in air pollution control, hydrology and

agriculture. Instructor:

Text:

Staff

Format: lecture 3 hours Permission from the instructor Prerequisite:

Wallace & Hobbs, Atmospheric Science (An Introductory Survey)

OCEA4520A Cross-listing:

15 Enrolment:

PHYC 4530B Introduction to Radiation and Climate: This class provides the student with an understanding of the origin, composition and thermal structure of the atmosphere and radiative transfer through clear and cloudy atmospheres. There will be some discussion of the general atmospheric circulation, radiative transfer at the ocean surface, and climate change.

Instructor: P. Chylek Format: lecture 3 hours

Permission from the instructor Prerequisite: Liou, An Introduction to Text:

Atmospheric Radiation OCEA4530B

Cross-listing: Enrolment: 15

PHYC 4540A Synoptic Meteorology I: This class introduces principles and techniques of meteorological analysis, diagnosis of weather systems and prognosis of system motion and development. A brief review is presented of meteorological instrumentation, observational procedures, codes and analysis techniques essential to the study of the main subject matter. Atmospheric systems and processes are carried out during the tutorial-laboratory period.

Instructor: Staff

Format: lecture 2 hours, tutoriallaboratory 3 hours

Prerequisite: At least one third-year physics

class

**Enrolment:** 15

PHYC 4550B Synoptic Meteorology II: This class extends the analysis and diagnosis of atmospheric dynamics and weather processes introduced in PHYC4540A. Modern statistical and computer methods and satellite techniques are discussed. Case studies of atmospheric systems and processes are carried out during the tutorial-laboratory period.

Instructor: Staff

lecture 2 hours; tutorial-Format:

laboratory 3 hours PHYC4540A

Prerequisite: 15

Enrolment:

\*PHYC 4650A/4660B Relativity and Cosmology: The first half of the course is devoted to the development of tensor analysis and the general theory of releativity. Einstein's field equations are developed and some applications of models, based on these equations, are discussed. Topics include linearized gravitation and gravitational radiation,

the experimental foundations of relativity, orbit theory, and black holes. The second half is devoted to understanding the theoretical and observational basis of modern physical cosmology in the light of the previously developed theory.

Instructor: Staff

lecture and tutorial 3 hours Format: Prerequisite: PHYC2005A and 2010B:

MATH3050R, or the consent of

the instructor. **MATH4831B** 

Cross-listing:

Enrolment: 15

\*This class is not offered every year.

PHYC 4800C Research Project: Students with a good academic record and an interest in original research are encouraged to undertake a research project under the direction of an individual faculty advisor. Interim progress reports and a formal final report are required. The class grade will be based on an evaluation of these reports.

Instructor: Staff

Format: Independent research

Prerequisite: High academic standing and permission of the Chair of the

Physics Department

PHYC 8890 Co-op 2nd Year Seminar (non-credit)

PHYC8 891 Co-op Work Term I

PHYC 8892 Co-op Work Term II

PHYC 8893 Co-op Work Term III

PHYC 8894 Co-op Work Term IV

### Psychology

Location: Telephone:

Life Sciences Centre (902) 494-3417

**Chairperson of Department** R.E. Brown

#### Student Advisors

Advisors are listed below under "Degree Programmes". To be put in touch with an advisor, go to the Information Desk in the Psychology Department, or phone (902) 494-3417.

#### **Honours Advisor**

D.P. Phillips (494-2383)

#### **Professors**

R.E. Brown, BSc (Victoria), MA, PhD (Dal) P.J. Dunham, MA, PhD (Missouri) J.C. Fentress, BA (Amherst), PhD (Cantab.) W.K. Honig, BA (Swarthmore), PhD (Duke)

R.M. Klein, BA (SUNY), MA, PhD (Oregon) Graduate Studies Coordinator M. Leiter, BA (Duke), MA, (Vanderbilt), Ph D (Oregon) V.M. LoLordo, AB (Brown), PhD (Penn.) P. McGrath, BA, MA (Ottawa), PhD (Queens) J.A. McNulty, MA, PhD (Tor.) I.A. Meinertzhagen, BSc (Aberdeen), PhD (St

D.E. Mitchell, BSc, M.App.Sc. (Melb.), PhD (Berkeley)

S. Nakajima, BA (Chiba), MA (Wash.), PhD (McG.)

K.E. Renner, BS (Penn.), MA, PhD (Northwest) R.S. Rodger, MA (Edin.), PhD (Belf.) B. Rusak, BA (Tor.), PhD (Berkeley)

M.G. Yoon, BS (Seoul), PhD (Berkeley)

#### **Associate Professors**

J. Barresi, BSc (Brown), MA (S. Calif.), PhD (Wisconsin) J.W. Clark, MA (McG), PhD (Queens) A.J. Cohen, BA (McG), MA, PhD (Queens) (SSHRC Canada Research Fellow) J.F. Connolly, AB (Holy Cross), MA (Saskatchewan), PhD (London)

R.P. Croll, BS (Tufts), PhD (McG.) B. Earhard, BA, MA, PhD (Tor.) -**Undergraduate Coordinator** 

J. McGlone, BA, MA, PhD (Western Ont.) -(V.G. Hosp.) B.R. Moore, AB (Emory), PhD (Stan.) M. Ozier, MA, PhD (Tor.)

D.P. Phillips, BSc, PhD (Monash) (NSERC University Research Fellow)

S.R. Shaw, BSc (Lond.), PhD (St. Andrews)

#### **Assistant Professors**

P. McMullen, M.Sc. (Tor), PhD (Waterloo) C. Moore, BA, PhD (Cantab) M. Sullivan, MA, Ph.D. (Concordia)

**Adjunct Professors** J. Backman, MA, Ph.D. (Carleton) C. Bilsbury, BSc, PhD (Liverpool) S.E. Bryson, BA (Guelph), Ph.D. (McG) J.M. Byrne, MA, Ph.D. (Kansas) C. Ellsworth, MA, Ph.D., (Queens) J. Fisk, BSc, MA, PhD (Western Ont.) G.W. MacDonald, BA (St. F.X.), MA, PhD (Windsor) C.C. Mate-Kole, BSc (Bruner), PhD (Leicester) P. O'Neill, MSc, PhD (Yale) S. Pigott, BA (Western), PhD (McG) G. Pretty, BSc, MSc (Acadia), PhD (Western

P. Ritvo, MA (Calif State), PhD, (Cal Sch Prof M. Schwartz, BSc (McG.), MA, PhD (Waterloo)

T.M. Vallis, BSc (Dal), MA, PhD (Western Ont.) J.R. Mathews, BSc (Syracuse), MSc (S.M.U.), MA, PhD (Kansas)

Cross-Appointments R.P. Croll, BSc (Tufts), PhD (McG) AM. Fine, AB (Harvard), Vet.MD, PhD (Penn) D. Rasmussen, BA (Colo C), MA, PhD (Dal) HA Robertson, MSc (Western), PhD (Cantab) K. Semba, BEd, MA (Tokyo), PhD (Rutgers)

Senior Instructors

R.S. Hoffman, BSc (Col. Coll.), MA (Dal) G.A. Eskes, BA, PhD (Berkeley)

Instructor

I. Leary, BSc (Dal), MSc (Memorial), PhD (Adelaid)

## Postdoctoral Fellows

H. Abe, PhD (Hiroshima)

B. Alsop, MSc, PhD (Auckland)

H. Brandsttter, PhD (Graz)

A. Kingstone, PhD (Manchester)

C. Ryan, PhD (Carlton)

D.A. Williams, BA (Manitoba), PhD (Minn.)

