CALENDAR 1987-88

University of King's College
FOUNDED A.D. 1789
halifax, NOVA SCOTIA

## THE UNIVERSITY OF KING'S COLLEGE

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.

## Notice

All readers and prospective 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 intende to provide guidance.
Any reference to courses or classes contained herein is a statement of courses or classes that have bee taught at the University of King's College and Dallousie University in the past. The University of King's prospective students are asked to consult with the respective Faculty to determine any changes to a course or class description contained herein.
The University of King's College reserves the right to delete, revise or add to anything described in this Calendar without notice, other than through the regular processes of the University of King's College and agreed to any such deletion, revision or addition whether made before or after said acceptance.
The University does not accept any responsibility for loss or damage suffered or incurred by any student as a result of suspension or termination of services, courses or classes caused by reason of strikes, lockouts,
riots, weather damage to University property or for any other cause beyond the reasonable control of the University of King's College or Dalhousie University.
The University reserves the right to limit enrollment in any programme. Prospective students should note carefully the application deadines indicated for the various programmes. They should be aware that King's/Dalhousie are normally required to pay deposits on tuition fees to confirm their acceptance of offers of admission. These deposits may be either non-refundable or refundable in part, depending on the programme in question. While the UUiversity 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. Studen 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.

Inquiries regarding academic matters should be directed to:
The Registrar
University of King's College
Halifax, Nova Scotia
B3H 2A1

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## ALMANAC 1987-1988

Classes offered at Dalhousie/King's have one of the letters " $A$ ", " " $B$ ", " $C$ ", or " $R$ " following the number. " $A$ " classes are those given in the fall term or in the first three weeks of a summer session. " $B$ " classes are
hose given in the winter term or the second three weeks of a summer session, and " R " and "C" classes are given throughout the regular year or a summer session ("R" classes carry one full credit or more, "C" or a summer session full credit).
classes less than one full

MAY 198
Last day for receipt of applications from foreign students (except USA) to programmes in Arts and Science

Monday, 11
Summer School (first session) registration and classes begin
Monday, 18
Victoria Day
JUNE 1987
Tuesday, 23
Summer School ends (first session), Faculty of Arts and Science
JULY 1987
Wednesday, 1 Canada Day. Last day for receipt of applications from transfer
Cater students for admission to Arts and Science. Last day for receipt studenis or admission to Arts and Science. Last day for receipt
of applications from applicants not meeting the normal admission
requirements for Arts and Science.

Thursday, 2
Summer School (2nd session) registration and classes begin
Friday, 10
Last day to apply for supplemental examinations in Arts and Last day to
Science.
AUGUST 1987
Saturday, 1
Last day for receipt of application for admission to Arts a
Science for fall term from students in Canada or U.S.A.
Monday, 3
Halifax Natal Day and Dartmouth Natal Day - No classes
Friday, 14
inal day of classes, Summer School

Registration and payment of fees, Bachelor of Journalism (one year) Programme
Tuesday, 25
Classes begin in Bachelor of Journalism (one-year) Programme

## SEPTEMBER 198

Monday, 7
Labour Day
Tuesday, 8
Supplemental examinations begin in Arts and Science
Wednesday, 9 - Saturday noon, 12
Last regular days for class approval, registration, and payment of fees for students in Arts and Science and Bachelor of Journalism (Honours) Programme
Thursday, 10
Classes begin in the Foundation Year Programme
Classes begin in the Foundation Year Program
University Church Service - Chapel $5: 00$ p.m.

Monday, 14 Classes begin in Arts and Science and Bachelor of Journalism (Honours) Programme

## Monday, 28

Last day for adding classes (except "B" classes) Arts and Science and Journalism

## OCTOBER 1987

Monday, 12
Thanksgivin
Thanksgiving Day
Tuesday, 13
Last day for withdrawing from "A", "R" or "C" classes without academic penalty, Arts and Science and Journalism.
Saturday, 17
Fall Convocation (Dalhousie)
NOVEMBER 1987
Wednesday, 11
Remembrance
Thursday, 12
Last day for withdrawing from " $A$ " classes, Arts and Science and Journalism

## DECEMBER

Lednesday, 9 Last day of isses in Arts and Science, Foundation Year Programme and Journalism

Examinations begin in Arts and Science and Journalism
Monday, 21
No classes, student holidays begin
Friday, 25
Christmas Day
Saturday, 26
Boxing Day
JANUARY 1988
Friday, 1 Year's Day
Monday, 4 Registration of new students

Monday, 18
Last day for adding "B" (or second term) classes, Arts and Science and Journalism; last day for students in Arts and Science to apply for supplemental examinations in "A" classes.

## FEBRUARY 1988

Monday, 1

Friday, 5
George III Day. No classes
Saturday, 6
Winter Carnival. No classes
Monday, 22
Study break begins
Monday, 29
Monday, 29
Classes resume

## MARCH 1988

Monday, 7 - Friday, 11
Class approval sessions for returning students, Arts and Science and Journalism.
Friday, 11
withdrawing from " B ", " C " and " R " classes Arts and Science and Journalism

## APRIL 1988

Friday 1
Good Friday
Friday, 8
Last day of classes, Foundation Year Program
Friday, 8
Awards Banquet
Saturday, 9
Last day of classes in Arts and Science and Journalism
Monday, 11
Examinations begin in Arts and Science and Journalism
Thursday, 16
Last day for submitting work in the Foundation Year Programme

## MAY 1988

Wednesday, 11 Encaenia Day - 11:00 a.m. Baccalaureate Service King's Convocation - 2:30 p.m.
Friday, 13
Dalhousie University Convocation, Arts and Science
Monday, 16
Summer School registration and classes begin (1st session)
Monday, 23
Victoria Day
JUNE 1988
Tuesday, 28

## OFFICE HOURS

 June, July, August (Monday - Friday) 9:00 a.m. - 4:30 p.m.
## Officers of the University:

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

## Visito

The Right Reverend the Lord Bishop of Nova Scotia

## Chancello

The Honourable Mr Justice R.A. Ritchie, B.A. (Vind et Oxon ), D.C.L. (Vind), LL.D. (Dal.)

President and Vice-Chancello
John F. Godfrey, B.A. (Trin.), M.Phil., D.Phil. (Oxon.)
Board of Governors (1986-87)

## Boar of

he Most Rev. H.L. Nutter, B.A., M.S.Litt., M.A., LL.D., D.D.
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. H.L.
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Acting Vice-President
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The Rev. Ruth Jefferson, S.Th.
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he Very Reverend J. Austin Munroe, B.A., M.S. Litt., B.D., D.D.
Alumni Association
Bruce Archibald, LL.B., LL.M.
Mary Barker, B. A
eter Bryson, B.A., M.A., L.L.B
Linda M. Fraser, B.A.
The Rev. Ronald E. Harris, B.A., L.Th., B.D
Susan E. Harris, B.A.
drienne M. Malloy, B.A., B.J.
Faculty Representatives
The Rev. W.J. Hankey, B.A., M.A., D.Phil.
A.M. Johnston, B.A., M.A., Ph.D.

Detlev Steffen, Ph.D.
Student Union Representatives
Louann Chaisson
Martin Redfern
Elaine Wright
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Frank Harrington, B. Arch., F.R.A.I.C
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Elizabeth Ann MacDonald, LL.B.
D. Peter MacLellan, B.A.

Major Cecil R. Thompson

Executive Committee
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The Acting Vice-Presiden
The Treasurer
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Mrs. Charlotte Cochran
Mr. George T.H. Cooper
The Rev. Canon Leonard J. Galey
The Very Rev. J. Austin Munroe
Ms. Louann Chaisson
Representatives on Dalhousie University Board of Governors

## Mr. George. Cooper

Representatives on the Governing Body of King's-Edgehill School
The Very Rev. E.B.N. Coctar
Secretary to the Board of Governors Susan Harris, B.A.
6058 Pepperell St., Apt. 2

## Officers of Administration

J.F. Godfrey, B.A., M.Phil., D.Phil.

The Rev. R.D. Crouse, B.A., S.T.B., M.Th., Ph.D., D.D
Acting Vice-Presiden
Acting Director, School o
Acting Director, , Sh.o., o Journalism
A.M. Johnston, B.A., M.A., Ph.D.
Director, Foundation Year Programme
D.A. Fry
H. Roper, B.A., M.A., Ph.D.

The Rev. W.J. Hankey, B.A., M.A., D.Phil
The Rev. G.R. Bridge, B.A., M.A., M.Div., A.M., Ph.D.
University Chaplain
The Rev. Canon Philip Jefferson, B.A., B.D., M.Div., S.T.M.
The R
M.Ed. Divinity Secretary
W.J.T. Kirby, B.A., M.A.

Dean of Residence
Margaret A.M.-L. Kirby, B.A., M.A., M.Lit
Dean of Women
Director of Athletics

## Officers of Convocation

The Honourable Mr. Justice R.A. Ritchie, LL.D., D.C.L J.F. Godfre

The Rev. R.D. Crouse, B.A., S.T.B., M.Th., Ph.D., D.D.
Clerk of Convocation
Clerk of Convocation
J.P. Atherton, M.A., Ph.D.
J.P. Atherton,
Public Orator

Chancellors of the University
The Very Rev. Edwin Gilpin, D.D., D.C.L., 1891-1897
Sir Charles J. Townshend. D.C.L. 1912-192
The Most Rev. John HacKenley, D.D., 1937-1943
The Hon. Ray Lawson, O.B.E., LL.D., D.Cn.L., D.C.L., 1948-1956
Lionel Avard Forsyth, Q.C., D.C.L., 1956-1958
H. Ray Milner, Q.C., D.C.L.L., D.C.L., LL.D., $1958-1963$
Robert H. Morris, M.C., B.A., M.D., F.A.C.S., $1964-1969$

## Norman H. Gosse, M.D., C.M., D.Sc., D.C.L., LL.D., F.A.C.S.

F.R.C.S.(C), $1971-1972$
The Honourable Mr. Justice R.A. Ritchie, D.C.L., LL.D., 1974

Presidents and Vice-Chancellors of the University
The Rev. Dr. William Cochran, 1789-1804
he Rev. Dr. Charles Porter, 1805-1
The Rev. Dr. George MICCawley, $1836-1875$
The Rev. Dr. John Dart, 1875-1855
The Rev. Dr. John Dart, 1875-1885
The Rev. Dr. Isaac Brock, 1885-1889
The Rev. Dr. Isaac Brock, $1885-1889$
The Rev. Dr. Charles Willets, 1889-1904
Dr. lan Hannah, 1905
he Rev. Dr. C.J. Boulden, 1905-1909
The Rev. Dr. T.S. Boyle, 1916-1924
The Rev. Dr. A.H. Moore, 1924-1937
The Rev. Dr. A. Stanley Walker, 1937-1953
he Rev. Dr. H.L. Puxley,
Dr. H.D. Smith, 1963-1969
Dr. F. Hilton Page, (Acting), 1969-1970
Dr. J. Graham Morgan, 1970-1977

## Academic Staff

King's Faculty (1986-87)
A.J. Andrew, B.A., M.A.(Dal.), D.C.L.(Vind.)
J.P. Atherton, M.A. (Oxon.), Ph.D. (Liverpool)

Professor of Classics R.D. Crouse, B.A. (Vind.), S.T.B. (Harv.), M.Th. (Trinity) Ph.D (Harv.), D.D. (Trinity)
R. MacGregor Dawson, B.A. (Trinity), M.A. (Tor.), B. Litt. (Oxon.)
Associate Professor of English
John F. Godfrey, B.A. (Trinity), M.Phil, D.Phil. (Oxon.)
John F. Godirey, B.A. (History
Associate Professor of (Tor.), D.Phil. (Oxon.)
W.J. Hankey, B.A. (Vind.), M.A. Associate Professor of Classics
Patricia M. Howison, B.A., (Winnipeg), M.C.S. (Regen
ollege/UBC), M.A., Ph.D. (Ottawa)
Kathleen G. Jaeger, M.A. (U.B.C.), Ph.D. (Dal)
ellow
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.

Assistant Professor of Humanities and Social Sciences
Stephen Kimber
Assistant Professor of Journalism
Betty-Ann Lloyd, B.A. (Alta.)
Lecturerer in Journalism
H. Eugene Meese, B.A. (Ohio State), Dip. Journ. (U.W.O.)

Assistant Professor of Journalism
H. Roper, B.A. (Dal.), M.A., Ph.D. (Cantab.)
Associate Professor of Humanities and Social Sciences
C.J. Starnes, B.A. (Bishops), S.T.B. (Harv.), M.A. (McG.), Ph.D. (Dal.)
Associate Professor of Classics
Professor of Humanities and Social Sciences, Associate Professor of
German K. von Maltzahn, M.S., Ph.D. (Yale)
K.E. von Maltzahn, M.S., Ph.D. (Yal
Professor of Biology

Professor of Biology
lan R. Wiseman, B.A. (M.U.N.)
Assistant Professor of Journalism
Associate Fellows
Elizabeth Beale, B.A., M.A
D. Alex Colville, C.C., D.Litt., LL.D. special Lecturer in the King's Foundation Year Programme

Joan Dawson, M.A. (Oxon.);'M.L.S. (Dal.) Yar-time Lecturer in French in the School of Journalism Yuri Glazov, Ph.D. (Oriental Institute, Moscow) Professor of Russian and Chairman of the Departmen Dalhousie University
John F. Graham, B.A. (U.B.C.), A.M., Ph.D. (Col.), F.R.S.C. Fred C. Manning Professor of Economics, Dalhousie University
G.P. Grant, B.A. (Queen's), D. Phil. (Oxon.), LL.D. (Trent), D.Lit. (Mount A.), LL.D. (Dal.), LL.D. (Queen's),

## LiLD. (Tor.), LL.D. (Acadia), F.R.S.C

Emeritus Professor of Humanities, Dalhousie University
R.C. Kaill, B.A. (Dal.), M.S.A. (Tor.), Ph.D. (McG.)
Associate Professor of Sociology and Chairman of the
Department
A.E. Kennedy, B.A., M.A. (U.B.C.), Ph.D. (Edin.)

Protessor of English, Dalhousie University
Judge Robert J. McCleave, B.A., LL.B. (Dal.)
Judge Sandra E. Oxner, B.A., LL..B. (Dal.)
Gordon Proudfoot, B.B.A. (Acadia), LL.B.(Dal)
Robert Rosen, B.S. (Brooklyn), M.A. (Col.), Ph.D. (Chic.) Professor of Biophysics, Dalhousie University
John A. Yogis, Q.C., LL.B. (Dal.), LL.M. (Dal.)
John A. Yogis,
LL.M. (Mich.)
Professor of Law, Dalhousie University

## Historical Sketch

The history of higher education in Canada began in 1789 with the At the time of its establishment it was, with the exception of the fifteenth-century 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 undertaken on an entirely different plan. The Loyalist political an religious principles upon which the New York seminary had been 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 aculties, 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 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 Royaing thenadian Navy as an Officer's Training Establishment, and
during tour years until May 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 Dahousie 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 the Atlantic School of Theology. This unique institution provides ecumenical as well as denominational theological education for candidates for the ministry and for laymen. During 1974 the Schoo eceived incorporation as a degree-granting institution of higher
education; thus the work previously done by the Faculty of Divinity King's College is now conducted by that School. King's holds in
beyance its powers to grant degrees in Divinity in course. King's
ants 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 King's history began in the $1972 / 73$ cademic year with the introduction of the Foundation Year rogramme for first year undergraduates. By taking advantage of its American University and yet drawing strenth of a large modern North association with Dalhousie, King's established this Programme which is unique in Canada and aims to provide the solid foundation of a modern humanistic education through a comprehensive view of Western Civilization from its beginnings in the Ancient World up to 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 nd, in addition to the day students who live out, men and women
an 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 its athletic activities, the College runs a Debating Society, known as the "Quintilian", and a Dramatic Society. Daily Although the College is an Anglican foundation, there is no membership of the College, either as lecturers or students. Member of Faculty may themselves be resident and function in the tradition manner as "dons" for the staircase (i.e. "bays"). The bays are named Chapel Bay, Middle Bay, Radical Bay, North Pole Bay,
Cochran Bay, and The Angel's Roost. Alexandra Hall is the esidence for women orily.
Drawing its strength from both the older tradition of classica uropean culture and at the same time offering its students all the pportunities 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

## Constitution

The Board of Governors is the Supreme Governing Body of the
University. It consists of the Bishops of the Diocese of Nova Scotia and Fredericton, the President of the University, the Vice-President the Treasurer, four members elected by the Faculty, together with
eight members elected by the Alumni Association, four members by the Students' Union, six 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, pr
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 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's standing who are recognized by the Clerk of

## The Chape

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 affiliations, are cordially invited to attend the daily Anglican services

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 term. The chaplain is assisted by other campus clergy in the daily 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 assist at the daily Eucharist, and an active sanctuary
guild cares for the altar and its appointments. An excellent choir, with
an impressive repertoire, sings three services in the chapel each group of contemporary musicians sing a Folk Mass each month.

## he Anglican chaplain is available to all students for pastoral

## King's College Library

The Library dates from the origins of the College, is the sole usable ink with those beginnings, and survives as the College's greatest is 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 he physical sciences, as well as in the humanities and theology. Ou Rare Books and Special Collections now include most of the origina brary since it was not affected by the fire in 1920
The Library has over 75,000 volumes primarily in the humanities, ournalism 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 ivinity-the history of art and ideas, and in journalism. In addition, he School of Journalism maintains a Resource Room where newspapers, periodicals, reference materials and clippings necessary
oo 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 ibrary 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 al King's. Care is laken to eliminate duplication at this leve ender in the Interlibrary Loan system, often supplying from its Special Collections volumes needed for research in the Atlantic egion.
The Treasures of the Library are varied and of outstanding mportance. The Weldon Collection of domestic china brought to
Nova Scotia and New Brunswick by the early settlers is one of only Nova Scotia and New Brunswick by the early settlers is one of only
wo such in North America. It is important both for the intrinsic value of the pieces and because their provenance il 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 eautifully illuminated medieval manuscripts, forty-two incunabiula, several thousands of sixteenth, seventeenth and specially eighteenth
century printings where King's often possesses the only North merican copy, and many rare editions from the nineteenth century The total of Rare Books and Special Collections exceeds fifteen ousand volumes.

The Special Collections are the Bray Library, Maritime Canadiana and Tractarian writings. The Bray Library holdings, now exceedin Windsors 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 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 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 ur coliection of traciarian pubilications. It has been extended by
G.W. Hodgson of St. Peter's Cathedral, Prince Edward Island and Kingdon Library, the best private theological Library in Canada at the makes the King's collection of Tractarian materials the best in 1985 an Canada.
The Library has endowment funds associated with Professor Burns rances Hannah Haskell, James Stuart Martell and Thomas Henry Hunt. About one quarter of the accessions budget and one fifth of he operating funds are supplied by endowment income.

## The Library hours are:

Monday to Friday
9:00 a.m. - 5:00 p.m.
Monday, Tuesday, Thursday, Friday evenings

Saturday 9:00 a.m. - 1200 noon
Sunday $\quad 2: 00$ p.m. $-5: 00$ p.m.
The student loan period for all books except those on reserve is two weeks. Journals circulate for one week.

Fines are charged for overdue books at the rate of fifty cents a day Students are given the privilege of borrowing books for the summer Staff
Librarian
he Rev'd Professor Wayne Hankey, D. Phil. (Oxon)
Assistant Librarian (Operations)
Janet Hunt
Assistant Librarian (Special Projects)
Jane Trimble, B.A. (Mt. Allison), B.L.S. (Toronto)
Cataloguer
Secretary
Secretary
Paulette Drisdelle

## Degrees

The degrees of Doctor of Divinity, Doctor of Canon Law and Docto of Civil Law, may be conferred honoris causa in recognition of

The dignity and honour of Fellow may be conferred by the vote of Convocation upon any friend of the University for noteworthy The honour of Associate Fellow is conferred by the Board of
Governors on the Recommendations of Faculty and Presiden 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

Pre-professional work in Arts and Science by students intending to
enter one of the Dalhousie professional schools may be taken as a enter one of the Dalhous

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 College <br> Residences

Dean of Residence
W.J.T. Kirby, B.A., M.A.

Dean of Women
Mrs. Margaret Kirby, B.A., M.A., M. Litt
Dons (1986-87)
Marguerite Bourbeau, B.Sc., M.A.
Gavin Dunbar, B.A.
Susan Folkins, B.SC., B.A
The Rev. Prof. W.J. Hankey, B. A., M. A., D.Phil.
The Rev. John Matheson, B.A., M. Div.
Graham Steele, B.
Graham Steele, B.A
Michael Treschow, B.A., M.A.
King's College endeavours to provide residential accommodation for 250 undergraduate students registered at King's in.the B.A., B.SC. and B.J. (Hons) programmes who have completed an application for
residence, and subject to the approval of the Dean of Residence or the Dean of Women. Students are advised to apply for places in esidence as soon as they have been accepted into the University. Owing to pressure of numbers, the College cannot guarantee
residence accommodation to all applicants. A cortain priority on ooms 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 are regarded normally as graduate students year B.J. programme are regarded normally as graduate students
and are granted a lower priority on rooms than undergraduates. The may, however, be considered for residence if there is available space.
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. Washing and drying equipment is provided in both men's and

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; and in them 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 oom, a study room, a laundry room, a service elevator and a trunk storage room

Both residences are designed so that it is not necessary to go隹ide for meals and extra-curricular activities.
Meals are prepared and served to all resident students in Prince
Applications for accommodation in all residences are accepted on the understanding that the student will remain for the whole cademic session. No student may withdraw from residence without are required to give one month's notice in writing to the Deans. Students withdrawing after occupying a room will lose their room deposit. In addition a penalty of $\$ 100.00$ will be imposed for failure to give one month's notice.

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 for new and returning students from 2:00 p.m., September 2, 1986 until the morning of the last day of
examinations in the Faculty of Arts and Science for the Fall Term. The residence will reopen on January 4, 1987, and remain open until science for the academic year.

Students in their graduating year are permitted to remain in residence until the morning after the last day of Encaenia activities. Resident
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 may be purchased.
As the residences will not be open during the Christmas holidays, students are urged to make arrangements for their Christmas students are urged to make arrangements tor their Christmas
vacations as early as possible in the Fall term. Except under unusual
circumstances and with the permission of the Deans, no student Application for accommodation will not be made until the student has been accepted by the University for the coming session. Residence aplications must be accompanied by a $\$ 100.00$ residence de No room
eceived.
Cancellation of an application received by the Registrar or the Deans ailure to cancel with the Registrar or the Deans before August 1st will result in forfeiture of the $\$ 100.00$ deposit.

## Fees

Academic and Related Fees
Fees are subject to change. Those payable in 1986-87 are as follows:
Full-Time Students-Academic and Student Fees
Full-time students include those registered for fall and winter terms for more than three full-credit classes and those registered for
Fees are due and payable at registration but if preferred, those registered full-time for fall and winter terms may pay in two installments, the first payable before September 30,1987 , the second on or before January 25 . Students whose accounts are more than 30 days in arrears are considered financially dismissed from the University. To be re-instated the student must pay the

Foreign Students-Effective September 1987
Students registered in a programme at Dalhousie or King's for the first time who are not Canadian citizens or permanent residents are required to pay an addititional fee of $\$ 1,700.00$ if registered on a full-time basis, or if registered parr-time, a proportionate fee related to their part-time studies. This applies to students entering a programme for the first time or students who have completed
one programme and are registered for a new one. (Any assessed differential must be paid in full with the first installment, and is payable each session the student. attends as a visa student). Visa students who commenced their current programme of study prior to November 1985-86 academic year are required to pay a differential fee of $\$ 1,500$
Full-Time Students-Academic Fees (1986-1987)

| Faculty | University <br> Fee | Society <br> Fee | Total | In Full at <br> Registration | ORPayable in 2 installments <br> (incl. carrying charge of $\$ 20.00)$ <br> At Registration | Bal. Jan. 25 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Arts and Science | $\$ 1525.00$ | $\$ 5.00$ | $\$ 1530.00$ | $\$ 1623.00$ | $\$ 1143.00$ | $\$ 480.00$ |
| Journalism | $\$ 1622.00$ | - | $\$ 1622.00$ | $\$ 1715.00$ | $\$ 1200.00$ | $\$ 535.00$ |

## Day Students

A significant number of students of King's College live off-campus. Their participation in the various societies, sports activities and
campus events that make up collegiate life is encouraged. They a campus events that make up collegiate life is encouraged. They are
also encouraged to make full use of campus facilities. To to this end
lockers. are available for the safe storage of personal effects.
(A student enrolled at King's is required to pay the King's Student Union Fee of $\$ 93.00$, but not the Dalhousie Student Union Fee, or the Rink and Athletic Field Fee. However, any King's student who wishes to participate in the Dalhousie Student Union activities must King's College must pay a Student Union Fee of $\$ 93.00$.)
Part-Time Students-Academic and Student Fees Part-time students must consult the Registrar at the University o

## Audit Students

Students who wish to audit a class but not for degree credit are required to register and pay fees at registration on the following
basis:

## One-third credit class One-half credit class One full credit class

$\$ 52.00$
$\$ 78.00$
$\$ 78.00$
$\$ 156.00$
student registered to audit a course who during the session Registrar and pay the difference in class fees plus a transfer fee of \$25.00.
Summer Session Students
Students registered for the first or second summer session pay fees on registra
Regulations for Payment of Fees
ees must be paid in Canadian funds by cash or negotiable cheque. If payment is made by cheque and returned by the bank as nonnegotiable, the account will be considered unpaid and there will
be an additional fee of $\$ 15.00$. If the cheque was to cover the first ayment on tuition, the student will not be considered registered and if applicable, the late fee for registration will apply.
Application Fee
An application fee of $\$ 15.00$ is required with the application form submitted by any student for any programme except those in which ine applicant has been previously enrolled. If the fee is paid for in a ven sccepted, and an plication is made for a subsequent session, the fee is again payable.

Application fees are not refundable and are not applied as a credit to
lass fees. Appication
class fees.

## Admission Deposit

A deposit of $\$ 100.00$ is required by all new students within 3 weeks of acceptance by Dalhousie. In some programmes there is a partial
refund for students who notify the Registrar's office in writing of refund for students who notify the Registrar's office in writing of
cancellation of their application by August 1 . There is no refund fo limited enrollment programmes. Where fees in full are payable by a government or other agency, any deposit paid by an individual will
be refunded to the student by November 15 unless the account is be refunded to the student by November 15, unless the account is not paid by November 1. In this
soon as payment is received.
Registration Fees
All students are expected to register on or before the specified dates. To complete registration a returning student is required to
complete the registration process, including any necessary class selection or approval, and to pay a minimum fee of $\$ 50.00$, unless a deposit of at least this amount has been made. This payment must be made by all students including those on scholarships, fellowships,
student loans, or whose fees are to be paid by external agencies student loans, or whose fees are to be paid by external agencies
and commits the student to the payment of the balance of fees unless formal action to withdraw is taken in writing at the Registrar's Office.

Late Registration
September Registration
Students are required to register on or before specified dates as indicated in the almanac. Late registration requires the approval of the Dean of the Faculty/Registrar and, if this is granted, payment of a 30, and the entire first installment.

## January Registration

Students are required to register on or before the specified date as
indicated in the almanac. Late registration requires the approval of the Dean of the Faculty/Registrar and, if this is granted, payment of a the Dean of the Faculty/Registrar and, if this is granted, payment of a
fee of $\$ 50.00$ before January 30 and $\$ 100.00$ if after January 30 , and the entire first installment

## Payments

Fees are due and payable at registration. Full-time students and partFees are due and payable at registration. Full-ime students and part-
time students with classes extending over fall and winter terms may pay fees in two installments.
Bills for fees will not be issued. The receipt issued at registration will show the balance outstanding.
Students planning to pay the first installment of fees from a Canada that funds will be available at registration.

Scholarships or bursaries paid by or through the University of King's College may be applied to fees. Students must produce at sums claimed under the award. If fees are to be paid by a government or other agency, a signed statement from the agency
must be presented at registration. (All such students are required must be presented at registration. (All such students are required to
pay the appoopriate deposit on registration.)

Fees cannot be deducted from salaries paid to students who are employed by the University of King's College.

## Late Payment

Compound interest will be charged on any balance of fees outstanding after the registration date except where payment of a
second installment is permitted. When fees are paid, within two weeks of the last date for regular registration, interest charges will be foregone. Students whose accounts are more than 30 days in arrears
are considered financially dismissed from the University. The ar considered inancially
students will be reinstated upon payment of the arrears, the arrears
interest and a $\$ 50.00$ reinstatement fee.
Fees Deductible For Income Tax The amount of fees constituting an income tax exemption for the
student is calculated by deducting from the total charge (1) Studen Union Fee and (2) the Society Fee. Fees may be claimed as a deduction only by the student. A special certificate for income tax
purposes will be issued on request to the Student Accounts Office purposes will be issued on request to the student Accounts Office

## Science) or

## Other Charges

## dentification Card

All new, full- and part-time students may obtain an identification card upon registration and payment of proper fees. I.D. Cards for those who register early for the regular academic year are issued by the
I.D. Office (located in the central foyer of the Dalhousie Arts and Administration Building basement) starting on the first weekday in June. For either summer school session, I.D. Cards are issued starting 2 weeks prior to the beginning of final registration. Student .D. Cards will only be issued upon presentation of the appropriate
equisition form, authorized by both the Registrar's Office and the Student Accounts Office. If these cards are lost, authorization for a replacement may be obtained from the office of the Registrar. A fee of $\$ 12.00$ is charged for all replacement I.D. cards except those cards remain valid until the beginning of the following academic yea (including summer session). (I.D. cards issued specifically for a summer session expire at the conclusion of that session). At the commencement of subsequent consecutive years, validation stickers Journalism cannot receive their I.D.'s until they register in September.
aboratory Charge
No laboratory deposit is charged. Students will be charged for careless or wilffil damage

## Examinations

An application for a supplemental examination must be accompanied by the proper fee.
Supplemental and Special Examinations
Extra fee for each examination written at an outside center. $\$ 25.0$
Fee will be forfeited unless application for refund is made on or before July 31, or in the case of February supplemental examination anuary 31.
Degree in Absentia
Any graduating student who is unable to appear at Encaenia is rior to May 4 (or October 15 for Dalhousie and King's in writing dress to which October 15 for Fall Convocation), giving the dotification is not received by the required date and case where otification is not received by the required date, and a student

## Transcripts

Transcripts, official or unofficial, will be issued only on the request of he student concerned. Official transcripts will be sent only to other first copy, $\$ 0.50$ for each additional copy ordered at the same time or the same address. Transcripts will not be issued if any account with the University is delinquent. Applicalions or ranscripts by B.A and B.SC. students must be made at the Registrar's office, Dalhousi

## Scholarships

Scholarships awarded by King's College will normally be applied to harges at King's. If a student has a larger scholarship than his Obligation to King's, the balance may be paid by kings io Dahousie Bursar's Office to ascertain if the Dalhousie Business Office has been
informed of the arrangement.

## Student Photograph

At time of first registration at King's each student will be asked to
Parking on the Campus
Each student who has a car on campus may obtain a parking permit Each student who has a car on campus may obtain a parking pe
from the General Office upon the presentation of insurance and frim the General ortice upon the prese
license number for a charge of $\$ 35.00$.
Students with motorbicycles may obtain parking permits under the same conditions for a charge of $\$ 35: 00$, and will be required to park

## Refund of Fees

No refund is made for 30 days when payment is made by personal installment of fees is not refundable except on compassionate grounds (e.g. illiness). In all other courses refunds may be made under certain conditions set out below. No refunds or rebates of end of January

Non-attendance at classes does not constitute withdrawál
A student who registered and wishes to withdraw must complete the necessary formalities through the Registrar's office in writing before he becomes entitled to any refund or exemption from unpaid fees.
A student who has paid an admission deposit and cancels that
application before August 1 , may be entitled to a refund of $75 \%$.
A student withdrawing within two weeks of the date of
commencement of classes will be charged a registration fee only of $\$ 25.00$.

A student withdrawing after two weeks of the date of commencement of classes will be charged in full for the incidental fees and may receive a refund (or be exempt trom unpaid fees as
the case may be) of the balance on a proportional basis, calculated in monthly units; a full charge will be made for the month in which the withdrawal is approved, including the month of December
A student withdrawing in January will be charged the full first installment of fees.
A student changing before February 1 from full-time to part-time status, with ine approval of the Registrar, will be eilg

For registration by term, or for part-time for term course-
For "Fall" term courses-
A student withdrawing in September will be charged a registration
fee only of $\$ 25.00$.
For withdrawal on any date in the Month of October the charge is onethird of the university fee (plus incidental Fee in full, where
applicable).
Full fee is charged if a student withdraws after October 31
"Winter" term courses-
A student withdrawing up to January $15^{\prime}$ will be charged a
registration fee only of $\$ 25.00$.
From January 15 to February 15 the charge is one-third of the From January 15 to February 15 the charge is one-third of the

Full fee is charged if a student withdraws after February 15
A student who is dismissed from the University for any reason will not be entitled to a refund of fees.

Applications for a refund or adjustment should be made to the Business Office after the approval of the proper authority has been
obtained. NB-King's students must report AS WELL to the Bursar obtained. NB-King's College.
Kin

## Fee for Student Organization

 Ales tudents' organizations and clubs, a copy of the King's College

## Residence Fees

All residence rates include three meals per day for the duration of students from some meals. In the case of timetable conflicts, students are permitted to obtain a box lunch or an early supper from he kitchen. Non-residents can pay for individual meals at any time, ne kitchen. Non-res
nd they can also o
Bursar. Bursar.
No student will be admitted to the King's College Residence who ha of paid his/her room deposit of $\$ 100.00$. This deposit will not be dails to anyone who accepts a room after August 1, 1985, or or shotify the Dean of Residence or the Dean of Women th assigned before this date.
Students are expected to remain in residence for the whole of the cademic year, uniess orer ange the withdraw at will and every. student who withdraws from residence after occupying a room will ose his caution deposit. In addition, should the student fail to give ne of the Deans one month's written notice of intention to withdraw he or she will be fined $\$ 100.00$.
A complete session is defined for students registered in the Faculty
of Arts and Science and the School of Journalism as being from the Af Arrs and Science and the School doursm as being from the scheduled examination in the Faculty of Arts and Science. A graduating resident student may stay in residence without charge after these periods up to and incluaing the last day of Encaenia ctivities, In exceptional circumstances a student may seek the permission of bove. 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 Student Union fee of $\$ 93.00$. In return for the payment of this fee, resident students not registered a
King's become fully active members of the King's College Student King's
Failure to Pay Residence Fee
Residence Fees for the Fall term must be paid by September 30 of danuary 30 of each year. Students who have not paid these fees by he deadline indicated will be charged a penalty of $\$ 40.00$ in additio to $12 \%$ interest on the unpaid fees.
. No student may return to residence in the Winter term until first erm residence (and interest) charg
. No student may return to residence after the study break of the Winter term uuntil second term residence (and interest) charges a
fully paid; the rooms of these students will be reassigned.

## The following schedule shows Residence Fees and Meal Charges applicable during the 1986-87 academic year

| RESIDENCE | TOTAL | Residence Fees PREPAID DEPOSIT | MINIMUM PAYABEE AT REGISTRATION | BALANCE JAN. 22 (INCLUDES SERVICE CHARGE) |
| :---: | :---: | :---: | :---: | :---: |
| Single Room and Board (Bays) | \$3,435.00 | \$100.00 | \$2,400.00 | \$1,055.00 |
| Single Room and Board (Alexandra Hall) | \$3,435.00 | \$100.00 | \$2,400.00 | \$1,055.00 |
| Suite Room and Board (Alexandra Hall) | \$3,551.00 | \$100.00 | \$2,400.00 | \$1,171.00 |
| Double Room and Board (Bays) | \$3,200.00 | \$100.00 | \$2,400.00 | \$ 820.00 |
| Double Room and Board (Alexandra Hall) | \$3,200.00 | \$100.00 | \$2,400.00 | \$ 820.00 |

## Expulsion

Each student expelled from residence loses his or her caution
deeosit o $\$$ \$100.00

## Caution Deposit

On enrollment each resident student is required to make a deposit of $\$ 100.00$ as caution money to cover damage done to furniture, etc. This amount, less deducto student graduates or leaves, when the balance will be beturned the student graduates or leaves, when the balance will be returned
by cheque usually during June. 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 previous year's deductions so that his or her credit may be
maintained at $\$ 100.00$. maintained at $\$ 100.00$.

The items above, together with a key deposit of $\$ 5.00$ and gown
rental of $\$ 20.00$ (gowns for nonresident students are optional), are rental of $\$ 20.00$ (gowns for nonresident students are optional), are payable at King's Business Office.

## University Regulations

## General

1. All students must report their local address while attending the University to the Office of the Registrar, on registration or as soon as
possible thereatter. Subsequent changes must be reported promptly
2. Place of Residence of Students. 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 parents or guardian is located. That place remains unchanged unless he or she takes steps that satisfy the Registrar that a place of residence is
3. No person under sixteen years of age is admitted to any class
except by special permission of the Senate.
4. All students must agree to obey all the regulations of the University arready made or to be made, and pay the required fees
and deposits before entering any class or taking any examinations.
5. Students taking classes in another Facuilty as part of an affiliated
course must conform to the regulations of that Faculty with respect course must con
to these classes.
6. A student is not eligible to register unless all previous accounts including fees, library fines, and other fines to the University have been paid.
7. Late registration requires the approval of the Dean of the Faculty. 8. Withdrawal: See the individual faculty regulations, and the fee
8. Tuberculin Test: In the interests of public health in the University
students are encouraged to have a tuberculin test. This is students are encouraged to have a tuberculin test. This is compulsory for Dental, Dental Hygiene and Physiotherapy students.
Facilities for testing are arranged by the University. Health Services. 10. Transcript of Record: A student may receive only an unofficial transcrint ersities, or to business organizations, etc., on payment other universities, or to business organizations, etc., on payme
the required fee. If a student so requests, a copy of a medical
certificate will be enclosed with certificate will be enclosed with the transcript.
9. The Senate is charged with the internal regulations of the
University, including all matters relating to academic affairs and
iscipline, subject to the approval of the Governors. Within the general policies approved by Senate, academic requirements ar
administered by the Faculty concerned
10. When the work of a student becomes unsatisfactory, or a student's attendance is irregular without sufficient reason, the Faculty concerned may require withdrawal from one or more classes, or
withdrawal from the Faculty. withdrawal from the Faculty
11. If a student is required to withdraw from a Faculty because of ailure to maintain adequate academic standing, such a student may previous performance may be taken into consideration.
12. Students whose accounts are delinquent on March 15 will not be eligible for graduation at the May convocation. For October or

## Discipline

. Members of the University, both students and staff, are expected o comply with the general laws of the community, within the
2. Alleged breaches of discipline relating to life in the residences are dealt with by the appropriate Dean or Director of Residence in
consultation with the relevant Residence Council. Senate is ch with the authority to deal with cases of alleged academic offences which is delegated to the Senate Discipline Committee), as well as ertain other offences.
3. On report of a serious breach of the law, or a serious academic
fffence deemed by the President, or in his or her absence by the 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, Senate, together with the reásons for it, without delay.
. No refund of fees will be made to any student required to lose credit for any course taken, required to withdraw or who is Uspended or dismissed from any class or from any Faculty of the

Examples of Academic Offenses a) Plagiarism

Plagiarism is considered a serious academic offence which could
lead to loss of credit and suspension tom may be defined as the presentation by an author of the work of another author, in such a way as to give one's reader reason to think hat the other author's work is one's own. A student who is in any oubt as to what constitutes plagiarism is urged to discuss the matter with th
sssignment.
(b) Irregularities in Admissions Procedures A member of the University who gains admission or assists any A member of the University who gains admission or assists any
other person in gaining admission by any irregular procedure, for example, by falsififying an academic record or by forging a letter of
recommendation or by impersonating any other person, commits an recommendation or by impersonating any ot
academic offence and is liable to a penalty.
(c) Irregularities in Evaluation Procedures A member of the University who attempts or who assists any other standing in a course related to any degree, diploma or certificate program, commits an academic offence and is liable to a penalty. Without limiting possible irregularities in evaluation procedures that may be considered by the Senate Discipline Committee, the
following examples shall be considered irregular procedures
(i) arranging for or availing oneself of the results of any ersonation at any examination or test, or,
(ii) attempting to secure or accepting assistance from any other
person at any examination or test
(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
(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 (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

## Senate Discipline Committee

1. Composition

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

## 2. Terms of Reference

(a) The Senate Discipline Committee is vested with original jurisdiction to consider all complaints or allegations respecting
offences or irregularities of an academic nature, including those offences or irregularities of an academic nature, including those
relating to admissions procedures and evaulation procedures, and to impose penalties in cases where the Committee finds an offence or irregularity has occurred.
(b) The Senate Discipline Committee shall assume jurisdiction when a complaint or allegation respecting offences or irregularities of an
academic nature are brought to its attention by the Secretary of Senate.
(c) The Senate Discipline Committee shall report its findings and any penalty imposed to the Secretary of the Senate. The Secretary of the Senate shall forward a copy of the report to any member of the
University community whom the Senate Discipline Committee has found to have committed an offence or irregularity and if the member concerned be other than a student a copy shall also be sent to the Vice-President (Academic)
(d) If the member of the University found to have committed an
offence or irregularity is a student, he may appeal to Senate any offence or irregularity is a student, he may appeal to Senate any finding or any penalty imposed by the Senate Discipline Committee
by advising the Secretary of the Senate in writing within 30 days of receipt of the report by the student.
(e) The Senate Discipline Committee, when it finds that a member of the University who is a student has committed.an academic offenc
or irregularity may impose one or more of the following penalties:
(i) loss of all credit for any academic work done during the year in (1) loss of all creait for any
which the offence occurred.
(ii) suspension of rights to attend the University for a specified (iii) dismissal from the university.
(iv) such lesser penality as the committee deems appropriate where mitigating circumstances exist.

## Definitions

Full-time Students: those registered for three full classes or more, or the equivalent of three hall-credit classes or more in either first or

Graduate Students: students who are enrolled in the Faculty of Graduate Studies.
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.
No-degree Students: students who are not candidates for a degree or diploma but who wish to take one or more university classes class. No-degree students must satisfy normal admission requirements.
Part-time Students: students registered for fewer than three fullcredit classes or the equivalent of three half-credit classes in eithe first term or second term.

## Programmes of Study

The Foundation Year.Programme is taken by all first-year students nrolled in the B . (Hons.) degree programme.
King's offers four Programmes of Study leading to degrees in Arts
B.A. (General) three years
B.A. (Honours) four years
B.Sc. (General) three years
B.SC. (Honours) four year's

King's offers two Programmes of Study leading to degrees in
B.J. (Honours) four years
B.J. one year following B.

The University of King's College and Dalhousie University have one Faculty of Arrs and Science. King's studens can take ail the course ered by in Science either ordinary or with honours. Currently degrees can be done in Social Anthropology, Biochemistry, Biology, hemistry, Classics, Economics, English Language and Literature French, Greek, Geology, German, History, Latin, Mathematics, Psychology, Religion, Russian, Sociology, Spanish, and Theatre Joint majors or joint honours may be taken in a number of subjects. King's students can also do the pre-professional work offered by the Faculty of Arts and Science and which sometimes amounts to less
than what is required for the B.A. or B.Sc. Architecture, Medicine, Dentistry, Physiotherapy, Social Work, Law, Education, Theology all accept students after one level or another of work in Arts 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 Journalism-B.J.,B.J. (Hons.)). For example, King's students cannot be taking the Diploma in Engineering, or the Bachelor of Music Education, nor will they be
doing Commerce or Graduate Studies. What King's does offer other han what is available to Dalhousie Arts and Science students is a unique way of doing an Arts 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. Bachelor of Arts students enrolled in the Foundation Year rogramme do one class in addition to the Foundation Course. Bachelor of Science students in the Programme do two additiona 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 Yea Programme is taken by all first-y
B. J. (Hons.) degree programme.

The University year begins in early September and classes are completed by the end of April. In Arts and Science, the ordinary onours degree in four years. A total of fifteen classes is required for the ordinary degree, and twenty for the honours degree. A major for the ordinary degree requires four classes beyond the first year level, aken in the second and third years. Honours degrees require a
minimum of nine classes in the area of concentration after the firs year, a certain standard being maintained (in some subjects an honours thesis is obligatory). Five classes constitute a normal class oad in an academic year.

## Faculty of Arts and Science

## Introduction

The Faculty of Arts and Science consists of several groups of persons: some four thousand undergraduate students who typically spend three or four years in the faculty, over three hundred teaching
and research faculty members most of whose positions are more or less permanent as well as a number of part-time teachers, and a third important element consisting of the support staff of secretaries technicians, etc. Academically, the student's almost exclusive role to learn-from teachers, from laboratory experience, from books,
from other students and from solitary contemplation. Students learn not only facts but concepts, and most important, learn how to learn. Almost all of what undergraduate students learn of fact, concepts and methods, although new to them, is not new to the world
Through intellectual interaction with other members of the academic community, undergraduate students should gain the background knowledge, the abiilty and the appetite for independent discovery.
This point is marked formally by the award of a Bachelor's degree.

The academic faculty have two equally important roles: to teach the same facts, concepts and methods that the student must learn, and to contribute. to human knowledge. through research, scholarly or
artistic activities. artisic activities.
The Faculty of Arts and Science at Dalhousie/King's is divided into twenty-three departments representing at least that number of
intellectual disciplines. Most of the departments are devoted either to the liberal arts or the pure sciences.
The Bachelor's degrees of B.A. or B.Sc. are not intended to signify that the student is qualified for any particular job. The goal of such programs is simply 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 solve problem A B.A. or B.Sc. often plays a second role as a prerequisite to a professional program of study or as a stage towards a Ph.D. in an arts or science discipline
The non-professional departments in the Dalhousie/King's Faculty of Arts and Science comprise the humanities, including languages,
social sciences, life sciences, physical sciences and mathematical social sciences, ilie sciences, physical sciences and mathematical
sciences. Students in B.A. and B.Sc. programmes should sample classes across these areas to have some appreciation of the nature of a variety of disciplines. The section of the Calendar which follows
describes the nature of the subjects which can be studied in the Faculty of Arts and Science at Dalhousie, the content of each of the classes offered, the regulations governing admission, and the awarding of degrees. It is designed to help those who wish to enroll
in the Faculty, as well as those who are already enrolled, to make in the Faculty, as well as those who are arready end.
informed choices about their programmes of study.
The dean, associate deans and assistant deans of Arts and Science The dean, associate deans and assistant deans of Arts and Sci
and the chairpersons of the departments and other members designated as faculty advisors, are available for general consultation and are ready to help in the planning of programs of study. In the
latter activity they are assisted by the Director of Admissions, and all latter activity they are assisted by the Director of Admissions, and all
new students are invited to discuss their proposed academic programs with him before registration. The Dean of Student Services, Director of Admissions, and the Registrar are prepared to help in the interpretation of University Regulations and to answer general questions, while the Director of Awards is available for advice and
assistance concerning awards, scholarships, and other financial aid. Students planning to take a postgraduate degree should consult the Students planning to take a postgraduate degree should consult the
department in which they intend to specialize before finally deciding on the choice between a general and an honours undergraduate

## Officers of the Faculty

Dean of the Faculty of Arts and Science
D.D. Bets, B.Sc., M.Sc. (Dal), Ph.D. (McG), F.R.S.C., Professor of
Physics Physics

Associate Deans of the Faculty
A.R. Andrews, B.A., Dipl. Edd. M.A.(Leeds), Ph.D. (III.), F.R.S.A.
T.S. Cameron, B.A., M.A., D.Phir (Oxon), Professor of Chemistry Assistant Deans of the Faculty M.M. Furrow, B.A. (Dall, M. A., M.Phil, Ph.D. (Yaie), Assistant
Professor of English Professor of Englis
W.R.S. Sutherland, B.Sc. (Mt.A.), M.A., Ph.D. (Brown), Professor of Mathematics
Secretary of the Facuilty Biology
Administrator
D.G. Miller, B.Comm (Acadia)

## 1. Definitions

For definitions of some commonly used terms, see University

## 2. Departments of the Faculty of

 Arts and ScienceBiochemistry (also in the Faculty of Medicine)
Biology
Chemistry
Classics
Economics
Education

## Encaction

Engineerin
French
Geology
German
History
Mathematics, Statistics and Computing Science
Microbiology (also in the Faculty of Medicine)
Oceanography
Philosophy
Physics
Political Sci
Political Scien
Psychology
Religion
Religion
Russian
Socion
Sociology and Social Anthropology
Spanish

## 3. Subject Grouping

The various subjects in which instruction is offered are grouped as foliows.
A. Languages: French, German, Greek, Latin, Russian, and Spanish.
B. Humanities: Classics, Comparative Literature, Comparative Religion, English, History, Medieval Studies, Music, Philosophy, and
C. Social Sciences: African Studies, Economics, Education, Histo International Development Studies,
Sociology and Social Anthropology.
D. Sciences: Biochemistry, Biology, Chemistry, Computing Science Geology,
Classes are also offered in Architecture, Education, Engineering.

## 4. Programs Offered

Programmes leading to the following qualifications are offered to
students registered at the University of King's College: Bachelor of
Arts and Bachelor of Science Many of the classes offered may be taken on a non-degree basis by persons who do not wish to study for a degree

## 5. Admission Requirements

5.1 Students from Nova Scotia High Schools At least five senior level university preparatory classes should be aken in the grade XII year as follows:

## (a) English

(b) At least two of Biology, Chemistry, French, German, History Latin, Mathematics and Physics
(c) The remaining classes may be from those listed above of
from Economics, Geography Geology Law, Modern World from Economics, Geography, Geology, Law, Modern Wher,
Problems, Music, Political Science, Sociology, Spanish
Any special or experimental classes must have been previously approved by Dalhousie if acceptance for credit for admission is to be assured.

A passing grade of at least $50 \%$ is required in each class, with an
average of at least $60 \%$. Special consideration will be given to grades in English and Mathematics.

For certain programs there are additional requirements. These clude the following:
Bachelor of Science, Grade XII Mathematics 44
Mathematics 441 is required for admission to Mathematics and
Computing Science classes
The University does not apply criteria rigidly. Students who do not neet the above requirements, particularis nose with high standing,
5.2 Admission from Outside Nova Scotia

Students are accepted from other provinces and countries at levels as shown below, which are consider the purpose admission to Nova Scotia Grade XII.

New Brunswick, Prince Edward Island, Manitoba, Saskatchewan, Alberta and British Columbia: Grade XII, with subject distribution as for Nova Scotia
Newfoundland: First year Memorial University of Newfoundland Quebec: Two years at CEGEP. In special cases, one year CEGEP (high standing in a strong program required.)
Ontario: Grade XIII or very high standing in Grade XII.
U.S.A.: Outstanding students may be admitted from U.S.A. Grade XII on the basis of advanced placement work or high SAT or CEEB
scores: transfer credits will be considered for ShCh scores. franster credits will be considered for such outstanding students if they have completed a full year of study with good
standing (minimum: 30 semester hours) at a recognized university elsewhere. Other students from the U.S.A. can normally be admitted only after completing a first year at a recognized university or junio college (minimum: 30 semester hours) and credit, if any, for that year's work is determined on an individual basis.
The United Kingdom, West Indies, West Africa: General Certificate of Education (GCE) with pass standing in at least five subjects, of which one
Advanced Level. Hong Kong: GCE as for Great Britain, or University of Hong Kong
Matriculation Certificate under same conditions as for GCE. , Bar Co Bangladesh, India, Pakistan: Bachelor's degree with first or circumstances, first-class standing in the intermediate examinations
in Arts and Science, provided the candidate has asses at the in Arts and Science, provided the candidate has passes at the
university level in English, Mathematics, and a language other the university level in English, Mathematics, and a language, other than
English. Note: This standing is not sufficient for admission to the sequential BEd program at Dalhousie.
Countries not mentioned above: Write to the Registrar's Office University of King's College, Halifax, N.S. B3H 2A1, for further
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
5.4 Mature Students and Persons Lacking Normal Students who do not meet the usual admission requirements may be onsidered under the mature student calegory provided that
.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 Admissions Committee an application form together with a letter outlining their work experience
and other activities. Normally high school transcripts are required and interviews may be required
Under exceptional circumstances, the Admissions Committee may agree to admit the student directly to a degree program if the student's background is deemed sufficient preparation for such admission. Otherwise, the Admissions Committee may admit mature grades of C - or better in at least three full-year classes (or equivalent) taken. At that time, they are eligible to apply for admission as regular undergraduate students.

### 5.5 January Admissions

Admission to Dalhousie/King's is normally for classes beginning in September, and the University does not admit full-time, first-year fudents in Jay ue Paited for classes beginning in January' deadline for application for Jonuary 1988 admission is November 15
5.6 Application Procedures

The following should be submitted:
(a) a completed application form (for deadlines see the almanac), (b) application fee,
(c) an official record of high school work, and
(d) an official transcript of the record of work done at previous
post-secondary institutions (if applicable).

Applicants for admission whose native language is not English must
give evidence that they are proficient give evidence that they are proficient in spoken and written Englis University of Michigan, or the Test of English as a Foreign Language (TOEFL) (normally with 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 may be ootained by writing to the English Language institute, Testing
and Certification Service. Ann Arbor, 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 ocuments (e.g. calendar pages) are acceptable in lieu of originals ocuments (e.g. calendar pages) are acceptable in lieu of origina
ertificates in languages other than English or French must be accompanied by certified translation into English or French

### 5.7 Response to Applications

All applications will be acknowledged promptly. At the same time when documentadvised of any documentation still required. he hands of the Admissions Committee for decision. Although ever ffort will be made to have decisions made quickly it must be programs where competition for places is keen.
As soon as decisions are made, whether final admission, conditiona admission, deferral or rejection, applicants will be advised.

### 5.8 Early Acceptance

Applicants currently enrolled in a course of study, who have good cords, i.e., normally $70 \%$ or better for those in high schools, may given early acceptance, conditional on satisfactory completion of

## 6. Student Aid, Scholarships and Other Awards <br> Prizes serion of this Cater

## . Admission to Classes

### 7.1 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 Director of Admissions o
Registrar, or with a Faculty advisor in an academic department of particular interest. After the first year, students plan their programmes in consultation with a Faculty advisor in their major obtainable from academic departments or the Office of the Registra, his form must be completed before registering.
Since space in some classes is limited, first-year students are trongly urged to select classes before Aug. 1. All accepted studen will be advised of procedures. Returning students are given an
ipportunity to select classes and register early, and should do so opportunity to select classes and register early, and should do so
before May 31 to avoid difficulty in gaining admission to the classes ofore May 31 t.

Students can be registered only after the Class Approval Form is Students can be registered
completed and submitted

NOTE THAT THE COMPLETION AND
FORM DOES NOT CONSTITUTE REGISTRATION
Registration is complete only after the registration form, which will b provided to each eligible student, is submitted to the Office of the
Registrar and a receipt is obtained from the Accounts Office.

### 7.2 Numbering of Classes

lasses are numbered to indicate their general level. Those in the 1000 series are introductory and can normally be taken
matriculated students without any previous classes at
Dalhousie/King's, while classes in the 2000 classes at re 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 classe bove the 1000 level. Such requirements are listed in the calenda ntries for the departments concerned.
The letter following a class number indicates the session in which irst and second terms respectively. The symbol $A / B$ indicates a class given in the first term and repeated in the second term. The etters $C$ and $R$ denote classes spread over both terms, i.e. given for he full academic year. An R class carries one full credit or more, enotes a class given in the first three weeks, B a class given in the

0 位
lasses with numbers below 1000 do not carry credits but may be rerequisites for entry to credit classes for students whose
some schools and departments use three digit numbers modifying the sense of the above paragraph by deleting a zero from

## 8. Registration

egistration material and detailed information will be sent to al documentation must be completed in person. After the Class Approval Form has been completed (see above) students may egister, either in person or by mail. Late registration requires automatic during the month of September. Up to and including October 15, the Dean of Arts and Science will grant approval only when compelling reasons for the applicants lateness can be given
After October 15 approval is extremely unlikely.

A STUDENT IS REGISTERED ONLY AFTER INANCIAL ARRANGEMENTS HAVE BEEN
MADE AT THE ACCOUNTS OFFICE.

## 9. I.D. Card

Upon registration, a receipt which is also a requisition for an I.D. Card will be issued by the accounts office. An I.D. Card which gives
the student access to many campus services and activities may then be obtained at the I.D. Unit. The unit is open during special registration periods, of which all students are notified, and at othe
times as posted by the unit, which is located in the basement of the

## 10. Withdrawal and Change of

## Registration

10.1 Responsibility of Registered Students Students who have registered are responsible for fees. Those who withdraw from the University may be entitled to refunds of fees Withdrawals are not eff
Office of the Registrar.

NON-ATTENDANCE DOES NOT, IN
ITSELF, CONSTITUTE WITHDRAWAL

### 10.2 Class Changes

It is recognized that some students may wish to make changes in programs already arranged. Class changes will normally be completed during the second week after the beginning of the class
(For summer session information (For summer session information see the Summer School Calendar) No change is effective until a change fo
the Registrar, is received at that Office.
See the almanac for deadlines for adding and dropping classes, and the fee section for the schedule of refunds.

## 11. Degree, Certificate and Diploma

## Requirements

11.1 Bachelor of Arts, Bachelor of SciencePrograms
(a) First Year. In the first year full-time students normally take five subi-crectit classes or the equivalent in hall-credit classes, chosen subject groups $A, B, C$ and $D$ listed in section 3. (The King's
Foundation Year Programme is equivalent to four credits for $B$ candidates or three credits for B.Sc. candidates. This program is only available to King's students.). For part-time studen
credits taken constitute the work of the first yea

Students in the first year may not take for credit more than the equivalent of two full-credit classe
subject groups given in section 3 .
One of the five classes chosen must be selected from a list of These writing classes are approved by the Curriculum Committee and are listed below:
Classics 1000, 1010, 1100, Comparative Religion 1301, English 100 German 100, 105, History 1400, 1990, Philosophy 1010, 1030 Politicaltion Year Program also satisfies this requirement.)
In order to qualify for B.SC. degree candidates are required to complete successfully at least one. full university credit in
Mathematics other than Mathematics 1020 and Mathematics 1100
Students should seriously consider choosing a class from a list of classes which deal with a formal subject. Classes which are recognized as formal are
Chemistry 110, 111, 112, 120, Computing Science (all classes), all classes) Phil (all classes), Philosophy 2110, 2130A, $2140 \mathrm{~B}, 2190 \mathrm{~A} / \mathrm{B}, 260$
Physics 1000, 1100, 1300, Political Scienče 2494, 3497A. Students should consider becoming fluent in French It is recommended that one class be chosen from each of the groups
A, B, C, and D listed in section 3. (This recommendation does not apply to students entering the King's Foundation Year Programme.) For students enrolled at the University of King's College, the King's
Foundation Year Programme offers first-year students in Arts and Foundation Year Programme offers first-year students in Arts and
Science an integrated introduction to the humanities and social sciences through study of some of the principal works of western culture. See the sec
Programme (page
If students who have not completed their first year wish to enroil for further study, they must complete the first year requirements at the first opportunity.
(b) Second and Third Years. Before registering for the second
year, each student must declare a major, or area of concentration, year, each student must declare a major, or area of concentration,
and obtain program advice and appovovil from a faculty advisor in the
major department. (This may be done before registering for the first year, at the option of the student.)