### Research Associates

A. Frohlich, Diplom, Dr. rer. Nat.(Freie Universitt Berlin) (Mt. St. Vincent)

### Introduction

Psychology is an experimental science; its purpose is to discover the conditions which control the activities of animals and people, to measure these conditions and the responses they produce, and to use this knowledge to invent ways of predicting behaviour and changing it. It is a subject for inventive but also scientifically rigorous people; better suited to those who want to find out for themselves than to those who want to be told what to believe.

Psychology at Dalhousie treats behaviour as a natural phenomenon, and in that sense shares much with the other life sciences. Today, for example, the boundary that historically has separated psychology from zoology, physiology, or even cellular biology has begun to blur. On the other hand, important ties are being made to such disciplines as anthropology and sociology. The student will find that the diverse subject matter includes three major levels of analysis: the organism, the organism's biological machinery, and the broader social-environmental context in which particular behaviour patterns are expressed. Meaningful integration of these diverse levels and forms of analysis is an intellectual challenge of major proportions. Similarly, the time perspectives of immediate causation, development, evolution, and function all contribute to the modern approach to behavioural science; each must be evaluated in relation to the others.

#### General Interest Classes

Non-majors are encouraged to enroll in Psychology 1000 or 1010 and all 2nd year classes except 2000 and 2500, which are restricted to majors and honours students in Psychology.

### **Degree Programmes**

The department offers the 15- and 20-credit BA or BSc Major degrees, and the BA or BSc Honours degree. While these programmes are described below, a more detailed and up-to-date description is available from the Psychology Information Desk in a pamphlet titled "A Student's Guide to Psychology Classes".

NOTE: Students who major in Psychology cannot use cross-listed Neuroscience classes for their minor or as electives.

### BA or BSc with Honours in Psychology

Students enrolled in the honours programme must take at least nine and no more than eleven full credits beyond the introductory level in their area of concentration. Requirements for the Honours Degree in Psychology are listed below.

It is recommended that students in this programme take 2000A and 2500B and as many classes from the core programme (see requirement 3 below) as possible in the second year. Honours students are advised to complete Psychology 3500 prior to the fourth year. 4000-level seminars may be taken in the third and fourth years. 2000- or 3000- level classes may be taken at any time provided that the student meets the necessary prerequisites.

Although there is considerable flexibility for the student, it is important to plan carefully (this is especially true for those considering graduate work in Psychology). If you would like to be admitted to the honours programme or if you need advice in planning your programme, see Dr. D. Phillips. The Psychology Department also offers a BSc honours degree in Neuroscience, described elsewhere in this calendar.

#### Requirements:

- A grade of C or better in Psychology 1000 or Psychology 1010
- Psychology 2000A (with a grade of B or better) and Psychology 2500B
- At least four more 2000-level classes (either full or half credits).
- Psychology 3500.
- At least two full-credit classes at the 3000-level, one of which is a laboratory
- Psychology 4500 (Honours Thesis)
- At least one full credit of 4000-level
- At least one more full credit of Psychology at the 3000- or 4000-level.

#### Combined Honours

It is possible for students to take an honours degree combining psychology with a related arts or science subject. In such a combined honours programme the student must take eleven full credits beyond the 1000-level in two areas of specialization, with not more than seven full credits in either area. The student in the combined honours programme normally writes a thesis (or the equivalent) in the elective major area in which the majority of classes are taken. Any student intending to take a combined honours degree should consult with the two respective departments to arrange programme details.

# Major (15- or 20-Credit) BA or BSc

The required classes for students who intend to major in psychology are listed below. Although there is considerable freedom of choice, the prospective major should plan carefully and obtain advice from one of the student advisors. At the Psychology Information Desk the student can be put in touch with an advisor.

#### Requirements:

- 1. A grade of C or better in Psychology 1000 or Psychology 1010
- 2. Psychology 2000A
- 3. For the 15-credit major, at least an additional 3.5 credits in Psychology of which two or more must be from 3000-level classes
- 4. For the 20-credit major, at least an additional 5.5 credits in Psychology of which three or more must be from 3000- and 4000-level classes
- For all majors, one of the advanced Psychology credits must be a laboratory class. (A list of laboratory classes in included in the "Students Guide to Psychology Classes" available at the Information Desk.)

### Other Programmes

A variety of other programmes is available in cooperation with other departments. These programmes are designed to meet the needs of students whose specific interests may lie in areas other than those covered by the major and honours programmes offered by the department. Interested students should contact Dr. R. Brown for further information.

#### Classes Offered

Classes marked \* are not offered every year. Please consult the current timetable on registration to determine if this class is offered. Classes marked A or B are half-credit classes, offered in one term only, not both.

PSY 1000R Introduction to Psychology: Students interested in the biological and social bases of behaviour in both humans and animals may complete the class with an understanding of how the senses work and of how, for instance, we learn to see; of the different kinds of memory, how they operate, and how they are affected by disorders of the brain; of the way in which hereditary and environmental factors interlock to produce these complex sequences of behaviour which distinguish one species from another; of the way in which children learn their native language; of how the form of an animal society can be predicted from a knowledge of a limited number of ecological facts Psychology 1000 meets three hours a week for lectures. The grade is based on a number of examinations given at intervals throughout the year.

Format:

lecture 3 hours

Instructor: Staff

PSY 1010R Introduction to Psychology: The content of Psychology 1010 is similar to that of Psychology 1000 but the manner of teaching is different. In Psychology 1010 there are no lectures, and there is no fixed pace for mastering the material in the class. Students work through the chapters of the text at their own pace, and when they think they have mastered the content of each unit, they write a quiz consisting of questions that they have seen in advance. They then review and discuss their quiz with a tutor. If the student's understanding of the material is adequate, he or she proceeds to the next unit. If the tutor judges the student's knowledge of the unit to be inadequate, he or she takes another quiz on the same material, and has to pass that before proceeding to the next unit. The grade for the class is based entirely on the number of units the student completes during the academic year. Format: Tutorials 3 hours Instructor: W. Honig

PSY 2000A Methods in Experimental Psychology: An introduction to the methodological tools research psychologists use to study behaviour. Emphasis is placed on experimental design and the legitimacy of inferences derived from experimental results. Lectures proceed from a discussion of the general problems of using the scientific method in studying behaviour to a more specific examination of the analytic procedures commonly employed to investigate human and animal behaviour. Students conduct and analyze in written reports a series of experiments in the laboratory that illustrate important concepts

discussed in class. Students taking Psychology 2000A must attend the first lecture session. lecture 2 hours, lab 2 hours

Format: Instructor: Prerequisite:

P. Dunham and Staff A grade of C or better in Psychology 1000 or 1010

PSY 2020A/B Psychological Aspects of Social Issues: Most of the important social issues of our time have implications for human adjustment, for the forms of our social institutions, and for the relationships between people and between people and their institutions. Topics vary according to current issues. Selected topics are examined in greater detail to provide a context for formulating general psychological concepts and theoretical issues. The logical implications of the analysis for prescriptions for the future are pursued.