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 level.
(b) At least one credit or two hall-credits shall be in each of at
(c) at least four and no more than eight credits beyond the 1000 level shall be in a single area of concentration (the major)
(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 may be chosen from African Studies, Classics, Economics, English, French, German, Greek, History, International Development Studies, Latin, Music, Philosophy, Po Anthropology, Spanish, Theatre or from any of the B.Sc. major subjects. N.B. students majoring in Costume Studies cannot be registered at the University of King's Colleg.

For the B.Sc. the major subject may be chosen from Biology, Chemistry, Computing Science, Geology, Mathematics, Physics, Psychology, or Statistics
For the standing required for a B.Sc. or B.A. see section 22
11.2 Arts and Science Electives

Students may choose electives from any of the classes listed by departments offering major or honours programs in the Faculty of
Arts and Science. In addition, up to three classes may be taken from Arts and Scien
the following:
(a) Architecture 1000, and Comparative Literature 1000.
(b) Education Foundation Offerings (Education classes with numbers below 4400). Note: Education classes numbered 4400
available as Arts and Science electives:
(c) Classes in Engineering and Oceanography. Note: The restriction on Engineering electives does not apply to students in the Diploma in Engineering Program who combine Chemistry, Computing Science, Geology. Mathematics, Physics or Statistics. N.B. Students registered at King's are not eligible to take this program
(d) Classes in Music. Note: Music classes 1000, 2007, 2088C, but other classes in Music may be taken by special permission of the Department of Music.
(e) The following approved classes from other faculties and institutions: Commerce $1101 \mathrm{~A} / \mathrm{B}, 1102 \mathrm{~A} / \mathrm{B}, 1401 \mathrm{~A} / \mathrm{B}, 2201 \mathrm{~A} / \mathrm{B}$, 2301 A/B, $2302 \mathrm{~B}, 2601 \mathrm{~A} / \mathrm{B}, 3203 \mathrm{~A} / \mathrm{B}, 3304 \mathrm{~A} / \mathrm{B}$,
$3501 \mathrm{~A} / \mathrm{B}, 4120 \mathrm{~A} / \mathrm{B}$ and Health Education 4412 . Note: Students enrolling in elective classes must meet class prerequisites.

### 11.3 Individual Programs

in cases where studenis feel that their academic needs are no satisfied under the above requirements, individual programs may be submitted to the Curriculum
advisor for such students.
11.4 Bachelor of Arts and Bachelor of ScienceHonours Program
Second, Third and Fourth Years. Able and ambitious students are urged to enter Honours Programs. These programs require a higher
quality of work than is required by major programs. Note that programs, but not major programs
There are three types of honours programs: major, combined and
Applications for admission to honours programs must be made to the Office of the Registrar The Registrar may be consulted by those considering unconcentrated honours.
Students should apply before registering for the second year. It application is made later, it rnay be necessary to make up some eviously taken.

For. each individual student the entire honours program, including elective credits, is subject to supervision and approval by
department or departments concerned, or in the case of unconcentrated honours, by an interdisciplinary committee approved by the Committee on Studies.
All of the regulations for the B.A. or B.SC. major program must be satisfied, and there are additional requirements as follows:

Honours in a major program is based on the general requiremen 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 wits. creans.
(b) Two credits in a minor subject satisfactory to the major
(c) Four elective credits not in the major field.
(d) An additional grade (see Honours Qualifying Examination
below).

Honours in a combined program is based on the general require ment that the 15 credits beyond the first year of study comprise:
(a) A normal requirement of eleven credits beyond the 1000 level 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 require creails.
(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

Details of specific departmental honours programs are given under departmental listings of Programs of Study
Unconcentrated Honours programs are based on the genera requirem
comprise
(a) Twelve credits beyond the 1000 level in three or more no less than six nor more than nine may be in a single subject.
(b) Three elective credits.
(c) For an Unconcentrated B.A. (Honours), at least ten credits of the twen
and C .
(d) For an Unconcentrated B.SC. (Honours), at least eight credits of the twenty required must be selected from Biochemistry, Biology, Chemistry, Computing Science, Geology, Mathematics,
Microbiology, Physics, Psychology, and Statistics, and at least six additional classes must be selected from subject groups $C$ and $D$
listed on p. 16.
(e) An additional grade (see Honours Qualifying Examination below).
Honours Qualifying Examination. At the conclusion of an Honours program a student's record must show a grade which is additional to
those for the required twenty classes. This grade may be obtained those for the required twenty classes. This grade may be obtained
through a comprehensive examination, the presentation of a research through a comprenensive 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 departmen supervising the student's program. The method by which nis additional grade is obtained is referred to as the Honours Qualifying
Examination. Departments may elect to use a pass-fail system for Examination. Dep
this examination.

For the standing required for honours see section 22.3
11.5 Conversion of a B.A. or B.Sc. to an Honours Degree
A person who holds a BA or BSc may apply through his/her required work with proper standing program. On completion of the required work with proper standing, a certificate will be awarded
which has the effect of upgrading the degree to honours status.
11.6 Co-operative Education Programs Certain departments, currently Chemistry, Physics and Mathematics Certain departments, currently Chemistry, Physics and Mathem
Statistics and Computing Science, offer integrated programs of academic study and supervised work terms. On completion of the
programs, Honours degrees in the relevant disciplines are awarded programs, Honours degrees in the relevant disciplines are awa
For details, see the entries for the departments named above.
11.7 Joint Honours: Dalhousie-Mount Saint Vincent
Special arrangements exist under which students may be permitted to pursue an honours program jointly at Dalhousie and Mount Sain Vincent University. 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 major departments concerned at both institutions. These departments supervise the entire program 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 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 requirements of the second degree and meet the following stipulations:
(a) Only classes that are applicable to the course for the second
(b) Each class carried forward must have a grade of C or higher
(c) A minimum of six new full-credit classes must be taken, (11 for a 20 -credit program), four of which must be above the 1000 leveljects.
(d) Merit points must be scored on the new classes as required by Regulation 22 below.
Students intending to gain a second undergraduate degree should taken to plan their program of studies. Application must be made to the Registrar prior to enrolment in any of the classes which constitue the minimumadaital give details of the proposed program and must be supported by the Students who hold one undergraduate degree from another recognized university, and who wish to gain a second undergraduate
degree from Dalhousie University, must complete at least half of the classes for that degree at Dalhousie. Accordingly, they must meet the requirements set out above but must take a minimum of seven
and one half credits for a 15 -credit program, at least four of which must be above the 1000 levell in a new area of concentration, and least two in other subjects. At least 10 credits must be taken a
Dalhousie for a 20 -credit program.

## 13. Transfer Credit

(a) Students from another college or university who are not
eligible for readmission to that college or university will not be admitted to Dalhousie/King's.
(b) No credit will be given for any work used as the basis for
admission admission.
(c) No transfer credit will be granted for any class in which a final mark of less than C (or the equivalent in Dalhousie terms) was obtained, or for any class in which a final mark was granted conditionally
(d) To obtain a first degree or diploma from the Faculty of Arts the field of concentration, must normally be taken at
Dalhousie/King's.
(e) Students in Arts and Science who wish to complete honours programmes must attend Dalhousie/King's for the last ten credi unless special permissi
Committee on Studies.
(f) No classes taken at another institution will be counted towards fulfillment of the concentration requirement of the Bachelor'
degree or the principal subject requirement of an honours degree or the principal subject requirement of an honours program without shecific
concerned at Dalhousie.
(g) Transfer credits may be granted only for classes which are
offered by a recognized university or equivalent institution of: higher learning and which are judged to be of comparable
standard to classes offered at Dalhousie/King's and to be standard to classes offered at Dalhousie/King's and
appropriate to an academic program of the faculty.
(h) Transfer credits for classes that lie within the scope of departments.
(i) Transfer credits are not normally granted for classes that are not within the scope of any Dalhousie department. Students may however, apply to the Committee on Studies for credit for such classes but they must justify the inclusion of such classes in their proposed programme
(i) No credit will be given for any classes taken at another
university while a student is inadmissable at Dalhousie/kin Students who have been permitted to reregister, after having been declared ineligible at Dalhousie/King's, cannot take classes at another institution for Dalhousie credit until they have taken further Dalhousie classes.
ik) No grades are recorded for transfer credits. Only the amount of credit given is noted on the records.

## 14. Advanced Placement

Students possessing advanced knowledge of a subject which was acquired other than at a university will be encouraged to begin their studies in tetermined by the department concerned and will be exempted from any classes which are normally prerequisites for the one to which they are admitted. 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
full number of credits required for the particular credential being sought).

## 15. Part-Time Students

Par-time students are admitted to most of the programs offered in the Faculty. Admission requirements and regulations generally are
the same for all students. For' part-time students the first five credits taken constitute the work of the first year. Part-time students are encouraged to consult with the Dean of Continuing Education for advice on their academic programs and other matters.

## 16. Audit of Classes

audit miny have been admitted to the faculty are permitted to and many of the classes offered. For those who are not full-time changed from credit to audit or from audit to credit status after the last date for dropping classes without penalty (see the almanac, page 5). In order to change from audit to credit prior to the deadline an additional fee is required. Permitted changes require that the procedures as given in section 10.2 be followed

## 17. Duration of Undergraduate <br> 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 Committee on the normal limit for transter credits. However, the Committee on
Studies 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

## 18. Preparation for Other Programs

 Work in the Faculty of Arts and Science is prerequisite for variousprograms in other faculties and other institutions A brief summary of the academic work required for admission to certain programs is given here. Further information may be found later in this calendar, or in the separate faculty calendars, or in the calendars of other institutions.
Occupational Therapy or Physiotherapy: One year of work in the facuity of Arts and Science, or the equivalent elsewhere, is require
for admission to these two programs. For details, see the entries in his calendar for the School of Occupational Therapy and the Schoo of Physiotherapy

Medicine: At least two years of work at Dalhousie/King's, or the equivalent elsewhere, including: English 100 , Biology 1000 or 2000 one of Chemistry $110,111,112$ or 120, Ch
1000 or 1100 or 1300 or equivalent class 1000 , or 1100 , or 1300 or
Dentistry: As for medicine.

Law: At least two years of work leading to one of the degrees of BA, BSc, BCom.
Engineering: The Diploma in Engineering qualifies a student for entry to the Technical University of Nova Scotia to study
Engineering. The Diploma in Engineering cannot be taken by King's Engineering
students.

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

Engineering Physics: A degree in Engineering Physics is offered by the Technical University of Nova Scotia in cooperation with Dalhousie. The diploma in Engineering is prerequisitite for admission
to this program at TUNS. This programme canot be taken by King's to this program at TUNS. This programme cannot be taken by King's
students.

Design: Students completing one year in the Faculty of Arts and Science of Dalhousie/King's may be admitted into the second year of Communication Design or Environmental Design at the Nova Scotia College of Art and Design.
Veterinary Medicine: Normally three years of work at Dalhousie/King's are required for admission to the Atlantic Veterinary
College of the University of Prince Edward Island. Dalhousie cla College of the University of Prince Edward Island. Dalhousie classes
should normally include Computing Science 1400, Mathematics 1000 and 1060, one of Chemistry y 100, 111 , or 120 , Chemistry 240 , Biochemistry 2000, one of Physics 1000,1100 or 1300 , English 100 ,
Biology $1000,2012,2030,2100$ and 3323 , and an additional two Biology $1000,2012,2030,2100$ and 3323 , and an additional
and a half classes from the Humanities and Social Sciences.
Graduate Studies: The normal requirement for admission to a

## 19. Assessment

### 19.1 Method

Examinations may be oral, written, (closed or open book); under ents exercises, reports, etc., as may be prescribed, attend the classes of heir prescribed course to the satisfaction of the instructors and, in lasses involving field or laboratory work, complete such work satisfactorily.

Within two weeks of the first meeting of a class, each instructor shal make available a written description of the method of evaulation to be used in this class including information on the availability of a supplemental examination and the proportion of the grade to which beginning of each term the department chairperson must report to he Dean the method of evaluation to be used by each instructor in ach clas
19.2 Examinations and Tests

Periods of approximately two weeks in the spring and one and onehalf weeks in December are set aside for the scheduling of formal ritten examinations by the Registrar. Instructors wishing to have form the Registrar at the the Reginning of the their classes must so nform the Registrar at the beginning of the 3rd week of classes in
he fall and spring terms. Instructors may also arrange their own examinations at times and places of their choosing during the forma examination periods, with the understanding that in cases of conflict of examinations for an individual student, the Registrar's examination schedule takes priority. No tests 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

### 19.3 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 programs where a minimum grade of $C$ is speciified. See the calendar entries for FM indicate failure, marginal in the case of $F M$. Grades in the rand of $A, B, C, D$, and $P$ are passing grades. Other grades, including $W$ NP, ILL, INC, F and FM, are non-passing grades (see section 25).
19.4 Submission of Grades
ner On completion of a class, the instructor is required to submit
to the Registrar, such grades to be based on the instructor's
 in question. Christmas grades must be submitted to the Registrar in all 1000-level classes in which enrollment on October 1 exceeded lasses.
19.5 Incomplete

Students are expected to complete class work by the prescribed
deadlines. Only in special circumstances may an instructor extend such deadines. Incomplete work in a class may be completed within four weeks of the required date for submission of grades in that lass to the Registrar's Office
Exceptions to this rule will normally be extended only to classes which require field work during the summer months. At present ist of these classes consists of Biology 4800 and 4900 . Music 3470 C and 4470 C . Students taking any of these classes in their fina year should note that they will not be able to graciuate at the spring
19.6 Correction of Errors in Recorded Grades Correction of errors in the recording of a grade may be made at any time. O

Students are not entitled to appeal for any grade change more than six months after the grades are sent from the Registrar's Office.

### 19.7 Reassessment of a Grade

On payment of a fee, a student may appeal to the Dalhousie Registrar for reassessment of a grade in a class. The Registrar will
direct the request to the head of the acadenic unit concered who 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 Registrar's Office. Students have a right to view their marked examination papers by appointment for a period of two months from
19.8 Special Examinations

Special examinations may be granted to students in the case of illness supported by a medical certificate, or in other exceptional
circumstances. Medical certificates must be submitted to the Offic circumstances. Medical certificates must be submitted to the Office
of the Registrar at the timie of the illness and will not normally be accepted after a lapse of one week from the date of the examination Arrangements for special examinations should be made with the instructor concicerned and the Registrar at the time the illness or other
19.9 Supplemental Examinations

One full credit suplemental examination (or two half-credit upplemental examinations) may be written by any student on the (a) the student has obtained a final grade of FM in that class.
(b) the student has satisfied the requirements for the class.
(c) a single compulsory final examination or test in the class in question accounted for at least forty per cent of the final grade (the supplemental examination should-at the discretion of the department-constitute the same provortion of the final grade as
(d) the student has not been required to withdraw from the faculty

Apart from the case of "A" classes (given in the fall term), the supplemental examinations must be written in the following September. For "A" classes, supplemental examinations must be written in February immediately folowing the failure. Supplement

An eligible student who wishes to write a supplemental examination must submit to the office of the Registrar a completed application by July 10 for the September examination, and January 25 for the February examination.
A student who fails to pass the supplemental examination can obtain credit for that class only by repeating it.

A student may not write both a supplemental examination and an examination at the end of Summer School in the same class in the same year. No supplemental examinations are allowed for classes
aken at Summer School. No more than five credits obtained as a result of supplemental examinations may be counted toward a degree.

## 20. Repeating Classes for which a

 Passing Grade has been Awarded With the permission of the department concerned and theendorsement of the Committee on Studies, 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 original passing grade will nevertheless remain on the transcript and a second entry will be recorded with the new grade and the notatio "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 purposes. Note that both grades are used in calculating the merit point total, when a degree with distinction is awarded.

## 21. Merit Points

## Scale



Note that although $D$ is a passing grade, no merit points are warded. For fractional credit classes, corresponding fractional meri points are awarded (e.g. in a half-credit class, a B would yield one joint).
21.2 Merit Points for Classes Transferred from Other Institutions
One merit point is awarded for each class transferred from another institution except where:
(a) the external classes are taken to pursue a program of study approved in advance by the faculty cat the present time this refers only to the programs at Stirling University, Universite de Proven
Aix-Marseilles), the Pushkin Instiute, Leningrad University and (Alx-Marseilles), the Pust
the Colegio de Espana)
(b) the performance in the external class is first class, and
(c) these classes are approved by the Committee on Studies for
that purpose for the particular student.

In these cases merit points may be awarded on the basis of equivalent Dalhousie standing. Departmental advice on the equivale

## 22. Required Standing

### 22.1 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.
22.2 For a B.A. or B.Sc. with Distinction At least 40 merit points are required. This number is prorated For the purpose of determining a B.A. or B.SC. with distinction all Dalhousie classes, including repeated classes, and classes for whic hon-passing grades were obtained, are included. At least 10 Dalhousie classes must be included. The Committee on Studies will monitor the records of graduating students having transter creaits
and will bring to faculty appropriate recommendations for a degree with distinction in any case where the regulations regarding transter
22.3 B.A. or B.Sc. with Honours and First Class Honours
Students who have not obtained a grade of B-or better in five
advanced classes that is, advanced classes, that is, classes other than electives, will not be
admitted to the fourth Honours year without explicit Departmental admitted to the fourth Honours year without explicit Departmental
recommendation and prior approval of the Committee on Studies
To count towards an Honours degree each advanced class, i.e., each class of the second, third, and fourth years, except electives each class of the second, third, and fourth years, except electives,
must be passed with a grade of at least C . Should D or C-be received, it must be made good by repeating the class and achievin C or better grade or by taking an additional advanced class
preferably in the same subiect). Otherwise the student must transter (put of the Honours program.
In five of the advanced classes in a student's Honours program, a grade B or better must be achieved, and in three additional advanc 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

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

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

## 23. Change from B.A. to B.Sc. <br> program and vice versa

According to present regulations all students who have completed al the requirements for a B.SC. degree have automatically completed ave completed all requirements for a B.A. degree in a science degree. However sutomatically completed all requirements for a B.S and wish to be awarded a B.A. degree or vice versa must do so by


## 24. Workload

### 24.1 Regular Year

Five full credits per academic year shall be regarded as constituting a normal workload for a student. Written permission from the
Committee on Studies is required if this workload is to be exc or if the planned workload in any term would amount to the equivalent of six half-credit 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 program in good standing, will be considere 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 fewer than ten merit points. Applications from students year, earned fewer than ten merit points. Applications from students
who were part-time during the preceding year will be considered if they have completed at least five classes and earned on average at east two merit points per class.
24.2 Summer Sessions

Students may not normally take more than one full credit in any summer session, nor may the workload in any one week exc
ixth of a credit. Exceptions will normally be granted by the Committee on Studies only in respect to attendance at a university which operates a trimester system or its equivalent. Students $m$
apply in advance to the Committee on Studies to increase the apply in advance to the Committee on Studies to increase the
workload to a maximum of 2.5 credits by summer school in any on year with a maximum of 1.5 credits in any one summer session.

## 25. Required Withdrawal

Any student who has accumulated more non-passing grades than the
number of meritit points earned (see section 21) is required to number of merit points earned (see section 21 ), is required to
withdraw from the withdraw from the faculty. This regulation applies once students hav

## 26. Readmission after Required Withdrawal

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

A student who has been required to withdraw twice will be ineligible for readmission to the faculty as either a full-time or a part-time
student Ordinarily an 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 th
27. Off-Campus, Summer School and Correspondence Classes, and Classes Taken at Other Universities under Concurrent Registration

### 7.1 Off-Campus Classes

 maximum of three credits may be taken by off-campus classes, concurrent registration. 27.2 Summer SchoolDalhousie currently offers two summer sessions of approximately six Regulation 24.2 for permitted workload. The maximum number of credits that may be gained by summer school and correspondence classes combined is five.
Those interested in summer school may request a summer school alendar from
University.
27.3 Correspondence Classes
t present no correspondence classes are offered by the Faculty of classes from other institutions may apply as in 27.4 below. See the limitation referred to in 27.2 above
27.4 Classes Taken at Other Universities Under Concurrent Registration
student who wishes to take classes at other institutions while egistered at Dalhousie; whether in the academic year or in summer essions, or by correspondence, 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 a

The departments of French, German, Russian, and Spanish have special arrangements whereby up to a total of 5 full-credit classes ken at other universities may be considered as part of a student's major program at Dalhousie.

The class fee will be paid by Dalhousie if:
(a) the student is registered and has paid fees as a full-time student at Dalhousie,
(D) the classes are approved as part of the student's program, and (c) the class is not part of a summer school program

Note that classes taken elsewhere under Concurrent Registration are reated as transter classes for purposes of record. Merit points are wr any credential may be by transfer credit.

## 28. Coordinated Programs

tudents may in their second and third years follow a two-year or rograms are chosen, they may be in different departments. All such coordinated programs have been explicitly approved by the Curriculum Committee. A department or group of departments 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 program form part of the calendar
description of each program description of each program
(c) that each two-year program. permits students at least one clas arir own choice in each of the second and third years.
(d) that two-year programs normally not be exclusively in a single
(e) that the normal prerequisite for entry into a department oneyear or two-year program be the introductory class of the considers acceptable, and not more than one introductory class in a related subject.

## 29. Experimental Classes

Experimental classes, on any subject or combination of subjects to which arts or sciences are relevant, and differing in conception from
any of the classes regularly 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 eek out faculy mernb the part in the classes

Whether formed on the initiative of students or on the initiative of aculty members, the faculty members who wish to take part mus

The class may be of one-year length or half-year length.
A class shall be held to be formed when at least one faculty membe and at least eight students have committed themselves to taking par
lasses 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 erm. 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 program, if they are formed later, they shall be nounced (a) in the Dalhousie Gazelle, (b) in Dal News, (c) on a ntral builletin 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) he class; (b) obtaining from the Curriculum Committee a ruling as to what requirement or requirements of distribution and concentration and credit the class may be accepted as satisfying; (c) reporting to he Registrar on the performance of students in the class; (d) work, on the subjects treated, the techniques of instruction, and the uccess of the class as an experiment in pedagogy (judged so far as more familiar types of classes).
tudents may have five one-year length experimental classes (or some equivalent combination of these with half-year length classes) ounted as satisfying class for class any of the requirements for the degree, subject to the rulings of the Curriculum Commits
and (where relevant) to the approval of the departments.

## 30. International and Exchange

 Programshe Faculy of Arts and Science offers a number of programs which environment. These include:
(a) One term of study at the Pushkin Institute of Leningrad
University, U.S.S.R. (for details see the entry of the Russian Studies Programme).
(b) One term of study at Colegio de Espana, Salamanca, Spain
(c) Up to one full year of study in a foreign-language environment. in recent years students have studied at Tours and Aix-en Provence in France (consult the appropriate languag department)
(d) Up to one full year of study at a francophone university in Quebec (consult the Deparment of French)
here is currently one exchange program. This is for third-year onours students in various disciplines, at the University of Stirling in cotland. (For further information, consult Dr. Hans Runte,

## 31. Appeals

Any students who belleve they will suffer undue hardship from the relief to the Committee on Studies. Students wishing to appeal a
decision based on Faculty regulations may obtain copies of the Briefly, such appeals must be addressed in writing to the regulation. Committee on Studies, clo Registrar's Office, Dalhousie, and must clearly state the arguments and expectations of the petitioners.
Students who wish to appeal on matters other than those dealt with by faculty regulations can obtain copies of the document "A
Procedure for Special Academic Appeals in the Faculty of Arts and Procedure for Special Academic Appeals in the Faculty of Arts and
Science." Both documents can be obtained from the Office of the Registrar, Dalhousie, or any departmental office. An appeal arising should be addressed to the Admissions Committee.

## 32. Almanac

The almanac is given on page 5 . All concerned should note dates of

## 33. Fees

Information about fees is given on page 11

## 34. 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 apoplication of any of the regulations may hardship from application of any of the regulations may app
relief to the Committee on Studies as in Section 31 above.

## 35. University Regulations

## In addition to the above Faculty Regulations, students are reminded

 the front of this Calendar: 'Particular attention is drawn to the
## School of Journalism

## A. Admissions

1. Admission to the four year B.J. (Hons.) programme
For applicants from High School. (See below -2 - for application procedure for admission to one year B.J. degree programme-for

## 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 the Dalhousie-King's'Arts and Science programme. that only a proportion of qualified applicants will be admitted; selection will be made on a competitive basis.

## Application Procedure

Candidates for admission to the School of Journalism must apply using the Dalhousie-King's common application form (available fr
the Registrar's Office, or from most high schools). Completed eplication forms should be receive high schools). Completed application forms should be received by the Registrar as soon as possible after January 1 , and not later than April 15 . Late applicants
will be considered only if space is available Candidates must idice considered only it space is available. Candidates must
ndicate on their application form that they are applying for adr the B.J. (Hons.) degree. The following supporting evidence must so be provided by the candidate.
(a) a.completed application form (available from Registrar's office); (b) an application fee;
(c) an official record of high school work

## (d) recommendations from high school officials

(e) an official transcript of the record of work done at previous
post-secondary institutions (if When these documents have been received, applicants judged to have obtained the minimum requirements, will be so notified by the Registrar, University of. King's College.
With this notification, you will receive advice from the School of Journalism about written work which will be needed to complete

These articles, when requested, should be addressed fo:
Professor H. Eugene Meese
Acting Director, School of
Acting Director, School of Journalism
Halifax, N.S. B3H 2 A1
Your written work is intended to tell us something about you and constitutes a regular part of the application and influences. the decision on admission.
The school follows a policy of considering applications as they come in, and the number of places is kept deliberately small. It is to the as early as possible. Applications ordinarily will be completed by pril 15 . tate applications will he considered only if space remains.

A reasonable ability to type is required. Students should note the policy on the School of Journalism with respect to this matter as
stated in this calendar under the heading "Typing Requirement."
2. Admission to the one year B.J. programme For applicants who hold a Bachelor's degree

## General

The intention of the B.J. programme is to foster the professional development of students so that they may fill editorial positions in competence, but responsibility, dedication and a sense of purpose is designed to do two things-to give students a mastery of the techniques of news gathering, writing and presentation, this in a
newsroom atmosphere; and to acquaint them with issues so as to provide the sort of background essential to the knowledgo provide the sort of background essential
reporting of increasingly complex affairs.
Although other academic qualifications may be considered, normally successfully completed a B.A. or B.Sc. degree at a recognized university with a minimum average of $B$. Enrollment is limited and students will not ordinarily be admitted unless their record shows a
broad accquaintance with the history of the development of western oroad acquaintance with the history of the development of western
civilization such as that which is provided by the Foundation Year Programme outlined in the University Calendar. Prospective students who have not taken the Foundation Year Programme in the first year of their first degree and who are in course at another institution are will best prepare them to meet this requirement.
Application Procedure
For admission to the one year B.J. programme the student must:
. Complete the Dalhousie/King's common application form available rrom the Registrar. Students must indicate on the application form hat they are applying for the B.J. degree. This form must be
2. Submit a transcript of credits covering undergraduate and any graduate work.
3. Be prepared to demonstrate before graduation a reading beginning of the Fall Term and at the end of the Winter Term and it may be taken more than once without penalty. The student is
equired to translate-the use of a dictionary is permitted equired to translate-the use of a dictionary is permitted-a designated passage or passages from a current French-language
newspaper, such as le Devoir. No French courses will be offered or
available to B.J. students during the academic year but informal help on a no-credit basis will be av
itself for students who wish it.
4. As in the case of admission of the B.J. (Hons.) programme, applicants will be asked to submit written work. More information
about this will be mailed to you when the Dalhousie-king's common application form has been received. When completed, your written work should be mailed to H. Eugene Meese, Acting Director, School
of Journalism, University of King's College, Halifax, N.S. B3H 2A1.

All assignments are typewritten, therefore students must know ow to type, not to a stenographic standard, but with reasonable speed and accuracy
6. Prospective students should note that the B.J. programme begins ademic year $1987 / 88$ registration is on August 24 and classes egin on August 25
The School takes into account the student's academic records ontributions to school, university, and other publications, extr curricular activities, and ournalism. Per end jerequently a good test of motivation, is not essential.
The School follows a policy of continuously reviewing applications and admits only a limited number of qualified applicants. Thus it is to the advantage of the applicant to complete the submissions as early
as possible. Application forms must ordinarily be received by April s possible. Application forms must ordinarily be received by April
5. Late apolications for admission will be considered only if space available. 5. The School has no regular summer session, offers no orrespondence courses and accepts no part-time students in the one-year B.J. programme.

## B. General

 Academic RegulationsSchool of Journalism
## Applicability of General

## 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 Faculty Regulation
of the Faculty of Arts and Science. Students taking classes in the of the Faculty of Arts and Science. Students taking classes in the
Faculty of Arts and Science must, however, conform to the General Faculty Regulations of the Facuity of Arts and Science with regard to hese classes.
Changes of Regulations usually become effective upon publication in he Calendar. Students are subject to changes in regulations and courses made after their first registration unless specifically excused
by the Faculty. All enquiries about the regulations hereunder should by the Faculty. All enquiries about the regulations hereunder should
be made to the Registrar. Any students suffering from undue hardship from application of any of the regulations may appeal for elief through the Registrar to the Journalism Studies Committee,

## 1. General

## Admission to Classe

No student shall be admitted to a class until he has satisfied the egulations regarding entrance and complied with the General University Regulations. Students who wish to add classes after two egins would have to get the approval of the Director of the School Journalism, as well as the approval of the class instructor.


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## Duration of Studies

A student in the Bachelor of Journalism (Honours) programme wili normally complete his/her studies within four years of first registration. All requirements for the degree must be complete within
ten years of first registration. A student in the Bachelor of Journalism ten years of first registration. A student in the Bachelor of Journaism
programme is normally required to complete his/her studies within programme is normally required to con
one calendar year of first registration.
Auditing
Interested persons may audit courses in the School of Journalism on permission of the Director. The University of King's College reserves the right to
Journalism.

## Advanced Placement

A student possessing advanced knowledge of a subject, which he/she has acquired otherwise than at a University, will be appropriate to his/her knowledge, as determined by the School of Journalism, and will be exempted from any classes which are
normally prerequisites for the one to which he/she is admitted However, the student must substitute for the exempted classes an equal number of other classes, not necessarily in the same subjects (i.e., he/she must complete at the University the full number of classes required for a B (Hons) or B d degree)

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 exceptions are made with respect to registration at affiliated institutions other than Dalhousie.
In-Course Requirements for continuing in the B.J (Hons.) degree programme and the B.J. degree programme
In order to be assured of maintaining their places in the B. J. (Hons.) programme, students must achieve at least a $\mathrm{C}+$ average in the ournalism writing programme (those courses based upon reporting

The one-year B.J. programme, because it is intensive and accumulative, will be conducted on a semester system and in order to be assured of maintaining their places from one semester to the

Degree Requirements-Writing Courses
In both the B.J. (Hons.) programme and the one-year B.J programme students must achieve at least an overall $\mathrm{C}+$ average in

Forced Withdrawal Consequent on Unsatisfactory Performance
When the work of a student becomes unsatisfactory his/her case will be discussed by the Journalism Studies Committee which may
reauire him/her to withdraw from the class or classes concerned, and require him/her to withdraw from the class or classes concerned, and
to be excluded from the relevant examinations, or may advise him/her to withdraw temporarily from the University, or to reduce his/her class load
In-Course transfers from B.A. or B.Sc. to B.J. (Hons.)

Provided that a student has successfully completed the Foundation Provided that a student has successfully completed the Foundation
Year Programme, and with a sufficiently high standing, he or she may transfer into the B.J. (Hons.) programme normally at the end of
the first year only. All such transfers are to be made on a space the first year only. All such transfiers are to be made on a space
available basis as determined by the limited enrollment policy of the availabie basis as determined by thed
University.
Applications for such in-course transfers from the B.A. or B.S. . to
B. J. (Hons.) programme are made to the Registrar and applicants B.J. (Hons.) programme are made to the Registrar, and applic
must write a letter of application and meet other admission requirements as specified by the School of Journalism.

## 2. Credit and Assessmen

credit towards a degree is earned in a full-credit class, a. class which typically there is a minimum of two to three lecture hours 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 Faculty of Arts nd Science at Dalhousie; or exceptionally
(b) during a summer session or by correspondence,
(c) by transfer from other universities attended prior to entrance University of King's College,
(d) in Faculties of Dalhousie, other than Arts and Science, or
e) at institutions other than King's or Dalhousie while registered at King's.

Regulations governing each of these ways of earning credits are restin below.

## Gaining Credit

To gain credit towards the B.J. (Hons.) or B.J. degree, a student at all examinations, prepare such essays, exercises, assignments, eports, etc., as may be prescribed
Credit Contingent on Settling Debts to the University
oo gain credit, a student must settle all obligations to the University with respect to tuition and residence fees, bookstore debts, library , elc. (not later than April 30 for Spring Convocations)
Method of Assessment
In determining pass lists, the standings attained in prescribed class exercises, in field work, workshops, and in the various examinations
may be taken into consideration by an instructor must ensure that students are informed of the method of evaluation obe used in a class within two weeks of the first meeting of the leaching in the School of Journalism must of each term, instructor the method of evaluation used in each class.
Grades
The passing grades are $\mathrm{A}+\mathrm{A}, \mathrm{A}-, \mathrm{B}+, \mathrm{B}, \mathrm{B}-, \mathrm{C}+, \mathrm{C}, \mathrm{C}-$ and D (preceding column) that averages required may be above the pass/fail line.
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 academio performance of the students in the class in question.
grades are normally submitted in all full-year classes.

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 with such deadlines. Incomplete work in a class must be completed with
four weeks of the required date for submission of grades in that four weeks of the required date
class to the Director's Office.
Change of Grade
Corrections of errors in the recording of a grade may be made at any me. The tinal date for grade changes for other reasons is only after the procedures for reassessment of a grade have been complied with.

No student is entitled to appeal for a grade change six months after the required date
Director's Office.

## Examinations and Tests

A period of roughly two weeks in the spring and one week in
December will be set aside for the scheduling by the Registrar formal written examinations. An instructor wishing to have an examination scheduled by the Registrar for his 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, on request, of examinations to be scheduled by the
Registrar. An instructor may also arrange his own examinations at time and place of his 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. No tests or examinations covering the work schedule takes priority. No tests or examinations covering the work
of an entire term or year shall be held during the last two weeks of of an entire term or year shall be held during the last two weeks of
classes in the term. No tests or examinations shall be held during the period between the end of classes and the beginning of the official examination period

## 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 mus oe made to the Registrar within two months of the date the grade is

## Speial Examin Offic <br> Special Examinations

Special examinations may be granted to students in case of genuine
illness, supoorted by a medical certificate or in ther unusual or illness, supported by a medical certificate, or in other unusual or
exceptional circumstances. Medical certificates must be submitted the time of the illness and will normally be accepted after a lapse of one week from the date of the examination. A student wishing to appear as a candidate at a special examination shall be required to of King's College on or before July 10. Students wishing to write at of King's Coilege on or before uuly y
Supplemental Examinations
A student is permitted to write a supplemental examination in one Alass which he failed provided that:
(a) he obtained a final grade of $F M$
(b) he has satisfied the requirements for the class (see
Regulations
(c) a single compulsory final examination or test in the class in question accounted for at least forty percent of the final grade
(the supplemental examination should-at the discretion of the instructor-constitute the same proportion of the final grade a did the final examination during the regular session)
(d) he has not failed his year (See Regulations).

Apart from the case of " A " classes (given in the fall term) the following the failure. For " $A$ " classes, supplemental examinations must be written in February immo'iately following the failure. Supplemental examinations may not be deferred. Notice of intentio to write, together with the required fee, must be presented to th
Registrar's Office, University of King's College by July 1 Registrar's Office, University of King's College by suly 10 th for 28 th for supplemental examinations to be written in February.
A student who fails to pass the supplemental examination can obtain credit for that cless only by repeating it

No more tinan one supplemental examination may be written by any student on the work of any one year.

No student may write both a supplemental examination and an examination at the end of the Summer School in the same class in he same year.
No supplemental examinations are allowed for classes taken at Summer School.

Repetition of Classes not Passed Except as provided in Regulation above, a student can gain credi

## 3. Regular Academic Year

## Workload

ive to five and one-half courses shall be regarded as constituting a ormal year's work for a student. (See curriculum for B.J. (Hons.) and B.J. degree programmes.) Applications from students who have
trong reason for wishing to take an overload will be considered by strong reason for wishing to take an overload will be considered by be granted to any student in his/her first year of study, or to any student who, in the preceding academic year, has failed any class o had two or more class grades below B-. In no case will the workloa part-time during the preceding year will be considered it they have completed at least five classes with grades of B- or better in all complete
classes.
Failed Year
Students who have not passed at least half of the classes for which hey are enrolled, and all of their required writing and reporting orkshops, after the final date of withdrawal without penalty, will be considered to have failed the year. The results reported in the pass ts of the academic year determine whether students have passed

Penalty for Failed Yea
(a) A student who has failed his year for the first occasion is quired to reaply to the University for consideration for readmission.
(b) A student who fails a year on two occasions will be ineligible 0 return to the University as either a full-time or a part-time student. Ordinarily an appeal will be allowed only if illness has by submission of a medical certificate from the physician
attending the student to the Registrar at the time of the illness.
Repeating Classes for which a Passing Grade has een Awarded
With the permission of the Director of the School of Jous and endorsement of the Journalism Studies Committee a student may epeat any class for which a passing grade has previously been warded. The original passing grade will nevertheless remain on the ranscript, and a second entry will be recorded with the new grade or such a repeated class, but the higher grade, or point count

## 4. Summer School and

## Correspondence Classes

## (Applicable to B.J. (Hons.) Students

 Only)imits on Credits
Up to two credits from Summer School and correspondence classes or a degree. Such classes must have been passed at an adequate level and can be accepted only if they are closely equivalent to courses normally given in the joint Faculty of Arts and Science or the
School of Journalism.

Maximum Workloa
Normally no student may take classes totally more than one full credit in any one Summer School session where the University offers more inanye Summer School session per year. Not more tha: iwo full cre

Exceptions will normally be granted by the Journalism Studies ommittee only in respect of attendance at a university which
al cases, perission must be obtained in advance, following the

Credit for Summer School Classes at Other Institutions
A student wishing to take, at a university other than King's, a
Summer School class to be counted for credit towards a B.J. (Hons.) Summer Scho
degree must:
(a) obtain from the university he/she proposes to attend a full description of the Summer School classes (or alternative classes)
wishes to take, usually the Summer School calendar will nuffice;
(b) make application to the Registrar of the University of King's College and submit the class description of the class, he/she
wishes to take (alternatives should be indicated where possible)

When a decision has been reached, the student will be notified directly by the Registrar. If the decision is favourable, the receiving
5. Transfer Credits

## (Applicable to B.J. (Hons.) Students

 Only)Upon receipt of an application for admission to this University, and
an official transcript, students will be advised of the number of an official transcript, students will be advised of the number of provisional assessment can be made on interim transcripts. See

## 6. Credits from other Faculties

A student taking classes in the joint Faculty of Arts and Science as part of the B... (Hons.) program these classes, and likewise for classes taken with permission of the Journalism Studies Committee in Faculties other than Arts and Science at Dalhousie.
Each B. J. (Hons.) student must submit to the Journalism Studies
committee by the end of the first year a proposal for a coherent academic programme involving an in-depth study of a particular are of discipline for the 4 courses that must be taken in the second year and the 2 courses that must be taken in the third year in the Faculy
of Arts and Science. The Committee will advise each student on of Arts and Science. The Committee will advise each sluadent
his/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 Committee. See student's programme will require the approval of the Committee. also Regulation 7 in th
School of Journalism.

## 7. Credits from other Universities

 under Concurrent Registration A student, while registered at King's, wishing to take classes atanother 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 Journalism Studies Committee (see above, Regulation 6)

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:

## (b) the classes are approved

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

## 8. Change of Registration

Changing a Class
Class changes will not be permitted during the first week after commencement of classes in September. Students should decide during the first week of classes what changes they wish to make and

## Adding Classes

The last date for adding classes is two weeks from the commencement of the term in which that class begins. Students must complede the appoved by the instructors concerned, the Director of the Schoo of Journalism and by the Registrar at Dalhousie, for courses taken a alhousie and by the Registrar at the University of King's College for ourses taken in the School of Journalism.

Withdrawing from Classes (a) The last day for withdrawing from a class without penalty is
for A classes, October 13 ; for B classes, February 1 ; for C classes, October 13; for full-year classes, October 13. Classes
dropped after these dates are recorded as W (withdrawal). Students must coimplete the appropriate registration change form which must be approved by the instructors concerned and by the Registrar
(b) No class may be dropped after the last day of classes in the eerm in which that class ends.
(c) Classes may not be added to replace withdrawn classes after he second week of the term in which that class begins (see Regulation)
Withdrawing from the University
A registered student who wishes to withdraw from the University dircumstances. The student should not discontinu her her class until his or her application has been approved. A student proposing withdrawal will normally be invited to discuss his/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. Non-attendance, by itself, does not constitute official withdrawal.

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

 DeadlinCanada and the U.S.A.
April 15
April 15
Applications received after the above dates will be considered, but Applications received anot be assured.
prompt processing cannot
Documents to be submitted
(a) Completed application form (available from Registrar's Office)
(b) Official academic transcripts (or cerrified copies) from all Colleges and Universities attende
(c) Copies of calendars (or similar publications) of all Colleges and
(d) Certification of proficiency in English if the native language of the applicant is another language.

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 translations into English or French. On receipt of these documents, students will be notified by the Registrar, and are then required to submit a letter of application-the procedure
for these two matters is described under, "Admissions to the B.J. for these two matters is des.
(Hons.) degree programme.

Transfer of Credits
Students who have attended a recognized junior college, for at leas one year, and can present satisfactory cerriticates 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 for a maximum of five equivalent classes. Students who are admitted
under these conditions can complete the requirements to the B.J.

Students who have attended another recognized university may, on credits for appropriate classes, within the limits of the Regulations set out below.

General Regulations Concerning Transfer (see also General Faculty Regulations)
(a) A student from another college or university who is not eligible
for readmission to that college or university on academic grounds or readmission to that college or unive
will not be admitted to King's College.
(b) No transfer credit will be granted for any class in which a fina mark of less than C (or the equivalent) was obtained or for any ass if which a final mark was granted conditionall
(c) A student in the B.J. (Hons.) programme must attend King's as to the contrary is obtained from the Journalism Studies Committee.
(d) No classes taken at another institution will be counted towards ulfilling the concentration requirement in the Arts and Science or in the Journalism parts of the B. J. (Hons.) degree programme
without specific approval from the Journalism Studies Committee
e) Transfer credits may be granted only for classes equivalent to classes offered at Dalhousie/king's, and only in subjects ecognized as having standing in a faculty of Arts and Science, or approved classes in Journalism Studies, equivalent to classes (f) No credit will be given for any classes taken at another
university while a student is inadmissable at Dalhousie-King's (g) The programme of studies of all transfer students will be

## C. Programmes and CurriculaSchool of Journalism

The University of King's College offers the only degrees in Journalism in the Atlantic Provinces. The University offers two

1. The four-year Bachelor of Journalism with Honours, B.J. (Hons.)
General Description: The aim of the B.J. (Hons.) programme is to provide a grounding in the methods and problems of contemporary in journalistic skills and methods, the student will acquire both a metence history of Western civilization and a specific Science. As well the University will require the attainment of a certain degree of competence in both of the offical languages of Canad

In the first year the B.J. (Hons.) student will normally take the Foundation Year Programme (see page 30 of this calendar) and an elective in the Arts and Science Faculty. Electives will usually be

Ulfill the Arts and Science requirement of the B.J. (Hons.) rogramme. Each B.J. (Hons.) student will be asked to submit to the Journalism Studies Committee by the end of the first year, a proposal for a coherent academic programme involving an in-depth
tudy of a particular area or discipline for the four courses that must e taken in the second year, and the two courses that must be take in the third year in the Faculty of Arts and Science. The Committee will advise each student on his/her proposed programime, and will approve with changes, where necessary, each student's plan. An subsequent changes in a student's programme will require the
approval of the Committee. In addition, second-year students are required to do a full course in Writing and Reporting in the School of ournalism
In the third year the student will take three courses in Journalism designated by the School of Journalism, and
Faculty of Arts and Science (see above).

In the fourth year the student will take five courses in the School of ournalism.
French Requirement
$r$ is the policy of the University that students graduating from the School of Journalism shall pass a test demonstrating their omprehension of written French. The test may be taken at any time penalty. Credit courses will be available to bring a student up to the equired level, though the successful completion of such a course or

Students are encouraged to take the test as early as they can during the course of studies so that they may know how they stand with spect to this requs norm nally administer e test at the beginning and end of each academic year and at oth
mes by special ariangement.
Typing Requirement
A reasonable ability to type is required and students entering the Sor B.J. (Hons.) students, this means they should know how to type by the beginning of their second year in the Journalism programme: or B. J. students, before entering the School). All assignments in the School of Journalism must be typewritten

## 2. The one-year Bachelor of

 Journalism (B.J.)This is a post-irirst degree course offered to students who have completed a first degree, normally a BA or BSC. The University of King's College expects the same degree of competence and in the from those who graduate with the B.J. (Hons.) degree. Specifically this means: (1) students who are admitted to this programme must show the same competence in French required of those who graduate with the B.J. (Hons.) and (2) admission to the programme a broad knowledge of the history of Western civilization such as the Foundation Year Programme provides as well as having a
competence in an area of humanistic study.

Because of the intensive nature of this one-year programme it does not conform to the lecture schedule of the Faculty of Arts and Science. Students in the B.J. programme will begin work during the
last week of August (see Almanac). Please see the B.J. curriculum below for the courses offered in this programme.

## 3. Curricula for B.J. (Hons.) and B.J. programmes.

B.J. (Hons.) Curriculum

| Year 2 | Required of All Students <br> Courses in the Faculty of Arts and Science <br> Each B.J. (Hons.) student must submit to the Journalism Studies Committee by the end of the first year a proposal for a coherent academic programme involving study of a particular area or discipline for the four courses that must be taken in the second year, and two courses that must be taken in the third year in the Faculty of Arts and Science. The Committee will advise each student on his/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 Committee. See also Regulations 6 and 7 in the General Academic Regulations for the School of Journalism. | Credits <br> 4 | Total Credits |
| :---: | :---: | :---: | :---: |
| J201R | Introduction to Journalism Basic Writing and Reporting | 1 | 5 |
| Year 3 <br> FIRST TERM | Required of All Students | Credits | Total Credits |
| $\begin{aligned} & \text { J302R } \\ & \text { J317A } \\ & \text { J316R } \end{aligned}$ | Courses in the Faculty of Arts and Science <br> Broadcast Writing and Reporting (Continues in second term) Journalism Research <br> Newspaper Production (Continues in second term) | $\begin{gathered} 2 \\ 1 \\ 1 / 2 \\ 1 \end{gathered}$ |  |
| SECOND TERM | Required of All Students |  |  |
| J351B | Courses in the Faculty of Arts and Science Elements of Design and Makeup | 1/2 | 5 |
| Year 4 FIRST TERM | Required of All Students | Credits | Total Credits |
| J416A | Newspaper Production | $1 / 2$ |  |
| J472A | Copy Editing <br> Students will develop programs to meet individual goals in consultation with faculty advisers. To complete their fall term work, they will select three half-courses or equivalent from the following: | 1/2 | $21 / 2$ |
| J404A | Analytical and Interpretive Reporting | $1 / 2$ |  |
| J411A J441A | Legal Issues Television Production | $1 / 2$ $1 / 2$ |  |
| J445A | Issues in Business, Finance and Economics | 1/2 |  |
| J460A | Independent Project | $1 / 2$ |  |
| J480A | Diplomatic Reporting I: International Organization* | $1 / 2$ |  |
|  |  | Credits | Total Credits |
|  | Students will choose courses to complete their necessary credits from the following: |  |  |
| ${ }^{\mathrm{J} 403 \mathrm{~B}}$ | Magazine Writing Senior News Seminar | $1 / 2$ |  |
| J4208 | Senior News Seminar Specialist Writing | $1 / 2$ |  |
| J460B | Independent Project | $1 / 2$ |  |
| J480B | Diplomatic Reporting II: International Issues* | $1 / 2$ |  |
| J481B | Radio Production | $1 / 2$ | $21 / 2$ |
|  | B.J. Curriculum |  |  |
| FIRST TERM | Required of All Students | Credits | Total Credits |
| $\begin{aligned} & \mathrm{J} 501 \mathrm{~A} \\ & \mathrm{~J} 502 \mathrm{~A} \end{aligned}$ | Advanced Writing and Reporting Broadcast Writing |  |  |
|  | Students will select three half-courses or equivalent from the following: |  | $21 / 2$ |
| J503A | Magazine Writing | $1 / 2$ |  |
| J511A | Legal Issues | $1 / 2$ |  |
| J520A | Senior News Seminar | 112 |  |
| J545A | Issues in Business, Finance and Economics | 1/2 |  |
| J551A | Elements of Design and Makeup | 1/2 |  |
| J580A | Diplomatic Reporting I: International Organization * | $1 / 2$ |  |
| SECOND TERM | Required of All Students | Credits | Total Credits |
| J516B | Newspaper Production | 1/2 |  |
| J572B | Copy Editing | $1 / 2$ |  |
|  | Students will choose courses to complete their necessary credits from the following: |  | $21 / 2$ |
| J504B | Analytical and Interpretive Reporting | 1/2 |  |
| J517B | Journalism Research | $1 / 2$ |  |
| J541B | Television Production | $1 / 2$ |  |
| J550B | Specialist Writing | $1 / 2$ |  |
| J5808 J 581 B | Diplomatic Reporting II: International Issues* | $1 / 2$ |  |
| J581B | Radio Production | $1 / 2$ |  |

*Only a limited number of students are accepted into Diplomatic Reporting.

## Foundation Year <br> 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 of the Bachelor of Arts and Bachelor of Science. First offered in 1972 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 Faculty of Arrs and Science, the Programme is open like other King's students, be proceeding to the degrees of Bachelor of Arts or Bachelor of Science granted by the Senate of Dalhousie University, or wh be engaged in one of the pre-professional courses, in Medicine, Dentistry, Law, Architecture, Divinity, Social Work, Bachelor of Journalism (Honours) awarded by King's College. The course can be taken as three or four first-year credits.
The Foundation Year Programme is a new approach to the first year of work; for a B.A. or B.Sc. (King's-Dalhousie) and for the B.J. (King's) (Hons.). 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 studied together in one course in an integrated manner which sees 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 nature of our society and culture is to have a basis for thoughtful living. To provide these is the aim of this 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
Programmie. 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 problems of first year students. Enrollment in the Programme is limited to 115 Arts,
30 BJ (Hons.) and 25 Science students. The very favourable ratio of 30 BJ (Hons.) and 25 Science 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 The amount of time spent in small group tutorials 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 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: 1986-87
R. Apostle, B.A. (Sim. Fr.), M.A. (Calif.), Ph.D. (Berkeley),
Associate Professor Associate Professor of Sociology
J.P. Atherton, M.A. (Oxon.), Ph. D. (Liverpool),
Professor of Classic
M. Bourbeau, B.Sc., M.A. (Dal.)

Junior Fellow
G.R. Bridge, B.A. (Tufts), M.A. (T.U.), M.Div. (T.O.S.), A.M., Ph.D. (Univ. of Penn.), University Chapolain
.A.M. Burns, B.A. (Acad.), M.A. (Alta.), Ph.D. (London),
R.D. Crouse, B.A. (Vind.), S.T.B. (Harvard), M.Th. (Trinity) PhD. (Harv.), D.D. (Trinity),
D. Farrell, B.A. (St. Norbert Coll.), M.Mus., Ph.D. (Wisc.), Associate Professor of Music
Professor of Russian and Chairman of Moscow),
J.F. Godfrey, M.A. (Tor.), B.Phil. (Oxon.), D. Phil. (Oxon.),
Associate Professor of History

Associate Professor of History and President, University of King's
J.F. Graham, B.A. (U.B.C.), A.M., Ph.D. (Col.), F.R.S.C.,

Fred C. Manning Protessor of Economics
G.P. Grant, B.A. (Queen's), D.Phil. (Oxon.), F.R.S.C.,

Professor of Humanities Emeritus
W.J. Hankey, B.A. (Vind.), M.A. (Tor.), D.Phil. (Oxon.)
K.M. Heller, B.A. (L.U. et Dal.), M.A. (Dal.),

Junior Fellow
P.M. Howison, B.A. (Winnipeg), M.A., Ph.D. (Ott.)
K. Jaeger, B.A., M.A. (U.B.C.), Ph.D. (Dal)
fellow
A.M. Johnston, B.A. (Mt.A.), M.A. (Dal.), Ph.D. (Dal.),

Airector, Foundation. Year Programme, Assistant Professor of
R.C. Kaill, B.A. (Dal.), B.D., M.S.A. (Tor.), Ph.D. (McG.),

Protessor of Sociology
W.H. Kemp, Mus. Bac., Mus. M. (Tor.), A.M. (Harv.), D. Phi Professor of Music
A.E. Kennedy, B.A., M.A. (U.B.C.), Ph.D. (Edinburgh),

Kofessor of English, Chairman of Department
K. Kierans, B.A. (McG.), D.Phil. (Oxon.),

Associate Director, Foundation Year Programme, Lecturer W.J.T. Kirby, B.A. (Vind.), M.A. (Dal.)

Junior Fellow
K.E. von Maltzahn, M.S., Ph.D. (Yale),
H. Roper, B.A. (Dal. et Cantab.), M.A.; Ph.D. (Cantab.)

Associate Professor of Humanities and Social Sciences and Registrar
University of King's College
University of King's College
R. Rosen, B.S. (Brooklyn), M.A.(Col.), Ph.D.(Chic.),
R. Rosen, B.S.(Brooklyn)
C.J. Starnes, B.A. (Bishops), S.T.B. (Harv.), M.A. (McG.), Ph.D. (Dal.),
Associate Professor of Classics
Protessor of Humanities and Social Sciences, Associate Protessor or German
T. Tomkow, B.A. (SFU.), Ph.D.(Cantab),

Associate Professor of Philosophy
M. Treschow, B.A., (Calgary), M. A. (Toronto)
Junior Fellow,
J. Weir, Ph.D. (Mich.)
Associate Professor of Art History, Nova Scotia College of Art and

## Design

## Admission Requirements

The admission requirements are those pertaining to the Faculty of Arts and Science, i.e., Nova Scotia Grade XII or its equivalent. Mature students, students whose education has been interrupted and
who do not meet the normal admission requirements, but who can demonstrate that there is a reasonable likelinood of success at university, may be admitted as special cases. Students from New Brunswick and Prince Edward Island should complete Grade XII and
have an average of $60 \%$. Very exceptional students from Nova have an average of $60 \%$. Very exceptional students from Nova
Scotia Grade XI and students not in the University Preparatory Programme are also considered for admission on their individual
merits.

## Scholarships

Scholarships ranging from $\$ 5,000$ to $\$ 1,000$ are open to students
entering the Foundation Year Programme in Arts, Science and enterng the Foundation Year Programme in Arts, Science and Journalism. Application for admission constitutes application for a
scholarship. In recent years more than one-quarter of the entering students have received awards. The George David Harris and A.L. Chase Memorial Entrance Scholarships $(\$ 5,000$ ) require a separate application-see the entry under Scholarships, Bursaries and Prizes

## Course Designation, Lecture and

## Tutorial Hours

the formal designation of the Programme courses is as follows:
King's Interdisciplinary Studies
K100 Foundation in Social Science and Humanities; ( 4 credits)
Lectures M.W.Th.F. $9: 35$ a.m. - 11:25 a.m.: Four hours of tutorials to Lectures M.W.

K110 Foundation in Social Science and Humanities; (3 credits) ectures M.W.F. $9: 35$ a.m. - 11:25 a.m.; Three hours of tutorials to e arranged.

## Grading and Credit

The Programme is to be regarded as a complete unit. It is not possible for students to enroll in only part of the course. Evaluation possibe for students to enroll in only part of the course. Evaluation
of the students' performances is continuous and made on the basis of tutorial participation, examinations and essays. The final grade is a composite of all evaluations. Final grading is the result of discuss
among all those teachers who have had grading responsibilities. Grades are given in terms of the letter grade system of the Faculty of Arts and Science.
Successful completion of the Programme gives students in the K 100 course twenty-four credit hours or 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 K110 do two courses in addition to their work in the Foundation Year
Programme. This stream of the Foundation Year Programme carries eighteen hours of credit, i.e., three class credits and comprises threequarters of the work and requirements of $K 100$. Normally students taking K100 would be candidates for the Bachelor of Arts degre and students taking K110 will be candidates for the degree of

The Foundation Year Programme may be combined with almost any programme of study in Arrs and with many in Science but in all cases students are requested the Discus their registration.

Upon successful completion of the Programme the normal departmental requirement of passing an introductory course in the English Language and Literature
History
Philosophy
Philosophy :
Sociology (excluding Social Anthropology)
The following departments admit students completing the Foundation Year Programme to introductory and advanced courses for which here is no language requirement:
Classics
Spanish
The following special departmental provisions have been established:

## Biology

Successful completion of the Foundation Year Programme supplie the prerequisites for Biology $3400,3401 \mathrm{~A}, 3401 \mathrm{~B}$.

These are courses in the history of science, the history of biologica sciences and man in nature.
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
Religion
The Department of Religion recognizes the Foundation Year Programme as satisfying the prerequisites for Religion 2101, 2202
and 2531.

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

## Pre-Professional Training

The Farulies of Medicine and Denisisty and the School ol Year Programme as part of the pre-professional work they requirion admission to their respective faculties and schools. Students may substitute the Programme for the appropriate requirements laid dow 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 100 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 its first year of the B.J. (Hons.) degree

## Evaluation

The mark for the course is based on students' papers, examinations and their class participation. No student will be able fo pass the course without completing the written requirements. All students
(K100 and K110) write the first essay of the year within wo weeks from the start of term. Beyond this, students registered in K100 will write two essays for each of the six units of the course: Students in K110 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 each of the three remaining units. Some of the additional work
students in K 100 will relate to the Thursday lectures which are required for them but not for students in K110.
Outline of the Foundation Year Programme The course is not just a collection of diverse materials but integrates develops. As we work out this interpretation, we consider works various kinds, some of 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 Michelangelo's "Last Judgment", the Bamberg Dom; these are archaeology, art history, and architecture. We read Homer' 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, Descarte
Meditations, and Luther's The Freedom of a Christian, which are usually studied by departments of theology, philosophy and religion We study Diar's The Conquest of New Spain, Rousseau's Social Contract, Marx's The Communist Manitesto, Heilbroner's The Making heory, 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 he aspects of culture mentioned above tends to be stressed in each unit. This is both because of the differences between the genera
character of each period and also on account of the particular haracter of each period and also on account of the particular the presentation of it. Four teaching weeks are devoted to each of hese units.