Format: lecture 3 hou K.E. Renner

Prerequisite: Psychology 1000 or 1010

PSY2071A Introduction to Neuroscience: This class introduces a number of aspects of this field emphasizing analyses which are precise at the neuronal level. A general introduction is provided by the vertebrate visual system, concentrating upon the analysis of visual information in the mammalian visual cortex. This is followed by consideration of muscle spindles and other receptors of the motor nervous system; a brief treatment of the anatomy of the mammalian brain and a more detailed analysis of the cerebellum; the other major components of the motor pathways to the spinal cord; spinal reflexes and the integrative action of neurons.

Format: Instructor: Prerequisite: I.A. Meinertzhagen

Psychology 1000 or 1010, Biology 1000 or 2020, or consent of

instructor

PSY2072B Cellular Neurobiology: Building on the knowledge of holistic aspects of brain function gained in Psychology 2071A, this class explores the neuronal basis of activity in all nervous systems. Starting with an analysis of the structure of neurons, the function of nerve cells will be explored with respect to the ionic and molecular basis of resting potentials and of electrical activity in nerve cells; synaptic transmission; the release and postsynaptic action of synaptic transmitters; aspects of the neurochemistry of synaptic transmitters and of drug action; and glial cells. Cellular phenomena relevant to neurological dysfunction will be discussed.

Format: lecture 3 hours
Instructor: S.R. Shaw

Prerequisites: Psychology/Neuroscience 2071 or

consent of instructor

PSY 2080A/B Social Psychology: Some major issues in social psychology are introduced through a critical analysis of theories and research in which the actions of individuals are seen as products of their social context. Both the lectures and the textbook are intended to promote a close and sceptical evaluation of our knowledge of our obedience and rebellion, our affections and hostilities, our willingness to help and injure, our attempts to explain ourselves and others, our erotic orientations and gender roles. Questions on such matters are given to the students to work on out of class and the examinations are composed of some of those questions.

Format: lecture 3 hours
Instructor: J.W. Clark

Prerequisite: Psychology 1000 or 1010

PSY 2090A/B Developmental Psychology: People change with age. This class examines the changes that occur in humans from conception through adolescence. Biological, social, cognitive, and linguistic aspects of development are considered. Theory, research, and practical implications are integrated throughout the class.

Format: lecture 3 hours
Instsructor: C. Moore

Prerequisite: Psychology 1000 or 1010

PSY 2120A/B Clinical Psychology: An introduction to the use of psychological principles to define, assess and treat abnormal human behaviour. Topics covered include: the nature and history of clinical psychology; training in clinical psychology; research methods; psychological functions and dysfunctions; assessment methods; and intervention techniques. The functions of clinical psychologists in various settings such as general hospitals, mental health clinics, industry and the justice system are presented. Attention is given to issues of diagnosis from both psychiatric and psychological perspectives. Assessment of personality as well as intellectual and neuropsychological functioning is discussed. Intervention techniques such as behavioural and cognitive therapies are examined. The emphasis of the course is on the experimental psychology foundations upon which clinical psychology rests; experimentally verified assessment and intervention procedures are given particular attention. Different theoretical orientations to abnormal behaviour (e.g. the medical model and the behavioural/ psychological model) are examined.

Format: lecture 3 hours
Instructor: J. Connolly

Prerequisite: Restriction: Psychology 1000 or 1010
This class may not be taken concurrently with Psychology

3121 or 3129

PSY 2130A/B Introduction to Cognitive
Psychology: Lectures focus on the processes
involved in transforming sensory information into
the meaningful, coherent world of everyday
experience we know. Initially, emphasis is on the
visual system, and how information within that
system is structured and organized, followed by a
consideration of the character of the internal
representations used in thinking and remembering.

Format: lecture 3 hours
Instructor: B. Earhard

Prerequisite: Psychology 1000 or 1010

PSY 2140A/B Learning: Traces the experimental study of learning from the turn-of-the-century research of Pavlov and Thorndike to the present. Development of the field of animal learning is described in terms of the ways in which particular conceptions of the learning process have guided experimentation, and have in turn been revised on the basis of the outcomes of that experimentation. Some important concepts discussed are: association, attention, biological constraints on learning, classical conditioning, discrimination, expectancies, law of effect, learning-performance distinction, operant conditioning, S-S and S-R bonds, and stimulus control. The value of various approaches is discussed with respect to several goals: (1) providing general principles of learning; (2) understanding the behaviour of particular species; (3) direct application to human problems. Emphasis is on understanding why researchers in animal learning do what they are currently doing (given the goals and the historical context), rather than on learning a number of facts about animal learning.

Format: lecture 3 hours
Instructor: V. LoLordo

Prerequisite: Psychology 1000 or 1010

PSY 2150A/B Perceptual Processes: Perception deals with the way in which our senses provide us with information about our environment. This class focuses on the process by which sensory experiences are coded, how they are interpreted by the nervous system, and how experience modifies perception.

Format: lecture 3 hours
Instructor: J. McNulty

Prerequisite: PSY 1000 or 1010 or BIOL 1000

PSY 2160A/B Animal Behaviour. An examination of the natural and, to a lesser extent, the laboratory behaviour of several intensively-studied groups of animals. Foraging and communication, predation and defense, sex and aggression, homing and migration are studied as they occur in such organisms as bees and ants, moths, bats, various birds, and chimpanzees.

Format: lecture 3 hours
Instructor: B.R. Moore

Prerequisite: PSY 1000 or 1010 or BIOL

1000

PSY 2170A/B Hormones and Behaviour. An introduction to the endocrinological bases of mammalian social behaviour. Emphasis is on the mechanisms by which the hormones of the hypothalamus, pituitary gland, gonads and adrenal gland control sexual, aggressive and maternal behaviour. Other topics covered are: hormone receptors in the brain; the menstrual cycle and human reproduction; puberty; sex differences in the brain; the pineal gland; neuro-transmitters; pheromones; crowding and social stress.

Format: lecture 3 hours
Instructor: R.E. Brown

Prerequisite: Psychology 1000 or 1010 or

Biology 1000.

PSY 2190A/B Language and the Brain: An introduction to the processes in the use of language by human beings. The main topics are:
1) the structure of the language; 2) the function of language; 3) the process of comprehension; 4) the process of production; 5) acquisition of language; and 6) language disorders and brain damages.

Format: lecture 3 hours
Instructor: M. Yoon

Prerequisite: Psychology 1000 or 1010

PSY 2270A/B Human Neuropsychology: This class explores not only normal but also abnormal brain function, as revealed by the consequences of trauma, disease, and surgical intervention.

Aphasia, epilepsy, the role of brain chemicals in behaviour, cerebral asymmetry, and localization of brain function are examples of the topics covered.

Format: lecture 3 hours
Instructor: M. Ozier

Prerequisite: Psychology 1000 or 1010

\*PSY 2280A/B Personality: In this class a person is treated as a unified whole. Personality deals with questions such as: Is a science of persons possible? What forms can it take? Are there types of personalities, or is each individual's personality unique? Is an individual's life history an expression of his or her personality, or is personality description merely a summary statement of behaviour whose cause lies elsewhere?

Format: lecture 3 hours
Instructor: J. Barresi

Prerequisite: Psychology 1000 or 1010

PSY 2370A/B Drugs and Behaviour: An introduction to behavioural psychopharmacology. The lectures involve basic anatomy, physiology, and chemistry of the nervous system. Behavioural effects and underlying mechanisms of various psychoactive drugs will be discussed. Specific topics will cover alcohol, tobacco, amphetamines, cocaine, opiates, hallucinogens, tranquillizers, and antipsychotic drugs.

Format: Instructor: Prerequisite: I

lecture 3 hours
S. Nakajima
Psychology 1000 or 1010

PSY 2460A/B Adaptive Behaviour: Adaptation between organisms and their environments is a common theme that can be used to link research in the behavioural and biological sciences. In this ourse three basic issues are addressed: (1) How do we evaluate the balance among internal and external events that define adaptive behaviour? (2) How do we separate individual properties of adaptive control systems while also determining rules by which these properties fit together? (3) How do genetic substrates and developmental events combine to set the boundaries of adaptive performance? Answers to these questions rest upon the dual tendencies for adaptive systems to be both interactive and self-organized. Underlying issues here are examined with current data from behavioural and biological disciplines, in which different specific adaptations, different levels of organization and different time frames of operation are compared.

Format: lecture 3 hours
Instructor: J. Fentress

Prerequisite: PSY 1000 or 1010 or BIOL 1000

PSY 2500B Contemporary Research Problems in Psychology: As a continuation of Psychology 2000A, this class introduces prospective honours students to the design, execution and analysis of independent research. Each student works with a supervisor on a one to one basis preparing a research project which the student then conducts. The lecture periods are devoted to an introduction to the design and statistical analysis of experiments. In the lab meetings, the student will give oral reports on the proposed research. At the end of the course formal oral reports will be given in an all-day conference for the entire class. A formal written report on the research is submitted at the end of the term. Students other than honours students may only take the class with permission of the instructor.

Format: lecture 2 hours, lab 2 hours
Instructors: R.S. Rodger, R. Hoffman, G.
Eskes and Staff

Prerequisite: 2000A, with grade of B or better

PSY 3000R Independent Research in Modern
Psychology: Primarily for students wishing further
experience and understanding of psychological
research. A student in the class chooses a member
of staff who serves as an adviser throughout the
academic year, and under whose supervision
independent research is conducted.

Format: lab 4 hours Instructor: Staff

Prerequisites: Psych

Psychology 2000A and previous or concurrent enrollment in two other 3000-level classes; and the prior consent of the instructor PSY 3010R Advanced General Psychology: For the advanced student, a review of general psychology with the aim of consolidating the student's knowledge. The method is unconventional. With the assistance of the instructor, the student prepares the material assigned to Psychology 1010 at a level which enables him or her to instruct introductory students in individual tutorials. Ideally, prospective students should consult with Dr. W. Honig in the spring of the preceding year.

Format: lecture 2 hours, tutorials 3 hours

Instructor: W. Honig

Prerequisite: Advanced classes in psychology

and consultation with the

instructor

PSY 3020R Community Psychology: A cooperative relationship is established with local community and social action groups in which current issues or problems become the focal point for a field laboratory course. Topics vary from year to year. Classroom work centres on concepts of community psychology and on teaching field research skills and techniques.

Format: lecture 1 hour, lab 2 hours

Instructor: K.E. Renner

Prerequisites: Psychology 2000A, and 2020

\*PSY3040R Learning and Motivation: An examination in detail of selected topics within the field of learning and conditioning. The emphasis is on identification and clarification of fundamental processes, their boundaries, biological significance and evolutionary history.

Format: lecture 2 hours, lab 2 hours

Instructor: Staff

Prerequisite: Psychology 2000A and 2140

PSY 3050R Perception: This class considers the way in which information about the world is provided by the senses and how we use this information in our behaviour. The material falls into four sections. (1) The methodological and theoretical problems peculiar to the study of sensation and perception; (2) The transformation of physical stimulus energy into neural energy; (3) The physiological and psychophysical analysis of the sensory systems with particular emphasis on vision; and (4) The development of perception and its relation to the anatomical and physiological development of the sensory pathways. The experimental work has been selected for its importance in the theoretical understanding of perceptual processes and consists of a general introduction to the apparatus and methods used in perceptual research.

Format: lecture 2 hours, lab 3 hours

Instructor: D.E. Mitchell

Prerequisite: Psychology 2000A and 2150

**Psychology** 

PSY 3070R Physiological Psychology:

Physiological psychology is concerned with the biological explanation of psychological phenomena. Students should have a working knowledge of concepts and methods in experimental psychology. Emphasis is on psychological issues with the answers sought in physiological terms. Labs will involve stereotaxic surgery on the rat.

lecture 2 hours, lab 3 hours Format:

Instructor: S. Nakajima

Prerequisite: Psychology 2000A and permission

of the instructor

PSY 3071R Physiological Psychology: Students in this class attend the same lectures as students in Psychology 3070R, but submit term papers rather than participate in laboratory work. The class is designed for students who wish to learn about physiological aspects of psychological issues, but who do not require the laboratory experience. Thus, this class does not meet the departmental laboratory requirement.

lecture 2 hours, seminar 1 hour Format:

Instructor: S. Nakajima Psychology 2000A Prerequisite:

\*PSY 3080R Experimental Social Psychology: This class involves the study of individual behaviour as a function of social stimuli with emphasis on extensive student research projects and class presentations. The class develops from discussion of research designs and methods to the study of basic processes such as person perception, social comparison, and social influence, including behaviour within groups and the relations between groups.

lecture 3 hours, lab 1 hour Format: Instructor: J. Barresi

Prerequisite: Psychology 2000A

PSY 3091A/B Methods in Developmental Psychology: Students learn how to conduct research on changes in behaviour from infancy through to senior years. They carry out projects representing different methodologies including a longitudinal observational study of an infant over the duration of the school term, two class experiments that focus on perceptual, cognitive or social development of different age levels, and a final independent project designed by the student. Class time is divided among lecture, demonstration, class laboratory work, group discussion, and oral presentation.

Format:

lecture 1 hour, lab 2 hours

Instructor: Staff

Prerequisite: Psychology 2000A

PSY 3092A/B Early Development: This class examines development in infancy and early childhood. There are two main parts to the class. Firstly, we consider the nature of infancy and attempt to answer the question, how does the psychologically almost inert newborn become

transformed in two short years into the running talking, laughing toddler? Secondly, we consider the major changes associated with the preschool period focusing especially on the development of the child's understanding of the physical and social world.