1. The Ancient World: the origin of the primary institutions and beliefs of the western world in Greece, Rome and lsrael. heligion manifesting itself in art, myth
. The Medieval World: the formation of Christendom. The evelopment of Christian forms in political, social, intellectual life as hese 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
2. The Renaissance and Reformation: the foundations of modernity in the breakup of the medieval world. The worldiness the Renaissance and the renunciation of this in the Reformation form the two poles of our treatment of this period
3. 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 to Special attention is paid to political theory and natural science in this Special attention is paid to
4. The Era of Revolutions: bourgeois culture from it riumph in the French Revolution to its collapse in World War I. The 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.
5. The Contemporary World: the period since World War is characterized by the shift of political, economic and cultural powe rom Europe to Russia and the United Siates and to Asia and Africa, and by the technological and bureaucratic organization of the total necessary a radical rethinking of aspects of our tradition and a

The following are the recurring general topics which are discussed in each of the units outlined above:
(a) Political institutions, the modes of authority, conceptions of law
(b) Religious, theological and philosophical positions and forms.
(c) The conception of nature and forms of natural science.
(d) Economic institutions.
(e) The structure of society
(f) Literary, musical and artistic expression

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

## Required Reading (1986-87)

Section 1-The Ancient World
The Epic of Gilgamesh, (Selections).
Homer, Oayssey.
Sophocles, Oedip
Sophocles, Oedipus Rex and Antigone.
Aristotle, Physics (Selections)
The Bible. (Genesis, Exodus, Isaiah, Job).
Vergil: Fourth Eclogue and Aeneid.
Section II-The Middle Ages
The Bible, (Epistle to the Romans).
"The Apostles' Creed"
Eusebius, Life of Constantine and Oration, (Selections)
St. Augustine, The Confessions, and The City of God,
(Selections).
t. Benedict, The Rule, (Selections),
B. Pullan, Sources for the History of Medieval Europe, Selections).
R.W. Southern, Making of the Middle Ages, (Selections)

Boniface Vill and Philip IV, (Selected Documents).
St. Thomas Aquinas, Summa Theologica, (1, qq. 1 and i)
Dante, Divine Comedy
Section III-The Renaissance and Reformation
Pico della Mirandola, Oration on the Dignity of Man, (Selections)
Th. More, Utopia.
Machiavelli, The Prince.
J. Huizinga, The Waning of the Middle Ages,
as Casas, The Devastation of the Spain, (Selection)
Las Casas, The Devastation of the Indies, (Selection).
Kepler, Epitome of Copernican Astronomy, (Selection).
.S. Westrall, The Construction of Modern Science, (Selection) uther, Selections from his Writings, ed. by Dillenberger Shakespeare, The Tempest.
Section IV-The Age of Reaso Descartes, Meditations on First Philosophy. Moliere, Don Juan.
Hobbes, Leviathan,

Jathan. Parts 1 and 2.
A. Koyre, "The Significance of the Newtonian Synthesis," A. Koyre, The Significance of the Newtonian Synth
Hume, Enquiry Concerning Human Understanding, Selections), A Treatise of Human Nature, (Selections).
Rousseau, Discourse on the Origin and Foundation of Inequality among Mankind and The Social Contract, Book I. Mozart, Don Giovanni.

Section V-The Era of Revolutions
G. Lefebvre, The Coming of the French Revolution.

Byron, Childe Harold, (Selections) and Mantred, (Selections) dam Smith, The Wealth of Nations, (Selections).
L. Heilbroner, The Making of Economic Society, (Selections)

Marx and Engels, The
Marx, Capital, (Selections).
Nietzsche, Genealogy of Morals.
Nietzsche, Genealogy of Morals.
R. Nisbet, The Sociological Tradition, (Selection).
Dostoyevsky, The Devils.
Section VI-The Contemporary World Th. Mann, Death in Venice.
orrelii Barnett, te Swordbearers: Studies in Supreme
T.S. Eliot, The Waste Land
R.L. Heilbroner, Ecconomic Society, (Selection)

Alex Thio, Deviant Behaviour, (Ch. 1).
L. Pirandello, Six Characters in Search of an Author.
Heidegger, Question Concerning Technology and Origin of the Work
C. Lasch, The Minimal Self, (Selection).

Joyce, Portrait of the Artist as a Young Man
Wittgenstein, Lecture on Ethics and Philosophical Investigation
A.J. Ayer, Language, Truth and Logic (Selection).
. Ay , Language, Trun and Logic (Selecilon). Art in the Western
World, (ch. 13).

## Scholarships, Bursaries, and Prizes

Any scholarship winner who can afford to do so is invited to give up An or part of the money awarded. He will still be styled the winner of
the scholarship during its tenure. This arrangement increases the the scholarship during its tenure. This arrangement increases the value of the scholarship funds as it enables of
scholarly attainments to attend the university.

All scholarships, prizes and bursaries, except awards to graduating studen

No special application forms are required as all students who have een admitted are automatically considered for a scholarship admission by March 1

## Applicants

Applicants who wish to be considered for scholarship awards mus enter B A Fond the College's programmes of study they wish to enter. B.A. Foundation Year Programme, B.A. regular tirst year
B.Sc. Foundation Year Programme, B.SC. regular. first year, B.
(Honours), B.J.

In addition they should ensure that the school authorities show on
the transcript the applicant's rank and standing in the school the transcript the
graduating class.
In order to retain scholarships tenable for more than one year, a B average must be made each year, with no failing mark in any

## Arts and Science

## I. ENTRANCE AWARDS

A. Annual scholarships to the value of $\$ 5,000, \$ 4,000$, $\$ 3,000, \$ 2,000$ respectively, provided from various bequests to the university as well
The George David Harris Memorial Scholarship-one at $\$ 5,000$. (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.)
The Arthur L. Chase Memorial Scholarship-one at $\$ 5,000$.
(A.L. Chase was a King's student who died in tragic circumstances,
Established from bequests of the estates of James R. Harris and 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 this scholarship must be supported by High School transcripts, letters of reference and a nomination forms, inquire from the Registrar.
Completed applications for the Harris and Chase Scholarship should be received by March 31 . Final selection may be based on

Anna H. Cousins bequest, in memory of her husband, Henry S.
Cousins, to be known as the Henry S. Cousins Scholarship. Susanna Weston Arrow Almon bequest, to be known as the Almon Scholarships.
Alumni Association Funds to provide for a number of cholarships, ranging rrom $\$ 5,000$ to $\$ 500$, of which one is to be Netherwood or Armbrae Academy.
Dr. Norman H. Gosse, former Chancellor of the University, bequest. This scholarship of $\$ 400$ is open
entering the Foundation Year Programme.
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.
Mrs. W.A. Winfield bequest, in memory of her husband.
The Rev. J. Lloyd Keating bequest, to encourage students in the
study of chemistry and physics.
B. Scholarships and Bursaries tenable for three years, or for four years if the student takes the Honours Course
Margaret and Wallace Towers Bursary- $\$ 1,000$ a year. Established by Dri. Donald R. Towers, an alumnus of King's, in memory of his mother and father. This bursary, tenable for four 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 for that year only will become available to a student resident
anywhere outside the Maritime Provinces of Canada. The holder must live in residence.
King's College Naval Bursary - $\$ 500$ a year. In order to commemorate the unique and valuable ereationshin between the

## Second World War; ships and establishments of the Atlantic

 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. selecting a candidate. Purpose, industry, and character are to be carefully weighed, together with the likelihood that the candidate will make good use of higher education to benefit not only himself but also his country

The Bursary is awarded annually but it is intended to be tenable by he same student to the completion of his course at King's College provided he makes acceptable progress. The Bursary will be withdrawn in the event of academic failure or withdrawal from King's
College for any reason.
The W. Garfield Weston Scholarships. Donated by The W. Garfield Weston Foundation, these awards are given as entrance
scholarships to students in either Arts and Science or Journalism

Imperial Oil Higher Education Awards. Imperial Oil Limited offers annually free tuition and other compulsory fees to all children or wards of employees and annuitants who proceed to higher education
courses. The awards are tenable for a maximum of four years, or the equivalent, at the undergraduate or bachelor degree level.
Further information and application forms may be obtained from The Secretary, Commintte on Higher Education, Imperial Oil Limited, 111
st, Toronto 7, Ontario.
Association Memorial Bursary. In 1975 the King's purpose. It was to provide and was estabity 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 established in the Chapel. In it ard
whose memory gifts are placed.

The income is to be used as a bursary to assist worthwhile students, over and above scholarships, student aid and/or prize funds.
This Fund is intended for the use of any student registered for a full course of study at
the highest marks.
Applications for bursary aid may be submitted to the University Registrar
C. Professional Scholarship

Dr. W. Bruce Almon Scholarship- $\$ 1,500$ a year. Established by he will of Susanna Weston Arrow Almon, this scholarship is open to the degree of Doctor of Medicine at Dalhousie University. It is enewable yearly provided that the student maintains a first class average, and lives in residence each year until the regulations of available to be awarded for the 1987-88 academic year.
By the terms of the will, preference is given to a descendant of Dr. William Johnstone Almon

Charles Frederick William Moseley Scholarship-\$750 a year. Established by the will of Charles Frederick William Moseley, this
scholarship is open to a student from regions No. 16 and No. 17 of scholarship is open to a studen from regions No. 16 and No. 17 o have resided in 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 Atlantic School of Theology. It is renewable yearly provided that the
student maintains suitable academic standing. When no pre-Divinity student is nominated by the Bishop for any one year when the scholarship is available it will be awarded to the highest competito from the regions as an entrance scholarship for one year only.

James Fear Scholarships-Two scholarships of $\$ 1,000$ each, annually. Established by the will of Mary L. Fear in memory of her husband James Fear, a graduate of the University of King's College
two scholarships of $\$ 1.00$ are
o the degree of Master of Divinity at the Allantic School of Theology
They are renewable yearly provided that the recipients maintain They are renewable yearly yrovided that the recipients maintain
suitable standing. When no pre-Divinity students are nominated by the Bishop for any one year when the scholarships are available, the Fear Scholarships will be awarded as entrance scholarships for one year only.

Hazen Trust Scholarships. Two scholarships of $\$ 1,000$ annually for students entering King's from New Brunswick High Schools as Pre-Di
of Frederiction.

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 heology, provided heir grades at each insulon are saislactory to 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 yea Fredericton already registered at the Atlantic School of Theolog, 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 , and 3, the scholarship (or scholarships) will be available to qualifie ntrance scholarshing s from New Brunswick High Schools as an
D. Restricted and Regional Scholarships and Bursaries Nova Scotia Teachers College Bursary - $\$ 500$. Awarded on the recommendations of the Principal to a graduate of Nova Scotia Teachers College who registers as a full time student in the Faculty Arts and Science.

Deihl Bridgewater Bursary $-\$ 400$. To assist needy students of suitable standing, resident in the town of Bridgewater, or with
miles of the town. Bequeathed by the late Lena Ruth Deihl.
I.O.D.E. Bursaries, value $\$ 100$ to $\$ 300$. Awarded to entering students who show academic ability and financial need. Address applications to Provincial Education Secretary, Provincial Chapter,
I.O.D.E., Roy Building, 1657 Barrington St., Room 505,'Halifax, N.S. O.D.E., Roy Building, 1657 Barrington St., Room 505 , Halifax, N.S. 33J 2A1. Applications open March 1 close May

The Halifax Rifles Centenary Scholarship-\$200. Established by he Halifax Rifles as an entrance scholarship. For particulars, apply to he Registrar. 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 to a woman student in need of financia ssistance.

Charles E. Merrill Trust Scholarship. This entrance scholarship of 2,000 is to be awarded each year
high standing from New England

The Margaret Rice Memorial Scholarship- $\$ 3,500$. First consideration will be given to an entering female student of high cademic standing will be award
scholarships.

## II. SECOND, THIRD AND FOURTH

## YEAR AWARDS

A. Annual scholarships of $\$ 2000, \$ 1500, \$ 1000, \$ 500$, university funds
Frank Sobey Scholarships-two of $\$ 2,500$ each
Archbishop Runcie Scholarship-Established by the Province of Nova Scotia to commemorate the visit of Archbishop Runcie in
B. Restricted Scholarships

The Honorable Ray Lawson Scholarhips - $\$ 600$ and $\$ 400$

Chancellor of the University $1948-56$, two scholarships of $\$ 600$ an The Stevenson Scholarship-\$120. Founded by the Rev. J Stevenson, M.A.,., (sometime Professor of Mathematics), this student with the highest average on the five best subjects in the first year examinations.
Alexandra Society Scholarship- $\$ 500$. An annual award offered by the Alexans 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,
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 studen excellence
preferred.
Saint John University Women's Club Scholarship-\$100 (Undergraduate). The Saint John University Women's Club awards a scholarship of $\$ 100$ each year to a woman student entering her senior year in a Maritime University. The award is made to a student given to both academic attainment and financial need. For particulars apply to the Registrar, before March 1.
The United States Scholarship- $\$ 500$. Awarded annually by Friends of King soliege of New York, to a continuing student w Directors of the Corporation best exemplifies an appreciation of the importance of good relationships between the people of the United States and Canada.
students.
The Norah F.W. Bate Prize- $\$ 250$. An in-course open scholarshio The Norah F.W. Bate Prize- $\$ 250$. An in-cour
used to recognize the standing of a top student.
Marion T. Dimick Scholarship Award-Awarded annually by Friends of King's Coliege of New York and made possible throug
private trust grants. This in-course open scholarship is available to students in Arts and Science and Journalism. Preference is given to a citizen of the United States of America at the discretion of the Scholarship Committee

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.

## C. Bursaries

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 college who won high scholastic standing in the student returni
previous year.
E. Mabel Mason Memorial Bursary- $\$ 200$. Available to women students in need or minciliar assiay or two bursaries of $\$ 100$ each.
Roy M. Haverstock Bursary - $\$ 225$. Established by a bequest of
Khaki Bursary - $\$ 60$. Awarded to the sons and daughters of the soldiers of the Great Wars. Written application must be made to the Registrar showing claim for consideration
The Binney Bursary- $\$ 50$. Founded in the year 1858 , by Miss Binney, sister of the late Bishop Binney, and daughter of the late Biinney, sister of the late Bishop Binney, and daugh
Reverend Hibbert Binney, in memory of her father.
This bursary is intended to aid students who may require assistance and who shall have commended themselves by their exemplary

Charles Cogswell Bursary- $\$ 20$. Charles Cogswell, Esq., M.D object of the donation being "to promote the health of the students and encourage them in the prosecution of their studies'

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.

University Bursaries-A limited number of other small bursaries are available to students in need of financial assistance.
D. Prizes

The Lawson Prize - $\$ 100$. Established by The Hon. Ray Lawson, ormer Chancellor of the University, for the student who shows the
greatest progress between the first and second year. 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 from the late Dr. M.A.B. Smith. Awarded to the student with the
highest marks at the end of his second year with ten classes. In case highest marks at the end of his second year with ten class
of a tie, preference will be given to a pre-Divinity student.
Bishop Binney Prize- $\$ 20$. This prize, which was founded by Mrs Binney, is given to the undergraduate with the best exa
results at the end of the second year with ten classes.

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 1 st day of April of
the year concerned. Essays become the property of King's College.
The Beatrice E. Fry Memorial Prize- $\$ 50$. Established by the Diocesan Board of the W.A. of the Diocese of Nova Scotia, in
memory of Miss Beatrice E. Fry. To be awarded to the woman student (Anglican) of the College obtaining the highest mark of the year in English 100, provided that mark is at least B.
The Henry D. deBlois English Prize- $\$ 50$. The late 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 to the student of the 2nd, 3rd or 4th year in Arts or Science who submits the best essay on some subject relating to English Literature

For conditions, apply to the Registrar. All essays must be in the
hands of the Registrar of King's College by April 15 .
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 deeds of Major Augustus prize to commemorate the gallant and loyal deeds of Major Augustus Frederick Welsford who died in the Crimean War (1855) and to
encourage the study of Latin. The prize is awarded annually to the student in his first year who makes the highest mark in a Latin course at the 100 or 200 level provided the grade is at least B.
The McCawley Classical Prize- $\$ 35$. Established as a testimonial to the Rev. G. McCawley, D.D., on his retirement from the office of
President. This prize is awarded annually to the student who makes President. This prize is awarded annually to the student who makes
the highest mark in a Greek course at the 100 level providing the grade is at least $B$.

The Zaidee Horsfall Prize in Mathematics- $\$ 10$. Established as a memorial to the late Zaidee Horsfall, M.A., D.C.L. Awarded to the

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 A. Crawtord, Gagetown, N.B., a sudent of tis King and his Country, April 14,1915 , while serving in the 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 the second year Arts course, of good character and
academic standing, who in the opinion of the Faculty deserves it
III. Graduate Scholarships, Medals and Prizes
The Governor General's Medal. Awarded to the candidate who
obtains the highest standing in the examination for the B A obtains the highest standing in the examination for the B.A.
degree. Preference will be given to an Honours student.

The Rev. S.H. Prince Prize in Sociology. This prize was made available by a $\$ 1,000$ bequest under the will of the late Dr. S.H.
Prince for annual award to both Dalhousie and King's students.

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

Rhodes Scholars who have attended the University of King's College
1909 Medley Kingdom Parlee, B.A., '08
1910 Robert Holland Tait, B.C.L... '14
1916 The Rev. Douglas Morgan Wiswell, B. A. '14. M. A., '16
1916 The Rev. Cuthbert Aikman Simpson, B.A.,' 15, M. A., '16
1919 William Gordon Ernst, B.A., '17
1924 The Rev. Gerald White, B. A., '23, M. A. '24
1924 The Rev. Gerald White, B. A., '23, M.A., ' 24
925 M. Teed, B.A., '25
1936 M. Teed, B.A.', 25
1931
Allan Charles Findlay, B.A., ' 34
1938 John Roderick Ennes Smith, B.Sc., '38
1946 Nordau Roslyn Goidman
1946 Nordau Roslyn Goodman, B.SC., '40, M.Sc., ' 46
1949 Peter Hanington, B.A., '48
1949 Peter Hanington, B.A., ' 48
1950 lan Henderson, B.Sc.,' 49
1950 Eric David Morgan, B.Sc., ' 50
1955 Leslie William Caines, B.A.., '55
1962 Roland Arnold Greville Lines, B.SC., ' 61
1963 Peter Hardress Lavallin Puxley, B.A.' 63
963 Peter Hardress Lavalilin Puxley, B.A.,' 63
1969 John Hilton Page, B.Sc.,' 69
1981 Bernard John Hibbitts, B.A., ' 80
1986 Gregory Yuri Glazov, B.A., ' 86
University Women's Club Scholarship- $\$ 500$. The University Women's Club of Halifax offers a scholarship of the value of $\$ 50$ every second year, 1982, 1984, etc., to a woman graduate of M.A. or M.Sc. degree at any recognized graduate school. For M.A. or M.Sc. degree at any recog

The Canadian Federation of University Women Fellowships$\$ 1500$ to $\$ 2500$. For information, apply to the Registra.

## Journalism <br> \section*{- Entrance Awards}

Annual scholarships to the value of $\$ 5000, \$ 3000, \$ 2000$ and s1000, provided from bequests to the university as well as from Journalism (Honours) programme are eligible to apply for the Georg Scholarship (see p. 30).
Mercantile Bank of Canada Scholarship- $\$ 800$. One scholarship of $\$ 800$ to be awarded to a student entering the first year of the .
Aetna Casualty/Excelsior Life Scholarship- $\$ 800$. On cholarship of $\$ 800$ to be awarded to a student entering the first yea

Canadian Tire Corporation Scholarship - $\$ 500$. One scholarship if $\$ 500$ to be awarded to a student eniering the irst year of the

The W. Garfield Weston Scholarships. Donated by The W Garfield Weston Foundation, these awards are given as entrance
II. Second, Third and Fourth Year Awards
Annual scholarships of $\$ 2000, \$ 1500, \$ 1000$ and $\$ 500$ Annual scholarships of $\$ 2000, \$ 1500, \$ 1000$
respectively provided from university funds.

Marion T. Dimick Scholarship Award-Awarded annually by Friends of King's College of New York and made possible through
private trust grants. This in-course open scholarship is available for
students in Arts and Science and Journalism. Preference is given a citizen of the United St
Scholarship Committee.

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.
Major Cecil R. Thompson Prize- $\$ 250$-Given to the student who achieves the highest grade in Journalism 201
George B. Pickett Prize- $\$ 500$. Established from a bequest of the estate of George R.B. Inch, this prize commemorates George B. pick first-year Bachelor of Journalism (Honours) student who has the highest aggregate average among those who achieve a first-class
the
standing in a

## 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 Anglican faculty members of the Atlantic School of Theology advise
on their disposition. Information on and application for these
scholarships should be sought from the Divinity Secretary of King's College, Rev. Canon Philip Jefferson.
Canon W.S.H. Morris Scholarship- $\$ 1,500$. 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 years.
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 he opinion of the Facuity,
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 betore January 8 , of he year Th
the applicant, if successful, intends to use the scholarship. The the applicant, if successtul, 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 Established by the will of Charles Frederick William Moseley, this
scholarship is open to a student from regions No. 16 and No. 17 of scholarship is open to a student from regions No. 16 and No. 17 of the Anglican Diocese of Nova Scotia (to be eligible a student must
have resided in 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 by the Bishop for any one year when the scholarship is available, it will be awarded to the highest competitor
from the regions as an entrance scholarship for one year only.

James Fear Scholarships-Two scholarships $\$ 1,000$ each, annually. Established by the will of Mary L. Fear in memory of her husband James Fear, a graduate of the University of King's college,
two scholarships of $\$ 1,000$ are awarded to students entering the University of King's College as pre-Divinity students and proceeding to the degree of Master of Divinity at the Atlantic School of Theol suitable standing whearly provided that the recipients maintain the Bishop for any one year when the scholarships areavailable, the Fear Scholarships will be awarded as entrance scholarships for one year only.
Hazen Trust Scholarships. Two scholarships of $\$ 1,000$ annually Pre-Divinity students as officially certified by the Diocese of Fredericton.
These scholarships to be retained during the years necessary to complete their digrees ar
Theology, provided their grades at each institution are satisfactory to Theology, provided their grades at each institution are satisfactory
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 only to a qualified student (or students) from the Diocese of 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 qualified students entering King's from New Brunswick High Schools as an entrance scholarship (or scholarships) for one year only.
The Alexa McCormick Sutherland Memorial. The sum of $\$ 5,000$ has been willed to the Board of Governors of the University of King' or the purpose of founding a memorial to her mother from the net annual income. The award is open to the Anglican student, includin any post-graduate student, in the Divinity School, now a parther
Atlantic School of Theology, considered worthy in terms of scholarship, financial need and devotion to his or her vocation, scholarship, financial need and devolion to nis ollatic School to the
nominated by the Anglican Faculty Group of Atlat
above named Board of Governors.

Greta L. Scott Memorial Fund-Financial assistance for Divinity students for board, lodging and tuition.

The Ernest H. MacDonald Fund. The annual interest of a beques of $\$ 13,878.60$ to the Board of Go Thors of 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 School, now a pammended 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 of the William Cogswell Scholarship, to be awarded to the student who passes a satisfactory examination and who takes his Divinity course at any fitted, in the opinion of the Trustees, to serve the terms of the Trust.
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 Divinity course for the first time and who stands highest in a specia examination to be held in the month of admission provided he a statement promising to serve in the Diocese of Nova Scotia for a period at least as long as the period during which he holds the scholarship.
This examination will consist of two papers:
(a) A paper on the content of the Old and New Testaments; and
(b) A paper on A.H. McNeile's Introduction to the New Testament (revised edition by C.S.C. Williams) Oxford, 1953.
Awards will not be made every year.
The Daniel Hodgson Scholarship-\$240. Founded in 1883 by Edward J. Hodgson and the Reverend G.W. Hodgson in memory of heir Iather Daniel Hodgson, who died about that time. This
scholarship of an annual value of $\$ 60$, tenable for four years, is for the purpose of encouraging students to take an Arts Degree before entering 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 before August 15 , and must not be over 24 years of
age at that time. They must also satisfy the Diocese Committe for Holy Orders as to their aptitude for the Ministry of the Church. At the end of each academic year the scholar shall file with the Trustees, a certificate from the President or Secretary of the University "that. during the past year he has resided in College (or has been excue
from such residence) and has attended the full Arts course in the

College", together with a certificate that his moral conduct, his
attention to his studies and his general conduct have been attention to his studies and his general
satisfactory to the Board of Governors.
Scholars who fail to comply with the foregoing conditions on the representations of the Trustees, may restore a terminated scholarship in whole or in part.
The Mabel Rudolf Messias Divinity Bursary - $\$ 120$. The interest on an endowment of $\$ 2,000$, the gift 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 $\$ 2,000$ established by family 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 and who is intending to enter the ministry of the Diocese of Nova
Scotia. Should there be no suitable candidate for the scholarship training in Nova Scotia, the award may be made, in consultation, with the Bishop of Nova Scotia, to one studying elsewhere, provided the student intends to return to Nova Scolia for
Diocese.
The George M. Ambrose Proficiency Prize- $\$ 300$. 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 Scholarships- $\$ 450$. Two scholarships of the value of 450 each, established under the will of Maple B. Anderson of 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 ity professors at the Ailantic School of Theology with th
University of King's Colleg
A student may apply for renewable tenure of the scholarship.
The Margaret Draper Gabriel Bursary- $\$ 450$. A fund has been established in memory of Margaret Draper Gabriel by her son, Rev. A.E. Gabrie, 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 be used to give financial aid to a Nova Scotian Diviinity student in
preparation for the Ministry of the Church. The recipient must be neparation for the Ministry of the Church. The recipie. 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 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 $\$ 4,000$ has been established by Mrs. Ethel May Smith in memory of 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 the
in ofe of these Dioceses.
John Clark Wilson Memorial Bursaries - $\$ 100$ each. Established n 1947 by Miss Catherine R. Kaiser, in memory of John Clark Wilson. Two bursaries of $\$ 10$ each, tenabie or one
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 scholarship and exemplary conduct shall, in the opinion of the Faculty, merit it. (Next award 1985).

The George Sherman Richards Proficiency Prize- $\$ 120$. In from a fund of $\$ 2,000$ to be awarded annually to the Divinity studen who gains the highest aggregate of marks at the end of his enultimate year, provided that in that year he takes the regular full course in Theology

The Countess de Catanzaro Exhibition- $\$ 100$. The income from a fund of $\$ 2,000$ to be awarded by the Faculty to a Divinity student
during his second year in college. The award will be made on the during his second year in col
basis of character and need.

The McCawley Hebrew Prize- $\$ 25$. Open to all members of the University who are below the standing of M.A.
This prize is given out of the interest of a Trust Fund, the gitt of the the Propagation of the Gospel in Foreign Parts.
This prize will be awarded to the student who leads the class in Hebrew.
Junior McCawley Hebrew Prize- $\$ 25$. With the accumulated unexpended income from the McCawley Hebrew Prize a fund has 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 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. A warded every
of the Faculty. (Next award 1987-88).
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 needed qualities and has taken his degree or in whe
completing his Arts course. there is no student meeting the above
requirements the award will be left to the discretion of the Divinity requirem
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 and Divinity Faculty to the Divinity student considered most worthy on grotion to his vocatio. Profere will be give to student from the Parish of St. Mark's, Halifax
Divinity Grants. Grants to ald 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 personal
Faculty.
The Wallace Greek Testament Prize- $\$ 50$. A Book Prize established by the late Canon C.H. Wallace of Bristol, England, in 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 bursaries of $\$ 15$ each 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 diligence in the
same student.

Bennett-Cliff Memorial Prize. A. prize of $\$ 10$ each year. Award to be at the discretion of the President.

Kenelm Eaton Memorial Scholarship- $\$ 60$. This schoiarship 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
Next award 1987-88.

Fenwick Vroom Exhibition- $\$ 100$. To be awarded to a Divinity
Student at the discretion of the Faculty Student at the discretion 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 Mrs. Forrester, by her
husband, is to be awarded on Encaenia Day to the Divinity student in his penultimate or final year who passes the best examination on the exegesis of the Greek text of St. Matthew, Chapter V-VII provided always that the standard is sufficiently high
Bibliography:
TW. Manson:
J.W. Manson: The Sayings of Jesus (SCM)
F.W. Beare: The Sermon on the Mount (Athlone Press)
F. W. Beare: The Earliest Records of Jesus (Blackwell), pp. 52-69
H.K. MacArthur: Understanding the Sermon on the Mount (Epworth).

The Bullock Bursary $-\$ 225$. Established by C.A.B. Bullock of Halifax for the purpose of defraying the cost of maintenance and
education of Divinity students who 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 Div
The student shall be selected annually by the Divinity Faculty, preference being given to a needy student from Prince Edward Island, failing that, a needy student from the Parish of Parrsboro, and The Carter Bursaries- $\$ 200$. Two bursaries of a value of $\$ 160$
each, established under the will of Beatrice B. Carter of Amherst, Nova
Royal Canadian Air Force Protestant Chapel Bursary- $\$ 150$. This bursary, established in 1959 by endowment from collections
taken in R.C.A.F. chapels, is awarded annually at the direction of the Divinity Faculty to a bona fide ordinand, preference where possible
The Reverend Dr. W.E. Jefferson Memorial Bursary - $\$ 400$. This bursary; the gift of the Parish of 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 yet was able to give nearly twenty years of devoted service to the ordained Ministry. Preference will be given to older men pursuing postis to be made by the Divinity Faculty.

The Archdeacon Harrison Memorial Bursary- $\$ 20$. Established
by Miss Elaine Harrison in memory of her father. To be awarded to by Miss Elaine Harrison in memory of her father. To be awarded to a
deserving and needy 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. Clarke of Kingston, New Brunswick, the first of Christ to members of each year's graduating Class in Divinity. The of Christ to members of each year's graduating Class in Divinity. The
balance of the income each year to be awarded by decision 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 awarded to a needy and worthy student from the Amherst
region. If no candidate is availabie from this region, in any one y

## Convocation 1986

Graduating Class
Honorary Presiden
President
President
George Sean Earles
Vice-President
Pauline Florence Thornhil
Secretary-Treasurer
DOCTOR OF CIVIL LAW (honoris causa)
George C.S. Bain
The Hon. Eric W $\qquad$ Oakland, N.S.
DOCTOR OF CANON LAW (honoris causa)
M. Grace Wambolt, Q.C....................