Format: lecture 3 hours C. Moore Instructor:

Psychology 2000 and 2090 or Prerequisites:

consent of the instructor

PSY 3121A/B Adult Psychopathology: This class is concerned with the disorders of psychological functioning seen in adults. A wide range of disorders will be touched upon. Particular attention is given to disorders as they highlight current theory and controversy. Schizophrenia. mood disorders, anxiety disorders, organic syndromes and dementia are examined with regard to both biological and psychological mechanisms Assessment and research techniques are discussed with emphasis on recent advances in brain imagine techniques.

Format: lecture 3 hours

Instructor: Staff

Psychology 2120 Prerequisite:

PSY 3129A/B Childhood Psychopathology: This class examines a wide range of behaviour disorders in children (e.g., reading disability, autism, attention deficit disorder). The goal is to gain a better understanding of the nature of these disorders by exploring empirical findings from both the social and physical sciences. Discussion will focus on problems of definition, and the relative merits of different theoretical accounts. Data on therapeutic outcome and ethical issues regarding intervention will also be considered.

Format: lecture 3 hours P. McGrath Instructor: Psychology 2120 Prerequisite:

PSY 3130R Cognitive Psychology: Cognitive psychology deals with how we gain information about the world, how such information is represented and transformed as knowledge, how it is stored and how that knowledge is used to direct our attention and behaviour. It involves the processes of perception, memory, attention and thinking. This class focusses not only on what is known about human cognition, but also on techniques cognitive scientists have developed to discover this knowledge.

Format: lecture 2 hours, lab 2 hours

Instructor: R. Klein

Psychology 2000A, and either Prerequisites: 2130, 2150, 2270 or consent of

instructor

PSY 3150A/B Introduction to Hearing and Speech Mechanisms: Hearing and speech are two behavioural capacities of fundamental importance to normal human communication. This lecture

class is designed to provide a basic understanding of the peripheral and central neural mechanisms of hearing, and of some psychological and physiological processes involved in speech production and speech perception. The class is production intended for those students anticipating more advanced training in neural mechanisms of hearing, speech science, human communication disorders and/or audiology. The class emphasizes normal hearing and speech mechanisms, but will address pathology where evidence from pathological subjects is pertinent to understanding normal function. Class content: introductory acoustics; structure and function of the outer and middle ears; structure and function of the cochlea; hair cell physiology and sensory transduction; coding of simple and complex sounds in the auditory nerve; sound localization mechanisms as an example of the correspondence between the physical properties of the stimulus, neural sensitivity and behavioural performance; theories of speech production; theories of speech perception; acoustic and linguistic contributions to speech perception. lecture 3 hours

Format: D. Phillips

Instructor: Prerequisites:

Psychology 2150 or 3050; Psychology 2071A strongly

recommended

PSY 3160R Ethology: Ethology is the biological study of behaviour. It uses psychology, genetics, physiology, ecology and evolutionary theory to solve problems in the development, function and causation of behaviour across all animal species. These diverse approaches to the study of animal behaviour are presented in naturalistic and experimental situations. In laboratory exercises qualitative and quantitative records of behaviour are made in the field and in the laboratory. There are several group research projects (first term) and an individual research project (second term).

lecture 2 hours, lab 2 hours Format: J. Fentress Instructor:

Prerequisites: Psychology 2160 or Biology 1000; Psychology 2000A is recommended

\*PSY 3197A/B Human Communication: An introduction to the cognitive and social processes of communication among human beings by the use of language or other symbols as abstract mental tools. The main topics are: 1) the nature of linguistic signs; 2) mental representation; 3) deixis; 4) implicature; 5) presupposition; 6) speech acts; and 7) structure of conversation.

Format: lecture 3 hours Instructor: M. Yoon

Psychology 2000A and 2190 or Prerequisite:

2130

PSY 3260A/B Biological Rhythms: The temporal structure of animal and human physiology is governed by both homeostatic mechanisms and by a system of biological clocks. These internal clocks generate rhythms with various periods in virtually every physiological and behavioural system. Daily (circadian) clocks are the most prominent; they generate rhythms in sleep, reproduction, intellectual performance and many other functions. This class examines the nature of these biological clocks and their physiological substrates, with an emphasis on the neural mechanisms involved in rhythm generation and synchronization in a variety of species. It also explores the hypothesized role of circadian mechanisms in sleep disorders, jet lag and depression.

lecture 3 hours Format: B. Rusak Instructor:

Psychology 1000 or 1010 or Prerequisite:

Biology 1000

PSY 3270A/B Developmental Neuroscience: This class introduces students who are already familiar with the structural organization and functional properties of the mature nervous system to aspects of neural development, especially at the cellular level. The first part of the class will link the early events of neural development to general embryonic development. Cell determination, pattern regulation, cell production, cell-lineage analysis, and neuronal differentiation, movement and migration will be discussed. Special attention will then be given to later developmental events such as neuronal growth cones, cell death, growth factors, neuron-neuron interactions and synapse formation using invertebrate and vertebrate examples.

lecture 3 hours Format: I.A. Meinertzhagen Instructor:

Psychology/Neuroscience 2071A Prerequisite:

and 2072B

PSY 3370A/B Neuroscience Laboratory I: (same as Neuroscience 3370) The two classes 3370 and 3371 (see next entry) are coordinated and provide introduction to several techniques used in contemporary neuroscience. The following information applies to these classes as a pair, within which the exact distribution of experimental approaches may vary from year to year according to availability of equipment and material, and numbers enrolled. Usually, electrical recording methods from several types of preparation are emphasized in 3370, while detailed neuroanatomically-based approaches are favoured in 3371. Regularly scheduled labs with students working in groups of 2 or 3 under supervision are supplemented by occasional lectures, in both classes. Students become familiar with electrical recording and stimulation methods and related techniques, currently using both sensory and motor system preparations. Neuroanatomical analysis is introduced by way of techniques usually selected from the following: Golgi impregnation of neurones, immunocytochemistry, dye-tracing of connections, and electronmicroscopy of the visual system or central nervous system. Lab II (3371) usually runs in the second term for selected, advanced students, building upon foundations laid in 3370 but using different practical approaches.

Format: Instructor:

lab 3 hours S.R. Shaw

Prerequisites: Psychology 2000A:

Psychology/Neuroscience 2071A

and 2072B, or 3270A

PSY 3371A/B Neuroscience Laboratory II: (same as Neuroscience 3371) For a description of this neuroscience lab class, see the entry under 3370 above; usually, 3371 is coordinated closely with 3370.

Format: Instructor: lab 3 hours Staff

Prerequisites: Psychology/Neuroscience 3370 and

consent of instructor

PSY 3390A/B Cognitive Development: In this class we trace the development of the child's knowledge from birth to adolescence. Piaget's theory provides the background for the study of recent progress in our understanding of children's concepts of the physical world.

lecture 3 hours Format: Instructor: C. Moore

Prerequisites: Psychology 2000A and 2090 or

consent of instructor

PSY 3500R Statistical Methods in Psychology: This class is primarily intended for honours students, but other students may be admitted with the consent of the instructor. This class is designed to enable students to understand parametric and nonparametric statistical procedures and their descriptive and inferential application to behavioural research. In addition, students learn to execute computer programmes for data organization and analysis. Class work includes lecture, seminar, and statistical/computer assignments.