## The Rev. Canon William C. Hart The Rt. Rev. G. Russell Hatton <br> lifton Royal, N.B. . Halifax, N.S.

## BACHELOR OF ARTS DEGREE:

ATHERTON, Geoffrey Hugh Hayward
(First Class Honours in Classics and German (First Class Honours in C
and a University Medal).
BASHOW, Leslie George.
BASHOW, Leslie George ...........
BLANDFORD, Joyee Elaine.......
BRANDER, Yasmine Margaret Diane
Halifax, N.S.
BRANDER, Yasmine Margaret Diane . . . . . . . . . . . . Amherst, N.S.
CHISHOLM, Mary Ellen. . . . . . . . . . . . . . . . . . . Halifax, N. N.S.
CURRAN, Noreen Mary . . . . . . . . . . . . . . . Lower Sackville, N.S.
DIAL, Marshall Charles . . . . . . . . . .
ELLON, Cristopher Bryan (First Class Honours in
Philosophy and French) . . . . . . . . . . . . . . .

FERGUSON, Judith France (Honours in French and
Political Science).................. Sydney River, N.S.
FOWKE, John Frederick ................ Bridgewater, N.S. FOWKE, Jonn Frederick ...
FRALII-BROWN Janice Dia Bridgewater, N.S.
Mount Uniacke, N.S.
FRALIC-BROWN, Janice Diane
GLAZOV, Gregory Yuri (First Cl
GLAZOV, Gregory Yuri (First C
Classics and Biology and a
University Medal in Classics)
Classics and Biology and a
Univerity Medal in Classics).
GOGAN, Robert Arnold Rankine
Halifax, N.S.
Truro, N.S.
HOLLE, Susan Elizabeth ................. New Glasgow, N.S.
HUBBAD, Sarah Lindsay............... Glen Haven, N.S.
KETCHUM, Alisa Claire........................ Edmonton, Alta.

Political Science)........................... Kingington, N.S.
LEACH, Tannis Allman ............... Winneg, Man.
LeBLAN, Douglas Charles .............. Prospet Bay, N.S.
MacDONALD, Jane Marie............. New Glasgow, .S.
MacDONNELL., Helen Isabel
MacLEAN, Colin Hunter. ...
MITCHELL, Helen Louise Georgina ................ Sydney, N.S
MITCHELL, Shandi Marie ............... Lower Sackville, N.S
ATHANSON, Peter David
o... Sydney, N.S

PHILLIPS, James Stewart
Brussels, Belgium
RILEY, Charlotte Anne Marie (Honours in French) ... Halifax, N.S
SIRCOM, Elizabeth Mowbray
antsport, N.S
WALKER, John Joseph.
WALTON, Luanne Agnes
WHTE, Christopher Robert.
YOU, Christopher Jung Gun

## BACHELOR OF ARTS DEGREE-

HONOURS CERTIFICATE:
COWAN, James Lawrence (Honours in Russian)
Economics and Political Science) . ........ Summerside, P.E.I. ORHAM, Geoffrey Alexander Joseph (First Class Saint John, N.B. Political Science).


BACHELOR OF JOURNALISM HONOURS) DEGREE


BACHELOR OF JOURNALISM DEGREE:

| BRUCE, Margot Patricia | St. John's, Nfld |
| :---: | :---: |
| COX, Brian Lloyd. | Halifax, N.S. |
| DETURBIDE, Michael Eugene | Halifax, N.S. |
| DRISCOLL, Michael Vincent | Greenwood, N.S. |
| EVENSON, Brad Murray | Grand Cache, Alta. |
| GILLIES, Mary Veronica | Mulgrave, N.S. |
| GLASER, Deborah, Anne | Toronto, Ont. |
| hathaway, Janet Kyle. | Halifax, N.S. |
| HURST, Carol Lynne | nnipeg, Man. |
| LeBLANC, Susan Ann | Halifax, N.S. |
| LINDOW, Dianne Elizabe | Dartmouth, |

*In Absentia
Conferred during the session


ENCAENIA AWARDS
ARTS AND SCIENCE
The Governor General's Medal Alexandra Society Scholarship. Clair Strickland Vair Scholarship The Lawson Prize.
Harry Crawford Memorial Prize
The Junior McCawley Hebrew Prize
The McCawley Hebrew Prize The George Sherman Richards Proficie The George M. Ambrose Proficiency Prize The Archdeacon Forsyth Prize. The Shattord Pastoral Theology Prize The Clara E. Hyson Scholarship The Prize in Scripture Reading Canadian Bible Society
Dr. M.A.B. Smith Prize.

$$
\begin{aligned}
& \text { The Prine Prize in Apoogetics } \\
& \text { The Dr. C. Pennyman Worsley }
\end{aligned}
$$

$$
\begin{aligned}
& \text { The D. C. Pennyman Wrisley Prize. } \\
& \text { The Clarke Exhibition Prize ....... }
\end{aligned}
$$

## The Bishop Binney Prize

The McCawley Classical Priz
The Almon Welsford Testimonial Prize
The Canon W.S.H. Morris Scholarshi
Holy Trinity (Yarmouth) Scholarship ...
The Honourable Ray Lawson Scholarship

The Norah F.W. Bate Prize
Hazen Trust Scholarship.
Margaret \& Wallace Towers Bursary
King's College Naval Bursary
SCHOOL OF JOURNALISM
Alumni Association Scholarship

$$
\begin{aligned}
& \text { Catherine Campbell } \\
& \text { Jill Dudar }
\end{aligned}
$$

George B. Pickett Prize $\qquad$

James Fear Scholarship and Dr. Norman H. Gosse Scholarship and University Scholarship harlarship and Univiam Moseley Susanna Weston Arrow Almon Scholarshio and University Scholarship
Nova Scotia Teachers College Bursary

University Scholarship

| Gregory Yuri Glazov lan Alexander Folkins Nancy Cushing Carmelle D'Entremont David Wilson Twila Burton |  | Grace Y. Richardso Jennifer Scott Katherine J. Wall Bernard N. Wills |
| :---: | :---: | :---: |
| Not Awarded in 1986-87 | SCHOOL OF JOURNALISM |  |
| Not Awarded in 1986-87 | Alumni Association Scholarship | Douglas. Beazley |
| Not Awarded in 1986-87 | Alexandra Society Scholarship | Linda Kelly |
| Prize... Drew MacDonald | The W. Garfield Weston Foundation | Sandra Goodwin |
| Prize .... Barbara Minard Frank Likely | Scholarship and University Scholarship | Theresa Nowlan William Hubley |
| ...Frank Likely | National Bank of Canada and | JoAnn Sherwood |
| Not Awarded in 1986-87 | University Scholarship |  |
| .... Neville Cheeseman | University Scholarship | $\begin{aligned} & \text { Alison M. Estok } \\ & \text { Clayton J. Burns } \end{aligned}$ |
|  |  | Kirk William |

IN-COURSE SCHOLARSHIPSARTS AND SCIENCE

University Scholarship
Jennifer Balfour Andrew Calkins
Lou Ann Chiasson Claire Deagle
Susan Dodd Susan Dodd Kimberley Hallett Philip Jefferson Catherine Krawchu John Mowatt John Mowatt
Cheryl Penney Heather Sanderson
Ellen Sim Gregory Webber-Ca-
meron James Wood

N-COURSE SCHOLARSHIPS-JOURNALISM
University Scholarship
Craig Benjamin
Robert Chute
Janice Landry
Erika Paterson
Beverley Ware

Craig Benjamin Janice Landry everley Ware
ynne Wells

## Student Organizations

The University of King's College Students' Union
The University of King's College Students' Union is the organization in which the students enjoy their right of self government: The Constitution, revised in 1974, provides for a democratic government
in which the participation of every student is expected. The students in which the participation or every student is expected, The students ife. The Union's main organs are the Student Assembly, the Executive of the Students' Union, the Students' Council. The power of self discipline is exercised through the Union's Male and Femal

The Union operates through a number of permanent committees,
g., the Academic Committee, the Social Committee, committees on

King's College Women's Athletic

## Association

xecutive officers of this association are: President, Vice-Presiden Secretary Treasurer and Inter-Wing. Manager. Its objective is the organization, administration, and promotion of women's athletics a
the College. Women's varsity teams compete in field hockey. the College. Women's varsity teams compete in field hockey,
volleyball, basketball and swimming within the Women's Divis the N.S. College Conference, and the volleyball team is a member of Volleyball N.S. with the full playing privileges of that organization. A strong inter-Wing programme operates two nights per week, and a co-ed badminton club also meets twice weekly. Table tennis and
chess are also available on a recreational basis, and the swimming pool is available for recreational swimming every evening. The Women's Athletic Association in conjunction with the Men's Athletic Association is also responsible for the organization and

## King's College Men's Athletic

## Association

Thie executive of this association (President, Vice-Presiden 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 include soccer,
basketball , hockey and swimming The Inter-Bay League features spirited and sometimes hilarious competition between the various men's residences on the campus. Competition in road racing, volleyball, basketball, badminton, hockey and swimming are availabl to inter-bay competitors, and all bay members are encouraged to
participate. In addition, table tennis, chess, weight-lifting, and co-ed participate. In addition, table tennis, chess, weight-lifting, and co-ed
badminton are availabie, and the swimming pool is open daily for student use. The Men's Athletic Association in conjunction with the
 and adm
Dance.

## King's College Dramatic Society

## This society was tuad inat to

## The King's College Record

he Record (founded 1878) is published by the undergraduates of the College during the academic year. It contains a summation of the year's activities and awards.

## The Quintilian Debating Society

The Quintilian Society, founded in 1845, is the oldest surviving
debating association in British North America. The activities of th organization include an annual crossing of swords with the gallants o the King's Alumni Association, even more regular drubbings of the financing, particication in tournaments at Upper Canadian and American colleges and universities. The Quintilian annually hosts the Nova Scotia Provincial High Schools Debating Tournament. Finally, sides a sought after platform for public figures to debate issues of provides a sought after platiorm for public figures to debate issues of
the day.

## The Haliburton

The Haliburton was founded and incorporated by Act of Legislature in 1884 , and is the oldest literary society on a college campus in and the collecting of Canadian books, manuscripts, as well as books bearing on Canadian History and Literature. College students and iterested residents of the metropolitan area meet to listen to papers

## The Monitor

"The Monitor" is the university newspaper. It is edited and produced
by students in the School of Journalism.

## The Students' 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 Missionary work and to further the gospel of Christ especially in the annual meeting is held on St. Andrew's. Day, or as near to it as oossible. The society seeks to direct its energies to the developmen of the spiritual life open to university students at King's and promote mous : 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 Under the direction of Mrs. Helen Buley, the Choir has grown to developed a considerable range of liturgical music. A small number Choral Scholarships are available fo choir members. Applicat

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 ixteenth and seventeenth centuries. Membership in the society is are interested, able, and not prone to tone-deafness. Madrigallers go madrigalling for the sheer enjoyment of the activity itself; they

## The Aquinas Society

This group is concerned with the maintenance of the liturgical life of
he College.

## Other Societies

Each year a number of groups develop for the purpose of promoting

## Awards

The Student Body of the University of King's College awards an overall "K" to participants in King's activities. Under this system,
begun during the $1956-1957$ term, a student may receive a siver "K begun during the $1956-1957$ term, a student may receive a silver
upon amassing 160 points and a gold "K" upon amassing 250 upon am

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, ge
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 hei qualities of character and
mind, makes a contribution to the University of King's colle 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

The Michael Elliott Memorial Award. This award, made possib 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 a student who, as Michael did, displays integrity of character and a
spirited concern for the lives of others, and who has made an allround contribution to university life. The, award will be given only round contribution to university life. The, award will be given only it
there is a deserving recipient. 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 the most to the life at King's.

The Prince Prize. This prize is designed for the encouragement of effective public speaking. The recipient is chosen by adjudicators in an annual competition.
The H.L. Puxley Award. Awarded annually to the best all-round woman athlete.
The Bissett Award. This award is given annually to the best all-
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 The Ron Buckley Award. Awarded annu
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 Dartmouth Sport Store Trophy. Presented annually to the

## Student Services

## Student Employment

The Department of Manpower and Immigration, Manpower Division, in co-operation with the University, maintains a year-round Canada Manpower Centre on campus (Student Union Building, Dalhousie).
This is done to assist students in obtaining employment All students wishing assistance in obtaining part-time and summer work, or graduates seeking permanent employment, are urged to
contact the Canada Mannower Centre early in the academic year.

There are opportunities for students to earn part of their college expenses by working in the Library, Gymnasium, Dining Hall, or as
Campus Police.

## Student Services

Localed in Room 124 of the Dalhousie Arts and Administration Building, this office provides a point of referral for any student
problems. The Dean co-ordinates the administration of Awards Chaplaincy, Counseling and Psychological Services, University Health, the Writing Workshop, the Ombud Office, and is the International Student Advisor. Through the Council of Student Life, Student Union. Active participation exists among the various divisions and the officials of Housing, Recreation, and the Federal Manpower Office located on campus.
The Dean can assist students with any University related problem, and can offer direction in class or special program has been developed for students' requiring academic assistance. All divisions of Student Services co-operate in the program together winh a number of deparimental faculy advisers. with the Dean who reviews their situation and advises them of the various services available.
Many students, particularly those in their first year, experience difficulty in organizing and presenting written work. In an atter
respond to this probiem, the University provides a Writing Workshop. Attendance is on a voluntary basis. For furthe information call 424-2404

Non-Canadian students should look to this office for assistance in matters related to immigration status, medical insurance or any matter of special concern to visa studenis.
Dalhousie has a CUSO co-ordinator who may be reached through the Dean's

## Student Counselling Service

The Student Counseling and Psychological Services Centre offers programs tor personal and educational concerns. Counselling is offered by professionally trained counsellors and psychologists. Strict confidentiality is assured. Individual counselling is available for any personal or social problemlarly are: Career Planning for Mature the programs offered ills; Thesis Writing; Examination Anxiety Reduction; "Speak Easy", and the Career Information Centre

Counselling Centre offices are on the 4th floor of. the Student Union Building. Enquire or make appointments by coming in or calling 424-

## Tutors

The student body has an academic committee which arranges

## University Health Service

Dalhousie University operates an out-patient service, and an inpatient infirmary in Howe Hall, at Coburg Road and Let
Street staffed by general practitioners and psychiatrists

Further specialist's services are available in fully-accredited medical centres when indicated.
All information gained about a student by the Health Service is conidission by the student.
Emergency Treatment
In the event of emergency, students should telephone the University university maintains health services at the clinic in person. The

Medical Care-Hospital Insurance
All slu should have medical and hospital coverage approved by the Health Service.

All Nova Scotia students will be covered by the Nova Scotia Medica
Services Insurance. All other Canadian students should maintain coverage from their home provinces, and this is especially importan for residents of Saskatchewan and Ontario and any other province equiring payment of premiums.

All non-Canadian students should be covered by medical and hospital insurance. Details of suitable insurances may be obtained from the University Health Services and all students are advised to make these arrangements prior to their arrival in Canada. Failure to
do so may entail them in significant medical expenses.

Any student who has had a serious illness within the last 12 months, or who has any chronic medical condition, is advised to contact and dvise the Health Service, preferably with a statement from their doctor

Medications prescribed by any physician, or consultant may be paid by a prepaid drug plan.

## Athletic 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. Varsity teams compete in Women's Soccerer, Cross Country, Badminton, Cross Country, Badminton, Rowing, Volleyball, Ice Hockey and Basketball.
The Director of Athletics works in co-operation with the elected representatives of the King's Amateur Athletics Association (A3) to
provide an intramural program which is characterized by spirited and often hilarious co-ed competition among the various men's and representatives from our ever-growing dày-student contingent. We feel safe in saying that King's Interbay/wing competition is unique among college intramural programs in Canada in its ability to combine whimsical digression with the release of physical aggression. In short, the intramural program at ing's ofiers
generous portions of FUN to its participants, in the guise of events such as road racing, volleyball, basketball, swimming, "Floor Hockey Night in Canada", backgammon, chess, snow football, and table

The College also offers weight training, aerobics classes, and other related services for those students who are interested in achieving o maintaining a more balanced level of personal fitness. Possibly the nost inviting feature of the King's intramural and recreational King's, you truly have the opportunity to have your opinions heard and your interests met (within reason, of course) through intramura 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 sport. King's affords the true student-athlete a unique environment in
which to enioy a close-knit, highly personal community atmospherecoupled with challenging athletic competition leading to National Championships.
Since joining the C.C.A.A. in 1981, King's has been represented at National Championships in Badminton, Soccer, and Basketball.
Volleyball, Cross Country, Ice Hockey and Rowing have been raised only recently to varsity status, but our teams' rapid ascent in competitiveness in these sports gives cause for considerab optimism.

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 programs 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 to join us at their chosen level of involvement. prospective student

## Canadian Armed Forces

The Regular Officer Training Plan (ROTP), Medical Officer Training Plan (MOTP) and the Dental Officer Training Plan (DOTP) are
completely subsidized university plans covering tuition, books completely subsidized university plans covering tuition, books, four years of undergraduate study. Successful applicants serve as commissioned officers in the Canadian Armed Forces for varying compulsory periods after graduation.
For further information on above plans, students should contact the Canadian Forces Recruiting Centre
Sir John Thompson Building
1256 Barrington Street
Halifax, Nova Scotia
Phone: $422-5956$ or $423-6945$.

## Children of War Dead <br> (Education Assistance)

children of War Dead (Education Assistance Act) provides fees and attributable to military service. Enquiries should be directed to the

## Canada Student Loans

. All Canadian students are eligible to be considered for Canada tudent $\dot{L}$ oans which, in most provinces, are administered in
Students should apply as early as pos
2. Students should apply as early as possible by requesting
application forms from the provincial authority in order to have application forms from the provin
money available for registration.

## Societies Connected with the College

## Alumni Association of King's

 CollegeThis Association, incorporated in 1847 by Act of the Legislature, consists of graduates and others whose object is the furtherance of the welfare of the University.

The Association maintains annual scholarships, and supports alumni
student and University activities. student and University activities.
The annual meeting of the Association is held the day before
The Officers of the Association:
President, (1985-87)
Mrs. Charlotte Cochran
26 Oakhill Drive
Halifax, N.S. B3M 2 V2
Vice-Presidents
Mr. J. Mark DeWolf
2130 Blink Bonnie Terrac
Halifax, N.S.
Mrs. Elizabeth Gruchy
221 Pleasant Street
Treasurer
Treasurer
Mrs. Linda Fraser
908 Greenwood Ave.
Halifax, N.S. B3H 3 K9
B3H 3C4

Executive Secretary
Mrs. Beverly W. Mill
University of King's College
Halifax, N.S.

## The Alexandra Society of King's <br> \section*{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 and a

Officers 1986-87
Honorary President,
Mrs. Arthur G. Peters, 1360 Tower Rd., Halifax, N.S. B3H $2 Z 11$
Mrs. H.L. Nutter, 701 Brunswick St., Fredericton, N.B. E3B 1 H8
Honorary Vice-President
Mrs. G.R. Hatton, 5720 College St., Halifax, N.S. B3H 1 X3
mmediate Past-President,
Mrs. H.D. Smith, 1606 Oxford St:, Halifax, N.S. B3H 324
President,
Mrs. J.A. Munroe, 1350 Tower Rd., Halifax, N.S. B3H 2 X 1
irst Vice-President
Mrs. C.F. Whynacht, 1333 South Park St., Halifax, N.S. B3J 2 K9 Second Vice-President
Mrs. F.E. Christiansen, 94 Gibbon Road, East Riverside, King's Co. N.B. E2H 1 R2

Mrs. A. Mackeigan, 68 Reserve St., Glace Bay, N.S. B1A 4W
Fourth Vice-President
Miss Mary Beth Harris, 45 Admiral Street, Charlottetown, P.E.I. C1A 2 C5

## reasurer,

Mrs. A. G. MacIntosh, 39 Clifton Court, Box 1542, Truro, N.S
Recording Secretary,
s. A.G.H. Fordham, Apt. 1103, 1074 Wellington St., Halifax, N.S. B3H $2 \mathrm{Z8}$

Corresponding Secretary and Publicity
Mrs. E. Sheward, P.O. Box 655 , Lower Sackville, Halifax Co., N.S
Convenors:
riends of King's
Mrs. Edith Baxter, St. Stephen's Rectory, R.R. 1, Lake Charlotte,
N.S. BOJ 1YO
Hasti-notes
Miss Janet Hunt, 1585 Oxford St., Apt. 406, Halifax, N.S.
B3H 323
Scrapbook Custodians
Mrs. C.W. Bennett, Northwood Manor, Halifax, N.S


Hospitality
Mrs. Margaret Banfield, 5643 Duffus St., Halifax, N.S. B3K 2 M 7
Dean of Women, King's College
Mrs. Margaret Kirby, Dean's Suite, Alexandra Hall, King's
College, 6350 Coburg Road, Halifax, N.S. B3H 2A1
Editor, Tidings
Susan Williams, P.O. Box $\overline{79}$, Seabright, N.S. BOJ 3JO

Branch Presidents:
Halifax Branch
Mrs. M. Coop
Mrs. M. Cooper. 14 Redbank Dr., Bedford, N.S. B4A 2V2
Dartmouth Branch
Mrs. Jean Fairn, 55 Lynn Dr., Dartmouth, N.S. B2Y 3V8
Sydney Branch
Mrs. A. Mackeigan, 68 Reserve St., Glace Bay, N.S. B1A 4W1
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, 45 Admiral Street, Charlottetown, P.E.I.,

## Divinity

Director of Parish Field Work and Divinity
Secretary
The Rev. Canon Philip Jefferson, B.A., B.D., M.Div., S.T.M., M.Ed.
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 to 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 pubished separately, and
available from the School or from the King's Registrar on requ

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 Institut of Pastoral Training at the University of King's College. A degree in Divinity is a prerequisite.

## Institute of <br> Pastoral Training

The organization and incorporation by the Nova Scotia Legislature of the Institute in 1958 by collaboration of the University of King's 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 face to face with human misery as it exists both in and out of institutions, principally through courses in Clinical Pastoral Education in both general and mental hospitals, reformatories and juvenile courts, homes for the aged, alcoholism treatment centres and oth socirses in Clincal Pastoral Education, usualy at the Nova Scotia Hospital, Dartmouth, (mental); the Victoria General Hospital, Halifax; Waterford Hospital, St. John's, Nild.; Western 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 eological training to become qualified teachers of these subjects institutional chaplains; also, in certain cases, to become experts 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 helping 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, usualiy having one or more member
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 library and reference centre at the Institute Office.

One- to four-day workshops have been sponsored in various entine one 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, B3H 3Y8. Board and lodging can usually be arranged, and some bursary assistance is forthcoming. Academic credit is given by certain Canadian and American colleges (including he Atlantic School of Theology, Acadia Divinity College and Queen College, Newtounc
Pastora Training.

## African Studies

## Director

Timothy M. Shaw, BA, MA, PhD
Associate Directors
D.F. Luke, PhD (Political Science)*
L. Parpart, PhD (History)*

Professor Emeritus
A. Konczacki, PhD (Economics)

Professors
J.H. Barkow, PhD (Sociology \& Social Anthropology)
M. Borgese, PhD (Politica Science)
J.E. Flint, PhD (History)*
E. Gold, LLB, PhD (Law)
K.A. Heard, PhD (Political Science)
R.1. McAllister, MA (Economics)
Osberg, PhD (Economics)
T.M. Shaw, PhD (Political Science, Dir., African Studies, Executive Director, Pearson Institute) ${ }^{*}$
D. Shires, MD, MPH (Family Medicine)
R.J. Smith, PhD (English)
B. Webster, PhD (history)*

Associate Professors
Associate Professors
D. Cherry MBA, CMA (Business)
B. Lesser, PhD (Economics)
Assistant Professors
D.F. Luke, PhD (Political Science)
. Jamieson, PhD (Economics \& Public Administration)
J. .L. Parpart, PhD (History)*
denotes member of Executive Committee
This Centre, established in 1975, co-ordinates teaching, seminar, research and publications programs in Aftican Stucies. Its staff holds primary appointments in departments in the social sciences and the humanities and in several professional schools. It encourages
interdisciplinary interaction at all levels on African subjects and and organisess occasional workshops on topical African issues. In recent years the latter have focused on the African crisis: development strategies, alternative futures, and women and development. te undergraduate program Anfican studies offers an opportunity to Africa; the minor focus is development. Five classes beyond the first year deal with African cultures, economics, history, literature and politics; the remaining classes are concerned with development and change
Students wishing to read towards a BA with a concentration on Students wishing to read towards a BA with a concentration on regulations:
T. It is strongly recommended that in the first year students should
ead three of: Economics 1100 or 1120 . English 100 History 1400 read three of: Economics 1100 or 1120 . English 100 . History 1400 , Spanish 1110A/B.
2. In the second and third years at least seven of the ten required for degree must be chosen according to the following regulations: (a) African Studies $2000 \mathrm{~A} / 2001 \mathrm{~B}$ (compulsory (b) Four classes to be chosen from List below (Direct focus on Africa) ist being classes concerned with the problems of development and underdevelopment.

200A Pre-independence Inheritances: This class provides an overview of Africa's pre-colonial and colonial legacies: the culture, history, sociology and technology of pre-independence changes,
constraints and contradictions up to 1960 .

20018 Post-independence Issues: This seminar constitutes an introduction to Africa's post-colonial development: the economics,

## List I

See respective disciplinary sections of the calendar for clas descriptions. Note that not every class is offered each y
Economics 2250. Applied Development Economics English 211, Commonwealth Literature
History 2410, Pre-colonial Tropical Africa
History 2421A, Colonial Africa
History 2423B
History 3440, African History from Oral Tradition
History $3450 \mathrm{~A} / \mathrm{B}$, Southern Africa
History $3461 \mathrm{~A} / \mathrm{B}$, Women and Development in Africa
History $3462 \mathrm{~A} / \mathrm{B}$, African Economic History
History 3462A/B, African Economic History
Political Science $3315 \mathrm{~A} / \mathrm{B}$, African Politics
Political Science 3345A, South Africa: The Dynamics of Political Groups and Group Domination
Political Science $3540 \mathrm{~A} / \mathrm{B}$, Foreign Policies of African. States Political Science 3544B, Confict and Cooperation in Southern Africa
Political Science 55990 , Politics of the

## List II

Development Stucies 2000A/2001B, Introduction to Development
Studies
Development Studies 3010A/3011B, Seminar in Development Studies Development Studies 4010, Honours Essay Practicun Development Studies 4001A/4002B, Special Topics in Development tudies
Economics 3317 B , Poverty and Inequality
Economics $3330 \mathrm{~A} / \mathrm{B}$, International Trade
Economics 3333A/B, Theories of Economic Development Economics $3333 A / B$, Theories of Economic Development
Economics $3334 \mathrm{~A} / \mathrm{B}$, Economic Development: Recent Debates, Controversies and Conflicts
Economics 3341 A , Urban Economics: Growth and Development of
Urban Areas Urban Areas
Economics 3355 R Marxian Economics
Economics $4431 \mathrm{~A} / \mathrm{B}$, International Pay
History 2130, British Empire and Commonweath
History 2370, Age of Imperialism, 1870-1970
History 2380, Latin America: independence and after
History 2501 A/B, Middle East before /atter WW1
History 2600, Modern East Asia
History 3075A/B History of Tropical Medicine
History 3360, Enslavement and Emancipation: Afro-Americans in the U.S. South up to 1900

History $3612 \mathrm{~A} / \mathrm{B}$, Women in Soction in the Caribbean
Political Science 2300 , Comparative Politics
Poolitcal Science 2500, World Politics
Political Science 2505, International Politics in the Post-War World Political Science $3303 \mathrm{~A} / \mathrm{B}$, Human Rights and Politics Political Science 3340 A , Problems of Developmen Political Science $3 \times \times \times$ A, Politics in Latin America
Poltical Science 3531 A . United Nations in World Political science 3531A, United Nations in World Politics
Political Science 3535B, Towards a New World Order Sociology 2020, Comparative Sociology and Social Anthropology
Sociology 2370/2380, Peoples and Cuiltures of the World Sociology $2370 / 2380$, Peoples and Cuitures of the World $1 / / 1$
Sociology 2400 , Medicine and Health Across Cultures Sociology 2400, Medicine and Health Across Cultures
Sociology 3060B, Modernisation and Development Spanish 2070A/B, Area Studies on Mexico and Central America Spanish 2090A/B, Women in Latin America
Spanish 2110A/B, The Cuban Cultural Revol
Spanish 2110A/B, The Cuban Cultural Revolution
Spanish $2230 \mathrm{~A} / \mathrm{B}$, Contemporary Latin American Prose
Spanish $3070 \mathrm{~A} / \mathrm{B}$, Contemporary Latin American History

## Ancient History

## Anthropology

## See under Sociology and Anthropology

## Architecture

1000 Introduction to Architecture: lecture seminar 1 hour, practical 1000 Introduction to Architecture: lecture seminar hour, practic
nours, staff. An introductory class showing architecture a a bridge
netween the Arts and Science providing an insight into professiona between the Arts and Science providing an insight into professional
architectural studies. In the first term discussion centres around some architectural studies. In the first term discussion centres around some pomponents of architectura d design, Available as an elective in the general degree programmes in Arts and Science.