Format: Instructor: lecture 2 hours, practicum 2 hours

J. McNulty

Psychology 2000A and 2500B Prerequisite:

PSY 3580R History of Psychology: In writings dating from antiquity to the early years of the 20th century, we explore the understanding of such abiding sources of our curiosity as individual, racial and sexual differences, the distinctions between man and animal, the sources of odd actions, the nature of the brain and of vision.

Format: Instructor: seminar 3 hours J.W. Clark

Prerequisite:

Psychology 2000A or consent of

the instructor

PSY 3590A/B Perceptual Development: This class examines the development of visual and auditory capacities in human infants and in a variety of animal species with sensory systems like our own. The neural events that underlie these developmental changes in the various sensory pathways will be discussed. The class will also grapple with the old question of how early sensory experience influences our perceptual abilities

Format: lecture 3 hours Instructor: D. Mitchell Psychology 2000A Prerequisite:

\*PSY 3760A/B Neuroethology: Neuroethology is the study of the neural bases of animal behaviour The class will emphasize cellular approaches toward understanding the integrative mechanisms of the nervous system which underlie complex behaviours. Feature detectors, command systems and motor programme generators will be examined in depth using examples from vertebrate preparations. Cellular bases of higher order functions such as motivation, learning and choice will be explored if time permits.

Format: lecture 3 hours Staff

Instructor:

Prerequisites:

Psychology 2000A or 2160 or 2071 or Biology 2020 or consent of the instructor

**4000-Level Seminars** 

These seminars (4000-4440) are intended for 3rd and 4th year honours students. Third-year students are eligible provided they obtain permission from the instructor, and the needs of all the fourth-year honours students are met. The topics covered in these classes vary from year to year. Consult the department for the specific course descriptions.

PSY 4000A/B Senior Seminar:

Format:

Instructor:

\*PSY 4001A/B Contemporary Issues in Psychology: 2 hours

Staff

2 hours

Staff

Format:

Instructor:

\*PSY 4040A/B Learning Applications in Clinical and Social Psychology:

Format: Instructor: 2 hours Staff

\*PSY 4050A/B Topics in Perception: Same as Neuroscience 4050

2 hours Format: Staff Instructor:

\*PSY 4070A/B Neuroscience Seminar: Same as

Neuroscience 4070 Format:

Instructor:

2 hours Staff

Psychology 2071, 2072 or 3270, or Prerequisites:

consent of the instructor

PSY 4080A/B Topics in Social Psychology and

Personality: Format: Instructor:

Staff

2 hours

Staff

PSY 4090A/B Development of Social Behaviour: 2 hours

Format: Instructor:

•PSY 4120A/B Topics in Clinical Psychology:

2 hours Format: Staff Instructor:

•PSY 4130A/B Topics in Human Information

Processing:

Format: Instructor:

\*PSY 4140A/B Animal Learning Topics:

2 hours

Staff

2 hours Format: Staff Instructor:

\*PSY 4160A/B Topics in Behavioural Biology:

Same as Neuroscience 4160 2 hours Format: Staff Instructor:

\*PSY 4230A/B Human Performance Topics:

Format: 2 hours Staff Instructor:

\*PSY 4440A/B Topics in Infant Development:

2 hours Format: Staff Instructor:

PSY 4500R Honours Thesis: The purpose is to acquaint the student with current experimental problems and research procedures in experimental psychology. Each student works with a staff member who advises the student about research in the major area of interest, and closely supervises an original research project carried out by the student. Each student must submit a formal report of the completed research in APA style. The final grade is based upon the originality and skill displayed in designing the project and upon the submitted report.

Instructor:

Prerequisites: Restricted to honours students in

their graduating year.

### **Statistics**

Chase Building Location: (902) 494-2572 Telephone:

**Director of Division** R.P. Gupta (494-3595)

**Faculty Advisors** R.P. Gupta (Undergraduate) G. Gabor (Graduate)

**Professors** 

C.A. Field, M.Sc., Ph.D. (Northwestern) G. Gabor, M.Sc. Ph.D. (Eotvos) R.P. Gupta, M.Sc. (Agra), Ph.D. (Delhi)

**Associate Professors** 

I.B. Garner, M.Sc., Ph.D. (Nottingham) (jointly with Comm. Health & Epidemiology) D. Hamilton, M.A.Ph.D. (Queens) K. Thompson, M.Sc. (Manchester), Ph.D. (Liverpool) - (jointly with Oceanography)

**Assistant Professors** 

K. Bowen, Ph.D. (Calif.) K.E. Manchester, M.Sc., Ph.D. (Toronto) B. Smith, M.Sc., (Calgary), Ph.D. (Berkeley)

Statistical Consultant W. Stubson, BSc (Manitoba)

Please refer to the entry for the Department of Mathematics, Statistics and Computing Science, page 228, for a full listing of the members of the Department and information on other programmes offered by the Department.

Degree Programmes

Statistics is the discipline which is concerned with the organization, display and interpretation of data. By a study of the uncertainty inherent in scientific hypotheses, statistics enables us to make inferences based on observations with error about these hypotheses.

There are several honours programmes, a 20-credit advanced major and a 15-credit major programme in Statistics available to students. Any student interested in such a course of study should consult the Director of Statistics, Department of Mathematics, Statistics and Computing Science.

#### **Honours in Statistics**

The honours programme in Statistics will provide students with a comprehensive knowledge of both theoretical and applied statistics and will enable students to move easily into challenging employment or graduate work in statistics. The following programme is normally followed by

**Statistics** 

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students who plan to take Honours in Statistics.

Year 1: Math 1000/1010 (or Math 1500), **Stats 1060** 

Year 2: Math 2000, Math 2030/2040 (or Math 2130), Stats 2060, 2050\*. 2080\*, C.S. 1400/1410\*

Year 3: Stats 3340, 3360, 3380, 3460, 3350, Math 3090, one of 3080B, 3100B

Year 4: Stats 4060 and 4620

In addition 2 to 6 further half classes from other Statistics courses offered.

- Some students may take either C.S. 1400/1410 and/or Stats 2050, Stats 2080 in the first year of their degree program.
- Students are recommended to take Stats 2300 and Math 3170 in either second or third year of their degree program.

#### Honours Comprehensive Examination

Prerequisite: Successful completion of the third year Honours Statistics programme. The student will carry out an independent statistical study or act as a major statistical contributor to a research project under the supervision of a faculty member. In addition the student will participate in the Statistical Consulting service through consulting workshops.

#### **Combined Honours**

Students interested in taking honours in Statistics combined with another subject should consult the Director of Statistics through whom a suitable course of study can be arranged.

### 20 Credit Advanced Major in Statistics

The department is able to offer a major in the 20- credit programme. For further information refer to specific regulations for the 20-credit programmes on pages 70 and 71. The following programme is normally followed by students who plan to take advanced major in Statistics.

Year 1: Math 1000/1010 (or Math 1500), **Stats 1060** 

Year 2: Math 2000, Math 2030/2040 (or Math 2130), Stats 2060, Stats 2080, Stats 2050, C.S. 1400/1410

Year 3: Stats 3340, Stats 3360, Stats 3380, Stats 3460. and in addition 2 to 8 further half classes in Statistices in their 3rd and 4th year.

Note: Some students may take Stats 2050/2080, C.S. 1400/1410 in their 1st year, of their degree programme. Students are recommended to take Stats 2300 and Math 3170 in either second or third year of their degree program.

### 15 Credit B.Sc. Degree in Statistics

The following programme is generally followed.

Year 1: Math 1000, Math 1010, and State 1060

Year 2: Stats 2060, Stats 2050, Stats 2080, Math 2030/2040

Year 3: Stats 3340, Stats 3360, Stats 3380, Stats 3460

Note: Some students may take Stats 2050 and/or Stats 2080 in the spring term of their 1st year if they have taken Stats 1060 in the fall term. Students are also advised to take Math 2000, Stats 2300 and C.S. 1400/1410 in their 2nd or 3rd year.

### Co-Operative Education Programme

The Co-operative education programme integrates a 20-credit programme of 8 academic terms with 4 work terms of relevant industrial/laboratory employment. The work terms each of 4 months duration, are spent in industrial business and laboratory positions. The work experience helps students see the applicability of their training in mathematics, statistics and computing science and helps them make intelligent career choices. Upon successful completion of the programme the University transcript indicates that the programme was a co-operative one.

Advanced Major students should complete a Co-op degree in 4 and 1/3 years; Honours Statistics students should expect to take 5 years.

Students interested in a Co-op programme in statistics or a combined programme with statistics should consult the Director of Statistics or the Director of Co-op Education in the Department of Mathematics, Statistics and Computing Science, preferably early in their course of study.

More details on the Co-op programme appear in the main entry for the Department in the Calendar, page 230.

#### Classes Offered

Credit may not be obtained twice for the same class even if the numbers have been changed.

STATS1060A/B Introductory Statistics for Science and Health Sciences: This course gives an introduction to the basic concepts of statistics through extensive use of real-life examples drawn from a variety of disciplines. The first part of the course is about designing experiments properly and then describing and summarizing the results of the studies by using descriptive statistics. From there we move to analyzing relationships between variables. In the final part of the course, we develop the basics of statistical inference explaining how to make valid generalizations from samples to populations. Both estimation and hypothesis testing are carried out for one and two

sample problems for both means and proportions as well as for simple linear regression. Natural sequels for this class are Statistics 2060 and 2080. Lecture 3 hours, tutorial 1 hour,

Format:

Prerequisite: Nova Scotia Mathematics 442 or

equivalent

Same as MATH 1060, Econ. 1106 Cross-listing:

STATS 2050A/B Exploratory Data Analysis: This course is designed to introduce the student to exploratory data analysis and graphical techniques making extensive use of statistical software such as S or S-plus. Extensive real data sets will be used and the emphasis will be on finding patterns and structure in complex data. The student completing the class will be able to do sophisticated graphing, data reduction and data handling. The skills learned will be very useful in several of the advanced statistics classes. Lecture 3 hours Format: Prerequisite: Statistics 1060

STATS 2060A/B Introduction to Probability and Statistics: Rigorous introduction to probability and statistical theory. Subject matter is developed systematically beginning with the fundamentals of probability and following with statistical estimation and testing. The interrelationship between probability theory, mathematical statistics and data analysis will be emphasized. Topics covered include elementary probability, random variables, distributions, estimation and hypothesis testing. Estimation and testing are introduced using maximum likelihood and the generalized likelihood ratio. Natural sequels for this class are Statistics 2080 and 3360

Lecture 3 hours, MLC Format: MATH 1000/1010 or 1500 Prerequisite: **MATH 2060** Cross-listing:

STATS 2080A/B Statistical Methods for Data

Analysis and Inference: This class introduces a number of techniques for data analysis and inference commonly used in the experimental sciences. The class begins with an introduction to model building in linear models and develops the techniques required for multiple regression. From here we consider analysis of variance, factorial designs, analysis of covariance using the general techniques for linear models. The last part of the class will include techniques for two and three way tables along with logistic regression. The use of a computer package for carrying out the

computations will be an integral part of the course. Students will design and carry out a simple experiment as part of this class. A natural sequel for this class is Statistics 3340.

Format: Lecture 3 hours, MLC Prerequisite: STATS 1060 or STATS 2060 Cross-listing: Same as MATH 2080

STATS 2090A Intermediate Statistics for Health Sciences: This class is designed so that students will be able to select appropriate statistical methods to analyse categorical, ordinal and measurement data to carry out the analysis on the computer using the MINITAB and GLIM statistical languages. Topics to be covered include least squares methods and F-test in multiple regression and analysis of variance via regression, analysis of crossed and nested designs, rank methods, analysis of count or frequency data with log linear models, power of a test.

Format: Lecture 3 hours

STATS 1060 or equivalent Prerequisite: Cross-listing:

Same as Nursing 5000, PE 5003, Pharm 5980, LEIS 5503, KINE

5503, HEED 5503, HEAS 6500 Intended primarily for graduate

students; NOT available for credit in the Col of Arts & Sci.

STATS 2300B Introduction to Mathematical Modelling Using Algebra: For description see MATH 2300.

Format: Lecture 3 hours, MLC

Corequisite: Math 2030

Exclusion:

Cross-listing: Same as MATH 2300B

STATS 2600A or B Theory of Interest: For description see Math 2600.

Format: Lecture 3 hours, MLC Prerequisite: Mathematics 1010 or 1110

STATS 3340A Regression and Analysis of Variance: An introduction to regression with emphasis on the practical rather than the theoretical aspects. Topics include; fitting a straight line in matrix terms and fitting of general linear models, analysis of residuals. Transformation of data, correlation, multiple and polynomial regression, weighted least squares, indicator variables, selecting the best regression equation, analysis of variance models and an introduction to non-linear least squares. This class makes extensive use of computer packages.

Format: Lecture 3 hours

Prerequisite: STATS 2080, MATH 2030, MATH 1010 or STATS 2060

Cross-listing: same as MATH 3340

STATS 3350B Design of Experiments: The aim of the class is to develop the fundamental statistical concepts required for designing efficient experiments to answer real questions. The first main subject is unit variation and control. The basic concepts of replication, blocking and randomization are each examined. The second main subject is treatment questions and structure. The ideas of factorial designs, split-plot and incomplete plot designs are presented. We conclude with a look at response surface methodology.

Lecture: 3 hours Prerequisite: STATS 3340 or consent of instructor

STATS 3360A Probability: An introduction to the basic concepts of probability to illustrate the great variety of practical applications of probability in science and industry. Topics include: (a) Fundamentals; (b) the classical models; binomial and hypergeometric, the multinomial, the Poisson, exponential, and the uniform distributions; (c) definitions of random variables, independence, functions of random variables, and distributions of sums of independent random variables; (d) conditional events and their probabilities; their uses; (e) laws of large numbers and the Central Limit Theorem. Examples illustrating the

taken from the natural and physical sciences.

Format:

Lecture 3 hours

Prerequisite: STATS 2060/2080 and MATH

applicability of probabilisitic formulations are

2000

Cross-listing: Same as MATH 3360

STATS 3380A/B Sample Survey Methods: The development of design and analysis techniques for sample surveys. Topics include simple, stratified and systematic random sampling, ratio and regression estimation, sub-sampling with units of equal and unequal size, double-multistage and multiphase sampling, non-sample errors and non-respondents.