## Biochemistry

## Head of Departmen RW. Chambers

Professor
A.H. Blair BA, MSC (UBC), PhD (Calif.)
W.C. Breckenridge, BSC (Queen's), MSc, PhD (Tor.)
R.W. Chambers, BA, PhD (Calif.)
W.F. Doolittle, AB (Harv).) PhD (Stan.)
M.W. Gray, BSC, PhD (Alta.)
C.W. Helleiner, BA, PhD (Tor.)
C.W. Helleiner, BA, PhD (Tor.)
CB. Lazier. BA (Tor)., MSc (UBC), PhD (Dal)
C.B. Lazier, BA (Tor), MSC (UBC), PhD
C. Mezei, MSc, PhD (UBC)
F.B.S.C. P. Palmer, BSC, PhD (w.Ont)
D.W. Russell, BPharm PhD P. DSc (Lond.), BEd (Dal)
M.W. Spence, MD (Alta.). PhD (McG),
M.W. Spence, MD (Alta.), PhD (MCG.).
I.A. Verpoorte, BSC. Drs (Utrecht) DS
J.A. Verpoorte, BSc, Drs (Utrecht), DSc (Pretoria)

Associate Professors
A.J.J. Dolphin, BSC, PhD (Southampton)
R.G. Fenwick BA (
R.G. Fenwick, BA (Miami), PhD (Tennessee)
FI. Maclean, BA, MA (Tor). DPhil (Oxon)
R.A. Singer, AB (Princeton), PhD (Harv.)

Assistant Professor
M.H. Tan, BSc, MD (Dal)

Lecturers
D.M. Byers, BSc, MSc (Dal), PhD (Alta.)
D.E.C. Cole, BSc, MD (Tor.). PhD (MCG.)
H.W. Cook, BSc, MSc (McG.), PhD (Dal)

Biochemistry is the study of biological function at the molecular level. Although biochemical processes follow the basic laws of physics and
chemistry. living organisms, because of their complexity, operate on Chemistry, living organisms, because of their complexity, operate on a
set of distinct principles that are not tound in simple isolated chemical systems. The goal of biochemistry is to elucidate these principles. T department offers an integrated series of classes that will provide students with an up-to-date view of modern biochemistry ranging tro
structure-function relationships in macromolecules to the dynamic structure-tunction relationships intic information: transfer, including the exciting new biological and biochemical vistas opened up by

Degree Programs
There is no three-year program with a Biochemistry major. Students There is no ince--year program with a Biochemistry major. Student welcomed. They should take Biochemistry 2000 and 2660 ( Biology
2015 and
and 2015 and 2012), or Biology 2020 and

BSc with Honours in Biochemistry This is a special Major Honours Program. Because Biochemistry and the list of maior classes reauired (see page 29) includes both subjects 10 a total of $101 / 2$ credits. Additional chemistry classes may be taken strongly urged to include Mathematics 1060 or 2070 and Biology 2030 and 2100 in their programs, and should consider also Biology 3070 and (for students interested in molecular biology) Microbiology 303
Year I: Chemistry 110 or 120; Biology 1000; Physics 1100; Mathematics 1000 \& 1010: a "Writing Class" (see page 28).
Year II: Biochemistry 2000 and 2600; Chemistry 220, 231, 232, \& 240 nd one full credit in the minor subject.

Year III: Biochemistry 3200, 3300, \& 3400; Chemistry 341 \& 343; one hall-credit elective (any subject); one full credit elective (not

Year IV: Biochemistry ' 4602 ; three more full credits in Biochemistry, including at least one half-credit in each of the following areas Metabolism ( $43 \times \mathrm{x}$ ), Molecular Biology ( $44 \times \mathrm{x}$ ), and Physical Biochemistry (47xx): one full credit lecctive (not Biochemistry nor minor). A minor subject (see page 29) should be chosen in consultation wid 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,
Microbiology, (see page 29), Physics, or possibly another subject, tor a Microbiolog, (see page Morsing Consult the Department for details.

## Classes Offered

The Department also teaches students in Dental Hygiene, Dentistry, Medicine, and Nursing; these classes are described in the appropriat sections of the Calendar current timetable.
142 Introductory Biochemistry: lecture 3 hours, lab 2 hours, FI. Maclean. Prerequisite: Chemistry 141A or consent of instructor. This
class cannot be used as a prerequis This class also serves as part of Chemistry/ Biochemistry 143 R of the School of Nursing. Topics discussed are structure, biosynthesis and kinetics; genetic engineering; nutrition. Medical aspects are stressed.
2000 (Biology 2015) Cell Biology and Biochemistry: lecture 3 hours tutorial 1 hour, Biology atd Biochemistry faculty members. Prerequisites

2600 A or B (Biology 2012 A or B) Laboratory Techniques for Cell and Molecular Biology: lecture $\uparrow$ hour, tutorial 1 hour, lab 3 hour Biology Department members. Prerequisites. Biology
Chemistry 110 or 120 . Described under Biology 2012.
3100 Biochemistry for Students of Pharmacy: lecture 3 hours, lab 3 hours, D.W. Russell: For pharmacy students in their third year, this class
provides a basic knowledge and understanding of the three main areas of modern biochemistry: the chemistry of cell constituents, metabolism, and biological information.
Biochemistry 3200,3300 , and 3400 are half-credit classes, each of Biochemistry 320,3300, and 3400 are har-credir classes, each which deals with one imporant aspect of biochemistry. Te level or Prerequisites: Chemistry 240, plus either (a) Biochemistry 2000

3200 A (Biology 3012A) Introduction to Biological Chemistry lecture 3 hours, A.H. Blair, J.A. Verpoorte; lab 3 hours, C. Mezei. Prerequisites: see above. This class deals with chemical principles governing biochemical systems. We discuss e faclors hac eeterm these factors may be expressed quantitatively. This is followed by a
discussion of basic principles governing the structure of carbohydrates discussion of basic principies governing the structure of carbohydrates,
lipids and proteins i(including immunogooniss). We alsodeal witithe the
ways in which proteins bind other molecules, often with high atfinity and ways in which proteins bind other molecules, often with high. aftinity and
specificity. A discuscion of enzyme catalysis emphasizers retaionships 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.

3300B (Biology 3013B) Intermediary Metabolism: lecture 3 hours, W Kimmins, F.B. St.C. Palmer, lab 3 hours, P.J. Dolphin. Prerequisites: see above. Emphasis is chiefly on metabolic pathways common to all
organisms, notably the reductive synthesis and oxidative catabolis ,carbohydrates, lipids, and some nitrogen compounds. Other pathways, significant in certain tissues or organisms, are included. Metabolic regulation is surveyed, and factors influencing the rate at which 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 demonstra
pathways.
${ }^{3400 B}$ (Biology 3014B) Nucleic Acid Biochemistry and Molecular Biology: lecture 2 hours, tutorial 1 hour, C.W. Helleiner, J.M. Wright, lab 3 hours. M.J. O'Halloran. Prerequisites: see above. This class fccuses 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 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.

4300 Series: Intermediary Metabolism and Control: These half-cred Classes continue the study of metabolism begun in Biochemistry 3300 , Emphasis is on how metabolic systems are related and how the systems and their relations are controlled. Apppraisal of experimental
evidence and interpretation of data are stressed.

4300B Metabolic Organization and Regulation: lecture 2 hours, W.C.
Breckenridge and F.B. St.C. Palmer. Prerequisites: Biochemistry 3200 Breckenridge and F.B. St.C. Palmer. Prerequisites: Biochemistry 3200 must control and integrate its metabolism. In this class topics include enzyme localization, mitochondrial permeability, modified oxidative cycles, and a detailed consideration of the ways in which flux through metabolic path ways is directed and regulated. Emphasis is placed on
interpetation of experimental data and on problem-solving.
43018 Biochemical Communication: Membranes,
Neurotransmitters, and Hormones: lecture 2 hours, C. Lazier, F.I.
Maclean, and C. Mezei. Prerequisites: Biochemistry 3200,3300 , and 3400 (Biology 3012, 3013, 3014) or equivalent, or special permission of the instructors. First, the class examines evidence for current concepts of membrane structure and assembly. Then several membrane-related
phenomena are studied. These include ways for transporting solutes across membranes, and effects, such as neurotransmission and peptide hormone action, that depend on membrane-associated receptors.
Regulation that does not depend on membranes, such as steroid Regulation that does not depend on me
hormone action, is considered in detail. 4302A Biochemistry of Lipids: lecture 2 hours, F.B. St.C. Palmer and
H. Cook. Prerequisites: Biochemistry 3200 and 3300 (Biology 3012 and 3013). 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. Metabolism of a variety of lipids is studied, especially of those, such as glycolipids, eicosanoids, steroids, ph

4303A Biochemical Energetics: lecture 2 hours, F.I. Maclean. rerequisites: Biochemistry 3200 and 3300 (Biology 3012 and 3013 ) hermodynamic principles of special importance to biochemistr ermentations; autotrophy and photosynthesis; oxidative phosphorylation; nergy metabolism of protozoa and invertebrates 4400 Protein Synthesis and Control Mechanisms: lecture 2 hours,
S.D. Wainwright. Preerequisite: permission of the instuctor. The class
deals with the cell components and reactions involved in the controlling of proteins, with special reference to mechanisms controlling the rate of synthesis and the spectrum of proteins
Students individual study of research reports is emphasized.

4403A \& 4404B Molecular Biology of the Gene: These hall-credit classes consider the duplication, transier, 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 molecular biology and learn about the experimental techniques peculiar
to it. Lectures adopt a historical perspective so that students come to appreciate how the discipiline of molecular biology has developed.
4403A (Microbiology 4403A) Structure, Organization, and Replication of Genes: lecture 2 hours, R.G. Fenwick. Prerequisite
Biochemistry 3400 (Biology 3014). Topics include basic molecula genetics; evaluation of genetic complexity and gene arrangement; chromosome structure: identification and enumeration of specificic genes mechanisms of replication, recombination, and repair, and manipulation

4404B. (Microbiology 4404B) Gene Expression: lectur hours, R.A. Singer. Prerequisite: ordinarily, Biochemistry 4403 A expression in bacterial and eukaryotic cells, and their viruses, are. emphasized. Particular topics include genomic, transcriptional, and posttranscriptional modes of regulation

4602 Honours Project \& Thesis: lab 6 hours, J.A. Verpoorte. Students undertake a small research $p$,
and present a written report.
4700A Proteins: lecture 2 hours, tutorial 1 hour, J.A. Verpoorte Prerequisites: Biochemistry 3200 (Biology 3012) plus a basic class in physical chemistry or permission of the instructor. Selected aspects of
the chemistry of proteins are considered. Topics include relationships of structure to to bioactivity, the forces that stabilize protein structure, and chemical and physical methods used to isolate and study proteins and other macromolecules.
4701 B Enzymes: lecture 2 hours, tutorial 1 hour, A.H. Blair. Prerequisite: Biochemistry 3200 (Biology 3012 ). 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 enzymecalaysed reactions regulatory molecules infuences kineic
cellular metabolism.
*4800 (Pathology 501) Clinical Medical Biochemistry: lecture hours, lab 3 hours, Pathology faculty members. Prerequisitie
Biochemistry 3200 (Biology 3012 ) Examines the appliation concepts and techniques to the prevention, detection, diagnosis. understanding, and treatment of disease

4801 (Biology 4401) Introduction to Pharmacology: lecture 2 hours, lab 3 hours, M. Karmazyn (Pharmacology). Preequisite: permission of -
*4802 (Pathology 503) Principles of Instrumentation: lecture 3 hours, lab 4 projects, Pathology faculty members. Prerequisite: Biochemistry 3200 (Biology 3012). Examines the theory and practice of a wide range
of modern instrumental techniques for clinical biochemical analysis.

8880 Honours Qualifying Examination: Honours students must fulfil the requirements of this class (see 11.4 page 29) by presenting two
reports on their work in Biochemistry 4602 . The first is a Progress Report, and the seccond an oral presentation at a special year-end Departmental Seminar

## Biology

Chair
W.C. Kimmins
Professor Emeritus
D. Pelluet, MA (Toronto), PhD (Bryn Mawr), LLD (Hon. Dal)
Professors
R.G. Brown, MSc (MCG). PhD (Rutgers)
M.R.O. Chapman, PhD (Liv.)
R.W. Doyle, MSc (Dal), PhD (Yale)
Farley. MSc (W.Ont), PhD (Man)
J. Farley, MSc (W.Ont.), PhD (Man.)

ET. Garside, MA, PhD (Tor.)
L.E. Haley, MSA (Tor.) PhD (Calif.)
B.K. Hall, PhD, DSC (UNE),
O.P. Kamra, MS (N.Car.State), PhD. (Wash. State)
W.C. Kimmins, PhD (Lond.)
P.A. Lane MA (SUNY Binghampton), PhD (SUNY Albany)
K.E. von Maltzann, MS, PhD, (Yale) - Carnegie Professor, King's
1.A. McLaren, MSC, (MCG), PhD (Yale) - Geoorge S. Campeell Professor
E.L. Mills, MS, PhD (Yale) - (Oceanography)
R.K. O'Dor, PhD (UBC)
J.G. Ogden. III, MA (Tenn.). PhD (Yale)
L.C. Vining. MSc (Auck.), PhD (Cantab.), FRSC, Killam Research

Professor
E Zouros, MSC PhD (Agri. Coll. Athens), PhD (Chic)
Associate Professors
E.W. Angelopoulos, MS, PhD (Minn.)
B. Freedman, MSc, PhD (Tor)
A.J. Hanson, MSC (UBC), PhD (U. Mich.) IES
A.J. Hanson, MSc (UBC), PhD (U. Mc
M.J. Harvey. PhD (Dunelm)
G.S. Hicks. MSc (CarI). PhD (Sask.)
R.W. Lee, MA (Mass.). PhD (SUNY Stony Brook)
R.P. McBride, MSC (UBC), PhD (Edin.)
J.A. Novitsky, PhD (Ore. S.U.)
D.G. Patriquin, MSc, PhD (MCG)
M.R. Rose, MSc (Queens), PhD (Sussex), University Research Fellow
J.H.M. Willison, PhD (Nottingham)

Associate Professor (Research
G.F. Newkirk, PhD (Duke)

Assistant Professors
R.G. Boutilier, MSc (Acadia), PhD (East Anglia), Universtry Research Fellow
T.H. MacRae, MSc, PhD (Windsor)
R.E. Scheibing, PhD (McG), University Research Fellow
H.Whitehead. PhD (Cantab), University Research Fellow
J.M. Wright, PhD (MUN)

Adjunct Professors
R.G.S. Bidwell, MA, PhD (Queens), FRSC, Director, At. Inst. Biotech.
J.D. Castell, MSc (Dal), PhD ( (Oregon St).) Fish. \& Mar. Se
J.S. Craigie, MSc, PhD (Queens), Atl. Reg. Lab, NRC
K.H. Mann, PhD (Reading), DSc (Lond.), FRSC Mar. Ecol. Lab, BIO
K.H. Mann, PhD (Reading), DSc (Lond.), FRSC Mar. Ecol. Lab, BIO
J.L. McLachlan, MA, PhD (Oregon State College), Atl. Reg. Lab, NRC
M. Shrempt PhD (Stuttgant-Hohenheim)

Honorary Research Associates
J. Bubar, MS (Penn St.). PhD (McG), N.S. Agric. Coll
W.D. Bowen, PhD (UBC), BIO
S.E. Campana, PhD (UBC), BIO
C.D. Caldwell, PhD (East Anglia), BIO
C. Caldwell, PhD (Uast Angia), BIO
D.K. Cone, MSc (Guelph), PhD (UNB), St. Mary's Univ
R. Conover, PhD (Yale), Mar. Ecol. Lab, BIO
K.T. Frank, PhD (Toledo) BIO
J. Fraser, MSc (Aberdeen), PhD (Lincoln College, Univ. of Canterbury),
N.S. Agric. Coll.
A.H. Freeden PhD (McGill), NSAC
B.T. Hargrave, MSC (Dal), PhD (UBC), Mar. Ecol. Lab, Fisheries and
B.T. Hargrave, MSC (Dal), PhD (UBC), Mar. Ecol. Lab, Fisheries and
Environment
F.H. Harrington, PhD (New York at Stony Brook), Mount Saint Vincent
W.G. Harison, PhD (North Carolina, Raleigh), Mar. Ecol. Lab, BIO. Haw-Yoon Ju, PhD (McGill), NSAC
J.J. Kerekes, MSc (Alberta), PhD (Dal), Canadian Wildlife Environment Canada
R. Kerr, MSc (Queens), PhD (Cal.), Mar. Ecol. Lab, BIO.
S.R. Kerr, MSc (aueens), PND (Cal.), Mar
J.P. LeBlanc. PhD McG), N. Agri. Coll.
C.A. Lessman, PDD (Minesota), St. FXU
C.A. Lessman, PRD (Minnesota), St. FXU
W.S.G. Maass, Dr. rer. nat. (Tubingen). Atl. Res. Lab, NRC
W.S.G. Maass, Dr. rer. nat. (Tubingen). Atl. Res. Lab, NRC
R. Mahon, PhD (Guelph), Bedford Inst. Oceanography
R. Mahon, PhD (Guelph), Bectord inst. Sceanography
.A. Meinertzhagen. PhD (St. Andrews). Psychoology Dept. Dalhousie
P.V. Mladenov, PhD (Alberta), MIt. Allision University
J. Nowak, PhD (OIstyn). PhD Habil. (Olsztyn) N.S. Agric. Colll
A.R. Olson, PhD (Alberta) N.S. Agric. Coll.
T.C. Platt, MA (Tor), PhD (Dal), Mar. Ecol. Lab, BIO
R.K. Prange, MSc (UBC), PhD (Guelph), N.S. Agric. Coll.
J.D. Pringle, MSc (Victoria), PhD (Dall), Fisheries and Ocean
W. Straton MSC Phio (Gueph) NS Agric Coll cean
G.W. Stratton, MSc, PhD (Guelph). N.S. Agric. Coll:
J.P. van der Meer, PhD (Cornell), Atl. Res. Lab, NRC
P.R. Warman, PhD (Guelph), N.S. Agric. Coll.
P.R. Warman, PhD (Guelph), N.S. Agric. Coll.
R.J. Wassersug. PhD (Chic.), Dept. of Anatomy, Dalhousie
J. Wrigt PhD (Glasgow). Atl. Reg. Lab. NRC

Senior Instructors
. Beauchamp BSC., MSC (Memorial)
Gerdes, BSC (MCG). MSc (UWO)
P. Harding, BA (Tor), MSc (Dal)
A. Mills
M.J. O'Halloran, BSC (South), BEd, MSC (Dal)

Instructors
Breckenride BSc (Quen
J. Breckennidge, BSc (O

Hill, BSC (Carleton)
B. Hill, BSC (Carieton),

Bryctoral Fellows
P. Bryiski. (Calif.)
J. Doull, PhD (Dal)
J. Doull, PhD (Dal)
R. Lowell, PhD (U of A)
S. Shapiro, PhD (WFEB)
M. Snyder, PhD (Colorado)
H. Wison, PhD (J. Hookins)

The program offered by the department gives a basic training in the biological sciences which may serve as a preparation for graduate and.professional work in biology, medicine, dentistry. pharmacy, the health professions, bio-engineering and education, agriculture, marine d engineering

## Degree Programs

The department offers classes leading to the $B A$ and $B S C$ degrees, to解 as his main subject should consult the department early in his course so
hat a proper program can be worked ou

## Areas of Specialization - Major and

 HonoursMany classes are available to students wishing to concentrate their studies in particular areas of biology. In some cases, the order in whic classes are taken is important, but cannot be rigidly specified here
because students may vary widely in their interests and requirements For this reason, students are strongly urged to consult with an adviser in the biology department, whether they are planning a 3 -year, 2 -year or only 1 -year program in biology. Faculty advisers are available in the
ollowing fields (among others): Molecular Biology. W.C. Kimmins L.C Vining: Microbiology, R.G. Brown, J. Novitsky; Genetics, R.W. Doyle. R.W. Lee, O.P, Kamra, E. Zouros: Ecology/Environmental Studies, R.W. Doyle B. Freedman, P. Lane, I. McLaren, J.G. Ogden; Physiological/ Cell
 R.P. McBride, K.E. von Maltzahn; Plant Biology, M.J. Harvey. A.R.O Chapman, M. Wiisson; Animal Biology, E.T. Garside; Entomology Parasitology, E. Angelopoulos

## Advisors M. M. C Cameron U J. Farey

Aor entrance to ogradiounte school an honours degree or equivalent fouryear background is required. Some graduate schools require a reading
Knowedgeo of french, German or Russian. A thorough grounding in knowedge of French. German or Russian A A thorough grounding in
mathematics and physical sciences is as important as advanced
undergraduate training in biology.
Students reading for Bachelerors degreses with honouirs in biology should register tor their honours program before signing up fort the second year classes. II addition to saitstying the general requirements
for honours degrees (see general faculy regulations, page 29 , feierring 10 academic programs) all honours studentis in Bioliogy must complete Biology 2015, 2046, 2030 and 2050 or their equivalents by the end of ne third year. Students must atta a grae averge in hese classe with no mark lower than a B -. In
thesis and enrol in iniology 4900 .

## Selecting an Honours Program

The biologocical sciences and enough floxivilitys a to alroad background in specialization in a variety of sub-disisipines. A suitable program of this Kind (e.g. celluara and developmental biology, cellular biology and
geneicics, ecology and evolution, environmental biology, molecular ennetics. ecology and evolution, environmental biology, molecular
biology, human biology, etc.) Worked out with an adviser and leading to hesis in that area is excellent preparation for advanced studies. Some students may wish to choose a Combined Honours Program win Biochemistry, Chemistry, Economics, Geology, Mathematics, wo departments. Special combined proarams exist with soum with the departments. A program with Economics is is jarticulurly appicabble to sudents with an interest in ecology. Students interested in such a togram should take Biole 1000 Economics 1100 in theif firs The
de a -yearar conts of Biology and Microbiology ofter both an Honours esigned tor studenents entering their secocono year of of study Students terested in these programs are advised to consulte ithere of the departments concerned at their eariisest opportunty. Faculty advisors are hat are cross sisted between these (ivo departments can be taken for diter Microbioilogy or or ioloogy tyeredits.
Students may be interested in programs that are not oriented toward
raditional discipinine but rather emphasize a broad knowiede Fownd n Unconcentriated H Honours Program may offer the best preparation.

Honours in Marine Biology
Advisor R © ODor
The Biology Department recognizes the special needs of the rapidly
expanding marine field and offers a BSc Honours Degree in Marine expanding maine field and offers a BSC Honours Degree in Marine
Biology. Detalis of the
Marine Biology.

## Classes Offered: Major and Honours

## Program

Pease note that Biology 1000 with a minimum grade of $C$ is the $A$ class number that is suffixed by one of the letters $A, B$, or $C$ is a half-credit class. See comments on these classes under the heading Numbering of Classes under General Undergraduate Information and Regulations.
Biology cla

1. Introductory Biology Principles: Biology 1000 . This Class is tudent who has no previous training in the subiect bs well as for tho who have taken high school biology. This class, with a minimum rade of C , is required for entrance to all other classes in the
2. Intermediate Classes-2000-Level Classes. The study of life Biilogy) occurs on several levels. Our everday experience with life is With units called organisms which come in an amazing variety of forms
including dogs and trees and even ourselves. All of these forms are composed of cooperating cells, and many of the activities of cells are now understoöd at a molecular level. The diversity of life results from
interactions among organisms and populations of organisms as well as
teractions with the environment. Understanding any problem in Biolog equires knowledge of all of these levels of interaction. The class iology student takes at least one intermediate class at each level or levels, and it is also important that each student be exposed to at least one of these integrative themes, thus these makeup the fouth category, Biological Processes. All students registered in Biology are required to The full credit equivalent classes may be required as prerequisites for advanced classes in a particular area. Students should be aware of such prerequisites and discuss their programs with their faculty advisor insure that the classes they take are appropriate to their goals. Good prerequisite for an advanced class with the instructor's permission.
Category : Cells and Molecules; Biology 2015R, $2110 \mathrm{~B}, 2020 \mathrm{~A}$ ategory III: Populations and Ecosystems; Biology 2046R, 2060A/B, 2066A/B
ategory IV: Biological Processes; Biology 2030B, 2035R, 2050A/B. Biology 2012A or B is a half-credit class which is not a memiber of the Biology 2012 A or B is a half-credit class which is not a member of the
ore thus cannot be counted toward fulfiling the core requirement but
an be used as a credit toward a majio or honours.
3. 3000-Level Classes. These classes are mainly for second and third year students. No biology major will be allowed to register in any 30000 000 -level class without having completed, or being registered in 2000 el classes in biology totalling at least two full credits.
4. 4000 -Level Classes These classes are primarily for honours and graduate students. They are open to others with the permission of the structor. Where biology classes are identified as being given in anoth department (e.g. Anatomy), that department should be consulted for
detais.

## Introductory and Intermediate Classes

 Offered1000 Principles of General Biology: Study centre 3 hours, (for lab and problems), tutorial 1 hour/ 2 weeks, lecture 1 hour, I.A. McLaren, M.L. Cameron, R.G. Brown and others, Instructors, C. Corkett, A.H. Mills, P. Harding. The subject matter of Biology 1000 puts emphasis on those
features common to all organisms. The class starts by considering the cell: structures, chemistry, energy needs, the coding system and protein synthesis. This leads to the topics of genetics, organization and control of the individual, evolution, ecclogy, development and systematics
Biology 1000 is the basic introductory class in biology suitable for Biology 1000 is the basic introductory class in biology suitable for students who may have had no previous training in biologyy. If you are a
biology major, Biology 1000 is the prerequisite for all other classes in the biology major, Biology 1000 is the prerequisite for all other classes in the
biology department, regardless of previous background in biology. Under exceptional circumstances, students may apply to be exempted from
taking Biology 1000

1984 A Citizens Guide to the Biological Issues of our Times: lecture 2 hours, tutorial 1 hour, R.P. McBride. For BA students only and cannot be used as a prerequisiste for other biology classes. An awareness and comprehension of major developments in biology sufficient for citizen
involvement in science-society controversies. Studving topics with maior social impact such as genetic engineering, environmental heath hazards and modern agriculture, students acquire a scientific vocabulary, insight into the strengths and limitations of science, and an understanding of basic biological concepis
2001A Marine Diversity: lecture 2 hours, tutorial 1 hour, lab 3 hours,
R.K. O'Dor. D.G. Patriquin, ARO staff (Category II). The sea was the cradle of life and the origin of mo 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, field trips and computer
2002B Terrestrial Diversity: lecture 2 hours, tutorial 1 hour, lab 3 hours, D.G. Partiquiu, R.K. O'Dor, Instructor, A.H.M.Mils (Category II). A survey of on terrestrial old discusses the physiology of living in a terrestrial environment, and finally
ooks at the domestication of plants and animals by man and speculates on the future diversification of the earth environment and its inhabitants 2012A/B Laboratory Techniques for Cell and Molecular Biology lecture 1 hour, tutorial 1 hour, Iab 3 hours, W.C. Kim mins, J.M. Wrig.
Instructors, P. Gerdes and B. Hill. An introduction to techniques, equipment and the experimental approach to solving biological pros in the laboratory. Lectures present the theoretical background to aboratory experimentation. Tutorials aim mainly at developing an intending to take more advanced biochemistry/molecular biology classes next year need this class and Biology 2015 as prerequisites. siology 2012A/B can be used as a credit toward a major or honours does not meet the requir

2015R Cell Biology and Biochemsitry: lecture 3 hours, tutorial 1 hour, W.C. Kimmins, T.H. MacRae, (co-ordinator) J.H.M. Willison (Biology);
C.W. Helleiner, R.A. Singer (Biochemistry) and staft. Intructors, P. Gerdes and B. Hill (Category I). Members of the Biochemistry and Biology ange of contemporary ideas in cell and molecular biology. The class deals with topics such as the transmission of genetic information, gen expression, growth, adaptation, cell division and differentiation at a
mechanistic level and provides a broad perspective of metabolic processes associated with energy production, biosynthesis, transpor and communication. It also seeks to explain the integration of these and other forms of biological activity through regulation of gene expression int the to taverse celluar and melanced biochemistry and molecular biology classes next year need this class and Biology 2012A/B as prerequisites. Biology 2015R and 2012A/B may be substituted for Biology 2020 and/ or 2110 as prerequis for both 2015 and either 2110 or 2020 .

2020A Ceir Biology: Structure and Function. lecture 3 hours, lab 3 hours, T.H. MacRae. Instructor, P. Gerdes (Category 1). An introductio
to the eukaryotic cell through lectures and laboratories. Major cell to the eukaryotic cell through lectures and laboratories. Major cell
components and activities are described at ultra-structural and molecular levels. The concept of the cell as an integrated structura/f functional unit is developed. Credit will not be given for both Biology 2020 and 2015.

2030B Genetics: lecture 3 hours; tutorial 1 hour, open lab; O.P. Kamra. Instructor, E. Staples (Category IV). This class examines a broad range of topics from the rapidly expanding field of genetics. Major
organizational sections include: Chemical and structural features of genes and chromosomes, gene transmission, gene function and gen genes and chromosomes, gene transmission, gene function and gene
variation in populations and through time. Tutorials deal mainly with problem solving. All students must do a laboratory project involving Drosophila crosses.
2035R Principles of Genetics: lecture 2 hours, tutorial 1 hour, open lab, R.W. Lee and E. Zouros. Instructors, Edna Staples, Christine Beauchamp
Category IV. (Category IV). Credit will not be given for both 2035 and 2030. The gry
power of modern genetics and its prominence in biology have grown dem a blend of classical and molecular techniques. This full class is approaches while considering a broad collection of topics from the field of genetics. The major topics to be considered include nucleic acids genetics, and molecular evolution. The application and relevance of genetics, and molecular evolution. The appication and relevance
recombinant DNA technology to these topics will be emphasized. A strong evolutionary perspective will be maintained throughout. This class
is the prerequisite for most higher level classes in genetics. All students must do a time-flexible laboratory project.