Format: Lecture 3 hours
Prerequisite: STATS 2060

Cross-listing: Same as MATH 3380

\*STATS 3390A/B Statistical Computing: (same as CS 3390) The class will provide an introduction to the principal computational methods which are important for data analysis. Major analyses usually require extensive computing; hence techniques which ensure the validity and accuracy of the computations are necessary. Topics covered will include, numerical computations, linear models, Monte Carlo methods and random number generators.

Format: Lecture 3 hours

Prerequisite: STATS 2080, MATH 2040, CS

1210 or 1410

STATS 3460B Intermediate Statistical Theory:
This class provides an intermediate level coverage of statistical theory to provide a framework for valid inferences from sample data. The methods developed are based on the likelihood function and are discussed from the frequentist, likelihood, and Bayesian approaches. The problems of point estimation, interval estimation and hypothesis testing and the related topics of sampling distributions, sufficiency, and Fisher Information are discussed.

Format: Lecture 3 hours
Prerequisite: STATS 3360

Cross-listing: Same as MATH 3460

STATS 4060R Advanced Statistical Theory: This class is intended to provide a solid basis in statistical theory. The classical theory of estimation and testing provides a starting point The Rao-Blackwell theory, Cramer-Rao bound Nevman-Pearson theory and uniformly most powerful tests will be covered. From here. conditioning and invariance will be used to obtain good procedures in more complex situations. The theory will be developed in the context of specific problems including the general linear model. The basic ideas of robustness will be introduced followed by a discussion of goodness of fit models. The final part of the course will examine the asymptotic behaviour of a number of the statistical procedures developed in the class.

Format: Lecture 3 hours
Prerequisite: STATS 3460

STATS 4070A Multivariate Distributions: This course deals with the distribution theory of the observations on more than one variable. Topics covered include: Multivariate Normal Distribution, The Wishart Distribution, Hotelling's T<sup>2</sup>, Distributions Associated with Regression, Canonical Correlations and Discrimminant Analysis.

Format: Lecture 3 hours
Prerequisite: Stats 3460

STATS 4080A/B Statistical Analysis of Spatially Coherent Systems: Techniques for the analysis of modelling of statistical relationships within a spatially coherent system are studied. Practical constraints in the construction of models and of estimation and prediction schemes for natural processes are illustrated with examples from meteorology and oceanography.

Format: Lecture 3 hours

Prerequisite: STATS 3460 or permisison of the

instructor Ocean 4080

STATS 4090A/B Probability: For description see MATH 4090.

Format: Lecture 3 hours

Cross-listing:

Prerequisite: STATS 3360 and a third year

analysis class

Cross-listing: Same as Math 4090

STATS 4100A/B Survival Analysis: This course is an introduction to survival analysis methods and will cover both the statistical theory behind the methods, and the application of various techniques. Topics to be discussed include survivorship and hazard functions and their relationship to lifetime distributions and densities; modes of censoring; the Kaplan-Meier estimate of the survivorship function; parametric survival time distributions; proportional hazard models and their semi-parametric estimation; log rank tests, including the Mantel-Haenszel test; and goodness of fit measures.

Format: Prerequisite: Lecture 3 hours STATS 3340 and STATS 3460, or equivalent

stats 4200A/B Nonlinear Regression: This course in intended to familiarize the student with methods for the design and analysis of experiments using nonlinear regression models. Topics include a review of the geometry of linear regression and its extension to nonlinear regression, numerical methods for finding the least squares estimates, exact and approximate methods for confidence region construction, optimal design for precise parameter estimation, assessing influence, and insights from differential geometry such as curvature measures.

Lecture 3 hours

Format:
Prerequiste:

Statistics 3340 and 3460 or permission of the instructor

STATS 4210A/B Advanced Topics in Time Series Analysis: Many of the data collected in the physical sciences are in the form of time series: sequences of measurements ordered in time. Using spectral techniques it is possible to analyse individual time series, and the relationships between them, as a function of frequency. This class will cover the estimation of auto- and cross-spectra and illustrate their utility with examples drawn primarily from meteorology and oceanography. A brief description will be given of some spectrally-based techniques such as rotary vector analysis and complex orthogonal function analysis. The course will also cover some specialized topics of interest to meteorologists, oceanographers and applied statisticians, including extremal analysis, optimal interpolation and the design of measurement arrays.

Format: Lecture 3 hours

Prerequisite: STATS 3340, 3460 or permission of the instructor

STATS 4350A/B Applied Multivariate Analysis:
The class deals with the stochastic behaviour of several variables in systems where their interdependence is the object of analysis. Greater emphasis is placed on practical application than on mathematical refinement. Topics include classification, cluster analysis, categorized data, analysis of interdependence, structural simplification by transformation or modelling and hypothesis construction and testing.

Format: Lecture 3 hours

Prerequisite: STATS 3340 and MATH 2130 or 2040

STATS 4360A/B Robust Statistics: Robust Statistics are those which provide protection against violation of assumptions underlying the statistical procedure. We will develop basic concepts including sensitivity, influence and breakdown of estimates and tests. Classical procedures will be evaluated in terms of

robustness and alternate techniques developed based on weighted least squares and/or median based generalizations. Starting from the location problem, we will move on to regression and to multivariate problems by means of robust covariance estimates. We will also consider robust techniques in time series. Some simple programming will be required to implement various procedures.

Format: Lecture 3 hours
Prerequisite: STATS 3460 & 3340

STATS 4370A/B Stochastic Processes: A development of concepts of (a) Markov chains and continuous time Markov processes, (b) vector independence and the multivariate normal distribution, (c) stationary time series. Emphasis is on practical applications. The ability to translate from a physical context into the language of probability model is stressed. This class is a natural sequel to Statistics 3360. Here, the notions of time and space indexing of probability models are introduced, and conditional probability techniques are developed to deal with models of natural phenomena.

Format: Lecture 3 hours
Prerequisite: STATS 3360

STATS 4390A/B Time Series Analysis and Forecasting: The analysis of univariate time series data is discussed. Topics include stationarity, transformation, differencing, autocorrelation, autoregressive-moving average models, indentification, estimation, diagnostic checking and forecasting. The emphasis will be on model building using the approach of Box and Jenkins. Other topics such as exponential smoothing, seasonal adjustment and multivariate models may also be covered.

Format: Lecture 3 hours
Prerequisite: STATS 3340 & 3460

STATS 4620A/B Data Analysis: Admission to the class is by consent of the instructor. A problem- oriented approach to statistical analysis. The problems discussed are based on real life data. Students are encouraged to develop novel approaches for data analysis problems of case studies. Some general techniques which arise in non-traditional data analysis are presented in this class.

Format: Lecture 3 hours
Prerequisite: Statistical techni

Statistical techniques useful as background for this class would include any techniques covered in STATS 2060/2080, 3340, 3360, 3460 or consent of instructor

STATS 8700 Co-op Seminar STATS 8891 Co-op Work Term I STATS 8892 Co-op Work Term II STATS 8893 Co-op Work Term III STATS 8894 Co-op Work Term IV

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