2046 General Ecology: lecture 2 hours, lab/tutorial 3 hours, R.W. Doyle, R.E. Scheibling. Instructor, C. Beauchamp (Category III). Credit regulation of population size, the enetic structure of populations and the ecological structure of plant and animal communities. Principles which apply on a short (ecological) time scale will be developed in parallel with the analogous principies which apply over much longer stretches of
evolutionary time. Much of the laboratory and about one-quarter of the evolutionary time. Much of the laboratory and about one-quarter of the biological basis of fisheries and environmental management. This full year class provides a good foundation for further work in ecology and
marine biology.

2050A/B Developmental Biology: lecture/discussion 3 hours, lab ours, G.S. Hicks, B.K. Hall, P. Collins (Category IV). The lectures simple' structures such as the fertilized proggare progressively set of developmental rules.' Our knowledge of these rules comes from experimental study of a variety of developing systems such as sea chins, trogs, chick embryos, humans and crop plants. Laboratorie ress the use of live material and give chniques as test tube fertilization in echinoderms.

O60A Introductory Ecology: lecture 3 hours, lab 3 hours, I. McLaren J. . Ogden. Instructor D. Gill (Category III). Eccology is the study of the
interelationships of organisms and their environments. The broad bbiect of ecology focuses upon the interactions of plants and animals with each other and with their. non-living world. Three levels of ecology
 Cosystems. Labs deal with concrete aspents of concepts presented in lecture. Students are instructed in elementiary computer techniques and se the computer for some laboratories. This class provides a good eg given for both Biology 2060 and either 2046 or 2066 .
066B Human Ecology: lecture 2 hours, lab 2 hours, tutorial 1 hour, alternate weeks, P.A. Lane. Instructor, D. Gill (Category III). This class examines the principles of ecology with a focus on humans as a part of ature. Lectures will begin with an examination of how individuals morphologically, physiologically and genetically adapted to their
nvironment. From the ecology of individuals, the topics will advan and aneciation of population ecology. The importance of agricultural crops and renewable resources to the growth and regulation of human
pooulations will be examined to develop an understanding of wordwide opulations will be examined to develop an understanding of worldwide ecological organization and this level will be studied in the second part of the class. How humans have polluted their environment will conclude class. In the laboratory, students will begin from basic principles to eaeful tow ecologists. Variabiility among individuals, population growth, and modelling of whole ecosystems are examples of exercises that will be resented in the laboratory. Students will attend a tutorial on alternate cture topics by discussing current papers in the ecological literature. These may include areas such as climatic adaptation, Sociobiology, pidemiology, the dilemma of world population growth, and nvironmental ethics. Credit will not be given for both Biology 2066 and ether 2046 or 2060 . This course is especially designed for pre-medical

100A/B Introductory Microbiology: lecture 2 hours, lab 3 hours, D. Stolz (course co-ordinator), R.G. Brown, G.C. Johnston, J. Novitsky. oncepts of microbiology through lectures, laboratory sessions, cemonstrations and films. Subjects include the uniqueness of microorganisms, their structure, growth and genetic regulation, as well
as their involvement in other fields such as medicine, industry and sology.

2110 B (Microbiology 2110B) Biochemistry and Physiology of信 Category 1). An introduction to the organization and function of
croorganisms. This class complements Biology 2100 in dealing with broad aspects of growth and metabolism, energy transfer, transmission and expression of genetic information, and cell structure in icroorganisms at a biochem relationship to other life processes. The class is oriented towards tudents interested in microbiology and offers a suitable preparation for 3000 -level Classes in that subiect. However, if taken with Biology 2020 iology classes. Students taking Biology 2110 may not also take Biology biology Classes. Stude
2015 or Biology 2012.

## Advanced Classes

hese classes are for second, third and fourth-year students. They may be taken before completion of the intermediate classes described " above. Please notice, however, prerequisites for the classes listed below sudents registering for these classes will have completed, or be

Classes marked with an asterisk (*) are offered in alternate years. Consult timetable for current year.
3012 ( Biochemistry 3200A). Introduction to Biological Chemistry
lecture 3 hours, lab 3 hours: A.H. Blair. J.A. Verpoorte. C. Mezei LC. LC lecture 3 hours, lab 3 hours; A.H. Blair, J.A. Verpoorte, C. Mezei, L.C.
Stewart. Prerequisites: Biology 2015 (Biochemistry 2000), Biology $2012 \mathrm{~A} / \mathrm{B}$ (Biochemistry $2600 \mathrm{~A} / \mathrm{B}$ ) and Chemistry 240 or their equivalent(s). This class is described under Biochemistry 3200A. Major
and honours biology students do not require this class as compulsory and honours biology students do not require this class as compulsory
prerequisite to Biology 30138 or 3014 . .

3013 B (Biochemistry 3300B). Intermediary Metabolism: lecture 2 hours, tutorial 1 hour, W. Kimmins, F.B. Palmer, lab 3 hours, P. Dolphin (

3014 B (Biochemistry 3400B). Nucleic Acid Biochemistry and Molecular Biology; lecture 2 hours, tutorial 1 hour, C.W. Helleiner and
J. Wright; lab 3 hours' D, M.J. O'Halloran. This class is described under J. Wright, lab 3 hours
Biochemistry 34008

3020A Advanced Cell Biology I: lecture 3 hours, T.H. MacRae Prerequisite: 2020A or 2015 R or permission of the instructor. Molecula 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 estabished ideas in the context of recent findings. Students must supplement lectures with assigned readings and discuss selected ubjects in essays.

3021B, Advanced Cell Biology II (Cell Structure \& Function): 3 lecture 2 hours, lab 3 hours, J.H.M. Willison. Prerequisites: 2020A or
2015R. The class examines eukaryotic cell structure, relating structur to physiological function in diverse systems. Emphasis is placed upon to physiological function in divere sysems.
structures visible in the electron microscopes, and upon structural aspects of the integration of activities within cells and between cells in
issues Laboratory sessions will be held irregularly and are concerned tissuus. Laboratory sessions will be held irregularly and are concerned
with interpretation of microscopic images.
 from the broad and rapidly expanding field of eukaryotic molecular genetics will be chosen for comprehensive review. The topic(s) may change from year to year. This year the class will focus on the genetics
and molecular biology of chloroplasts and mitochondria. Emphasis will be placed on the application of modern molecular genetic approaches,
especially those involving recombinant DNA technology. Grades will be based mainly on the critical evaluation (oral and written) of journal aricles.
-30328 Cytogenetics: lecture 2 hours, lab 3 hours, O.P. Kamra. Prerequisites: 2030A or B, and Biology 2020A or Biology 2015. Detailed consideration of certain generical and cytological mechanisms in
relation to chromosomal modifications, gene mutations and evolution.

3033A Microbial Genetics, (Microbiology Dept.)
*3034B Biological Effects of Radiation: lecture 2 hours, lab 3 hours, 0.P. Kamra. A survey of current knowledge of the effects of ionizing
adiation on biological material on three levels: physical. chemical and biological. In addition, methods of dosimetry, autoradiography, somatic and genetic effects, radiomimetic chemicals and biolasers are 3035B Population and Evolutionary Genetics: lecture 2 hours,
tutorial 1 hour. E. Zouros. Prerequisites: Biology 2030 or Biology 2040 o Biology 2046. The following topics are covered: amounts and kinds of genetic variation in populations, genetic properties and differentiation of polecular and intragenomic evolution, applications of molecular techniques to population biology. Data from actual research provide material for exercises. Students doing research in genetics are
encouraged to bring in the class the results of their own research

039A Human Genetics: lecture 3 hours, lab 3 hours, O.P. Kamra P.J. Welch and staff. Prerequisite: Biology 2030A or B. For students of Biolugy and Muman cyiciogenenetics and abnormalities, inborn errors, genetic isk induced by environmental factors; prediction and detection of genetic risk, genetic counselling; genetic and non-genetic factors in

3050B Advanced Animal Development: lecture 2 hours $\mathrm{ab} /$ discussions 3 hours, B.K. Hall, P. Collins. Prerequisite: Biology
$2050 \mathrm{~A} / \mathrm{B}$ (with a minimum grade of B). Biology 2020 A or Biology 2015 $250 \mathrm{~A} / \mathrm{B}$ (with a minimum grade of B), Biology 2020A or Biology 2015 (completed or concurrent registration). This class is the follow-up to
Biology $2050 \mathrm{~A} / \mathrm{B}$ and deals with the mechanisms and controls which regulate the development of vertebrate and invertebrate embryos. opics covered include cell determination and differentiation, morphogenesis, mechanisms of organ formation, inductive tissue interactions, growth, regeneration and wound healing. The laboratory another in experiments designed to explore aspects of cell differentiation and morphogenesis; preparation of a lab report, and introduces the tudent to microdissection, sterile techniquies, tissue recombinations and whole-embryo staining. Discussions and
time) will relate to the lecture and lab topics.
30618 Communities and Ecosystems: lecture 2 hours, tutorial 1 hour 3 hours. P.A. Lane, D. Gill. Prerequisite: Biology 2046, 2066B or
60A. Major concepts and recent advances in community ology are stressed; size-spectrum theory, evolutionary strategies of ganisms and a delineation of contemporary ecosystem problem specially those pertinent to the area of environmental impact and marine - and their major features are compared. The evolutionary strategies of plankton, fish predation models, and community escriptions are discussed in the first half of the term. Students also are given practical laboratory experience in associated methodologies. nalysis are compared. The laboratory parallels the lectures and gives xperience in analyzing ecosystem data and applying theoretical chniques. In the tutorials, broader issues of environmental ecology will presented by the students.

3062 Behavioural Ecology: lecture 2 hours, tutorial 1 hour, M.R. Rose 200 (Psychology majors). The class is divided into three sectionc (A) Background-selection and behaviour: natural selection geoup selection, kin selection; (B) Methods-general methodological problems, ultimate, mediate, and proximate causation, the comparative method, optimality
theory, strategy polymorphism; (C) Modes of behaviour - othering theory, strategy polymorphism; (C) Modes of behaviour - gathering development, co-operation, communication, coevolution, human

3066A Plant Ecology: lecture 2 hours, lab 3 hours, one/two field trips 306 A Plant Ecology: lecture 2 hours, lab 3 hours, one/two field trips
on weekends, B. Freedman. Prerequisite: Biology 2046 or 2060 . Various topics within the field of Plant Ecology are discussed. At the ecosystem level, we deal in depth with the cycling of energy and significant nutrients, and with successional changes in these processes. At the
autecological level we deal with plant pop autecological level we deal with plant population biology and
demography, resource allocation, and physiological ecology. The plant environment is also described in terms of energy budgets, soils, and
water availability.

3067B A Survey of Fish Biology: lecture 2 hours, seminar 1 hour, R.G Boutilier, R.W. Doyle, R.K. O'Dor. Prerequisites: Biolog.ogy 2046 or 2000 ,
Biology 2015 or 2020. The topics covered include fish systematics, Biology 2015 or 2020 . The topics covered include fish systematics,
physiology, behaviour and ecology. The primary purpose is to prepare 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 4 th-year courses such as Fisheries Population Biology, and Fisheries Oceanography. Although no laborator
is scheduled, practical and library research proiects are required

3069A Animal Population Ecology: lecture/tutorial 2 hours, lab (open) 3 hours. H. Whitehead. Prerequisites: Biology 2046 or 2060 , Math 1000 ,
1010,1060 . This class considers: A) techniques of assessing animal 1010, 1060. This class considérs: A) techniques of assessing animal populations; B) the basics of population biology; C) simple models of
population growth; D ) how factors such as environmental fluctuation, spatial heterogeneity, predation and competition affect population growth
and stability; E) the management of animal populations. Emphasis will be and stability. E) the management of animal populations. Emphasis will be
on real populations of animals, although theoretical concepts will be on real populations of animals, although theoretical concepts will be
considered when they are relevant or interesting. During open lab sessions students will analyse field data and simulate the dynamics of model populations.lored in
the (open) lab sessions.

## BIOLOG

3070 P Principies of Animal Physiology: lecture 2 hours, discussion
hour, Iab 3 hours, R.G. Boutilier. A.K. O'Dor. Instructor M.J O'Halloran Prerequisites: Biology 2001 and 2020 or 2015 (in which a minimum C grade is required). 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 organisms to maintain a stable internal environment in a changing
external environment. The emphasis is on the mechanisms most wid 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 3071R Physiology of Marine Animals: lecture 2 hours, discussion 1
hour, lab 3 hours, R.K. O'Dor, R.G. Boutilier, Instructor, M. . O'Halloran.
Same prerequisites as 3070 . Credit may not be given for both 3070 and Same prerequisites as 3070 . Credit may not be given for both 3070 and 3071. The problems of animals in a marine environment are quite
different from those found in air or fresh water, but the "physiologica principles" are similar. This class deals with the same principles as 3070, but emphasizet the special characteristics of of marine animals it
the laboratory and the techniques necessary to study them.
-3073B Plant Physiology: lecture 2 hours, lab 3 hours, D.G. Patriquin Prerequisites: Biology 2110 or 2015 or 2020 or permission of instructo Topics include water relations, photosynthesis, respiration, nitrogen
metabolism, transport, translocation, and some aspects of plant metabolism, transport, translocation, and some
development, crop physiology and productivity.
-3075B Plant-Soil Relationships: lecture 2 hours, lab 3 hours, D.G. Patriquin. This class deals with processes that are involved in the exchange of materials between plants and soils, and that limit plant
growth under field conditions. The emphasis is on cultivated plants, but the material is relevant to natural systems, and reference is made to aquatic angiosperms and sediments. Topics include soil formation, soil
geration and root metabolism, water relationships, mineralization and aeration and root metabolism, water relationships, mineralization and
humification of organic matter, plant mineral nutrition and ion uptake, fertilizers, saline soils and halophytic angiosperms, and plant-microbe interactions. Laboratory sessions deal with the design of field and greenhouse experrments and with the methodology of measuring the

3100B Aquatic Microbiology: lecture 2 hours, lab 3 hours, R.G. Brown, J. Novitsky. Previous knowledge of microbiology is not necessary for this class; however, enroment is inited to students in the Marine Biology
Honours Program The main emphasis of this class is on the Honours Program. The main emphasis of this class is on the
interactions of microbes and aquatic plants and animals includ nutrition, disease, and immunization. The latter part of the class considers the role of microorganisms in nutrient availability and productivity in aquatic environments.

31118 Microbial Activities in Nature: lecture 2 hours, lab 3 hours, , Brown. Prerequisites: Biology $2100 \mathrm{~A} / \mathrm{B}$ and Chemistry, 240 or Biology
2110 or 2015 . The format is lectures and laboratoy excerises 2110 or 2015. The format is lectures and laboratory exercises. size would suggest. To illustrate this, the following topics are considered at the cellular and molecular levels: epiphytic microorganisms of plants and animals. Koch's postulates, protective mechanisms of plants and nitrogen fixation and the mineralization of organic matter including petroleum.
3114A Introduction to Virology: (Microbiology Dept.).
3115A Introduction to Immunology: (Microbiology Dept.
*3116 Mycology: D. Brewer. Prerequisite: Biology 2100 A or B. An
introduction to the morphology and taxonomy of the fungi.
3117A Yeasts and Fungi: R. Brown. Prerequisite: Biology 2100A or An introduction to the biology of yeasts and tungi with emphasis on the
structure and function of the cell wall and membrane, control of cell structure and function of the cell
metabolism, and the cell cycle

3118B Medical Bacteriology: (Microbiology Dept.).
3120A Advanced General Microbiology: lecture 2 hours, lab 4 hours, J. . Novitsky. Prerequisite: Grade B or better in Biology $2100 \mathrm{~A} / \mathrm{B}$
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
mployment where skills in handling microbes are required. Topics
nclude microbial metabolism, growth, structure, genetics, taxonomy 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

3150A Applied Microbiology: lecture 2 hours, lab/tutorials 3 hours staff. Prerequisite: Biology (Microbiology) $2100 \mathrm{~A} / \mathrm{B}$ and 2110 B . For for those with a particular interest in the applications of microbiology as a career. It deals with the role of microorganisms in processes such as cheese making, brewing and the production of vitamins, food additives, antibiotics and other economicaly imporant substances. It also includes
topics such as sewage and waste treatment, conversion of biomass to uels and the applications of biotechnology. The laboratory componen consists of student projecis winh tutorial, seminar and group discussio consists of student pres
3211 B Systematic Survey of the Algae: lecture 2 hours, lab 3 hours, examination of the taxonomic and evolutionary relationships of the algae. Considerable emphasis is placed on practical work (field and aboratory) where students become familiar with the algal component of the local flora.

3212A Biology of the Algae: lecture 2 hours, lab 3 hours, A.R.O: Chapman. Prerequisite: Grade B or better in Biology 2001 A . A non systematic examination of the cellular, organismic, popula

3214A Plant Design: lecture 2 hours, lab or tutorials 1,3 hours, K.E. von Maltzann. The structural design of plants in terms of the functional performance of their parss and their integration at different levels of comparative studies of life forms seeking to find homologies between the elements of design. Design in relation to climate and habitat is examined and integrated at he level of the landscape.
3215A Systematics of Higher Plants: lecture 2 hours, lab 3 hours, M.J. Harvey. This class has two main aims: first, to give consideration to
current speculation on the evolution of the flowering plants, connecting this with the attempts over the years to produce a phylogenetic classification of the existing species; second, to go into some of the Aewer concepts of classification arising out of the 'computer revolution' A plant collection is
possible about this.

3216B Adaptation and Speciation in Higher Plants: lecture 2 hours ab 3 hours, M.J. Harvey. The discipline known as biosystematics or, alternatively, experimental taxonomy. The approach taken is analytic, considering particular examples and trying to deduce which peculiarities of their biology have contributed to their relative success. In this way the
mechanisms which have caused particular species pairs to diverge are studied. Examples considered are many and range from evening primroses and irises, through bananas and maize, down to the humble but complex, dandelion.

3218A Plant Anatomy: lecture 2 hours, lab 3 hours, G.S. Hicks Lectures will explore the internal organization of the leaves, stems, and oots 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 organization. All major cell and tissue types will be reviewed in the ligh
of modern evidence which correlates structure with function. These surveys will embrace both the primary and the secondary plant bodies
Laboratory exercises will lillustrate these concepts, focussing on the Laboratory exercises will illustrate these concepts, focussing on the
study of a variety of economically important woody and herbaceous study of a variety of economically important woody and herbaceous
crop plants. Students will be introduced to techniques of free hand sectioning, the rotary microtome, staining protocols, and camera lucid recording
3321 Invertebrates: lecture 3 hours, lab 3 hours, J. Farley. Prerequisite: Biology 1000 . This is a laboratory centred class deaing
with the structure, function and classification of the invertebrate phyla, With the structure, function and
with emphasis on marine forms.

3322 B Parasitology: lecture 2 hours, lab 3 hours, E. Angelopoulos. The lectures emphasize the parasiti--host relationshis, evolution of
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 developed beginning with the protiozoa. Since the most extensive
research pertains to parasites of man, the emphasis is on human parasites. Recommended for Ecologists and Pre-Meds. The laborator
stresses recognition and identification of parasites

3323 Vertebrates: lecture 2 hours, tutorial 1 hour, lab 3 hours, E.T. Garside. Prerequisites: Biology 2001, 2002. A survey of the current state knowledge and speculation concerning the evolution of vertebrate or steps, each characterized by several pronounced alterations in various organ-systems and in the general form of the body. Approximately three-quarters of the program is given to an analysis, by levance in the synthesis of the evolutionary pathway. An appreciatio of the classification, structure and evolution of vertebrates is essential to considerations of their development and functional capacities and of eir relations with their surroundings and with each other. The amiliarizes the student with the gross anatomic features of these nimals while giving instruction in the traditional approach of comparison and contrast.
3324 Entomology: lecture 2 hours, lab 3 hours, E. Angelopoulos Entomology is an important branch of academic biology and also one of the largest divisions of applied biology. The class is an introduction to he study of insects dealing with: (1) The classification and evolutionary versity of insects. (2) Medical agricultural and forest entomology. harmful and beneficial insects; biological control of insects.
3402A The Rise of Modern Science (History 3072A, Physics 3402A designed for students in the arts and the science, will deal with the origins of modern science. We shall stress the new physics, associated with the names of Copernicus, Kepler, Galileo and Newton, that arose ddition, we shall go peyond that period to examine the poplurization cience in the 18th century, the appearance of the "scientist" in the 19th century and the rise of the scientific-industrial complex.
3403A/B The History of Biology: lecture 2 hours. Biology 3402A recommended. J. Farley. A class for biology and geology majors, dealing hine history of post-Newtonian biological sciences. Waltzahn. An introduction to the science of nature which deals with structural order within organic nature, i.e. the relationships of different beings to each other including man within nature as a whole. The idea
of man's self-realization through his emancipation from nature is discussed. The class is concerned with man's biological and aest and rational requirements and how these different needs affect one pon man's judgements and actions and the well-being of nature as a whole. 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 oadude this class in the 4 required Geneal degree students may no may count it towards their Biology requirements.
${ }^{3} 34218$ Comparative Vertebrate Histology: I.G. Mobbs (Anatomy Surveying the whole range of vertebrate tissues and organs.

430AA Introduction to Human Histology: lecture 2 hours, lab 2 hours, ermission of instructor. Histology is the study of the structure of issues and organ systems, and utilizes information derived from both Ight and electron microscopy. It complements studies in anatomy, cell biology, physiology and biochemistry, broadening the understanding of
how organisms function

3435R Anatomy: R.W. Currie (Anatomy Dept.). Prerequisites: Biology 2020A, or 2015R, or permission of instructor. A comprehensive review musculoskeletal, cardiovascular and respiratory systempasis of

440 B Neuroanatomy: lecture or lab 2 hours, D.A. Hopkns (Anomy Survey of the histo. Brogy deve 2020 or 2015 or permission of instructor. nervous system, with emphasis on the developmental and structural elationships between spinal cord and brainstem. The organization of ranial nerves and microanatomy of the brain stem is discussed. The erebral cortex, cerebellum, basal ganglia, and limbic system are also covered.
3450 A Comparative Vertebrate Neuroanatomy: Sensory Systems. J.A. Matsubra (Anatomy Dept.) Prerequisites: Biology 3440 B , Psychology
070 or or consent of instructor. A survey of sensory modalitios of vertebrates with emphasis on central brain structures associated with ach sense
3614C Field Ecology: 5 , projects involving 7 days of field work in September, lab or lecture first term only. R. Scheibling. Prerequisites Bology 2060 or 2046 , Mathematics 1060,1070 or equivalent. The
ourse provides practical experience in techniques of quantitative field ecology, including decicign of fierde sampling programs and manipulative experiments. Students examine specific ecological questions and ypotheses 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 appication in ecology. Lectures provide the theoretical background opics include: spatial pattern, zonation, animal movement, disturbance and succession, and herbivore-plant interactio

## Specialized Classes

he following classes are primarily for honours and graduate students. they are open to others with permission of the instructor.
4024A Microscopy: lecture 2 hours, lab 3 hours, J.H.M. Willison, D.B Setter in 3020 A,or 3021 B, or 3114 A . The class deals with some of the principal methods involved in the study of cell structure. Both light and lectron microscopy, including ancillary techniques, are considered in epth. The importance of a proper understanding of the physical and/or hemical principles governing technical procedures is emphasized. some of the techniques covered in the lectures.
4026A The Mammalian Cell (Microbiology Department.
4027B The Cancer Cell (Microbiology Department)
O30A Advanced Topics in Genetics: R.W. Lee and staff. Prerequisite Permission of he instrcs in, A ger format The nature of the instructor in charge of the class vary from year to year. Students presen least one seminar during the term
4033B Advanced Microbial Genetics (Microbiology Department)
239B Topics in Human and Medical Genetics; lecture/seminar 2 hours, O.P. Kamra (Coordinator), R.S. Tonks, J.P. Welch, E. Windsor, E. Zouros and others. Prerequisites: Biology 3039 A or 1 st year Medicin.
An advanced level seminar open to Biology and Medical students. Students present reports based on a research project (experimental or erature search) conducted under the supervision of faculty members Biology or one of the medical departments. Lectures from the faculty into a self-contained unit.

4060B Environmental Ecology: lecture 2 hours, lab/tutorial 3 hours, B reedman. Prerequisis. Biology 2046 or 2060 . Various topics within organism/ecosystem effects of forestry practices and other types of and management, including recreation. The effects of various types of dioxide, and chemical pesticides are considered.

4064C Pleistocene Biogeography: lab 3 hours, J.G. Ogden, III rerequisites: At least two creaits in Biology or Geology Permission of the instructor. May be counted as Biology or Geology halt
redit. Lecture, discussion, and laboratory experience in the econstruction of environmental change during the Pleistocene epoch
aboratory and field experience pay particular attention to the environmental history of the Maritime region, including environmental changes caused by man. Techniques of pollen analysis, plant and lating methods are explored. Field and laboratory work include a class dating methods are explored. Field and laboratory work include a clas
problem in an area in the Halifax region. (to be offered in 1986-87). 4067B Fisheries Population Biology: seminar 2 hours, R.W. Doyle. and graduate students only. Familiarity with elementary calculus and statistics is required. Prior experience with computers is not required. Enrolment limited to 8. An introduction to fisheries stock assessment an the biological aspects of fisheries management. Emphasis on the principles of population biology. The class includes several weeks of introductory lectures followed by exercise in applied population dynamics lasting the remainder of the term. The exercise consists of a computer simulation of the growth and relation of a fish populaton of the
student's choosing, coupled with computer-based investigations of the usefulness of various management models.
4068A Limnology: lecture 3 hours, lab/tutorial 3 hours, J.G. Ogden
Prerequisites: 2046, 2066 or 2060 . The class is divided into four Prerequisites: 2046, 2066 or 2060. The class is divided into four
sections: (A) Physical Limnology-geology, morphometry, therma properties, system hydrology \& budgets, optical properties, vegetational interactions, history of limology in N.S.: (B) Chemical limnology-oxygen
acidity/ alkalinity, physical/che mical interactions maior/minor ions and 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-eutroohication, BOD/COD, phosphorus Ioading Cultural limnology-eutrophication, BOD/COD, phosphorus load

4070C Advanced Topics in Animal Physiology: lecture 2 hours, open lab, R.K. O'Dor, R.G. Boutilier. Instructor M.J. O'Halloran. Prerequisite
Biology 3070 or 3071 . 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 on the solution of a particular animal and Students choose the animal and the technique.
-4072R Animal Nutrition: J. Castell, lecture and seminar, 2 hours
Prerequisisites: Biology $2110 / \mathrm{A} / \mathrm{B}$ or equivalent and permission of Prerequisites: Biology $2110 \mathrm{~A} / \mathrm{B}$ or equivalent and permission or
nstructor. Biology 3013 A and 3071 are recommended. Genera instructor. Biology
principles and techniques of animal a nutrition are reveiewed and used to
examine current literature. Emphasis is on the assessment of nutrition examine current literature. Emphasis is on the
requirements of aquatic and marine species.
4101 B Industrial Microbiology and Biochemistry: lecture and seminar 2 hours, statf. Prerequisites: Third-year class in biochemistry or students who have taken classes at the third-year level in microbiology or biochemistry and are interested in the practical applications of this knowledge. It deals through lectures with basic aspects of industrial
fermentation processes and, through student seminars, explores topic in genetic engineering, antibiotic production and other current and projected uses of microorganisms in the manufacturing sphere.
4113A Bacterial Physiology: lecture 2 hours, lab 3 hours. R. Brown. rerequisites: Biology $2100 \mathrm{~A} / \mathrm{B}$ and Chemistry 240 or Biology 2110 or
2015. Although the class concentrates on the structure and function o the bacterial cell envelope, that is, the capsule, cell wall and cell membrane, other topics such as the physiology of obligate anaerobiosis, 4114B Topics in Basic and Medical Virology: (Microbiology Dept.)
4115B Immunology: (Microbiology Dept.) Prerequisite: Biology 3115A.
4214 B Physiology of Marine Algae: lecture 2 hours, J.S. Craigie. Prerequisites: Biology 21110 or $2015,3010 \mathrm{~A}$. A comparative study of the ncluding studies of carbohydrates, proteins, tats, pigments and nutrition

369A Fisheries Oceanography: lecture 3 hours, J.A. Koslow. Prerequisite: Biology 2060A or 2046 R. Familiarity with calculus and
statistical concepts helpfu but not required. Permission of instructor is equired. The ecology of fisheries with emphasis on the factors affecting their production and recruitment variability. Topics covered include,
physiology of fish production: classic management modelss laval fish ecology; the effects of fishing and changing stock size, of climate, and of community interactions upon year-class variabiity.
4379A Ichthyology: lecture 3 hours, E.T. Garside. Prerequiste: Biilog 323. Evolution, systematics, structure, embryology, life history and distribution of fishes.
4401 Introduction to Pharmacology: lecture 2 hours, lab $21 / 2$ hours M. Karmazyn (Co-ordinator for Dept. of Pharmacology.) Prerequisite
Permission of co-ordinator. 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. prostglandins, peptides) are stressed. Factors
affecting blood levels of drugs (absorption, distribution, metabolism and alifecing blood levels of drugs (absorttion, distribution, metabolism and
elimination) are considered, and potential uses. The laboratory consists of prescribed exercices sotlowed by a proiect of several weeks duration
carried out in the research laboratories of the Dept.
4403 Human Physiology: lecture 3 hours, J. Dudar
(Physiology/ Biophysics Dept.). Prerequisites: Introductory classes in
Chemistry and Physics. Permission of the instructor is required. A class Chemistry and Physics. Permission of the instructor is required. A class man.
-4616B Ecosystem Analysis: lecture/discussion 3 hours. P.A. Lane. Prerequisites: Biology 2060A, 2066 B or 2046,3061 B, Marn
This class involves critical discussions of recent developments in the theory and practice of ecosystem analysis. The research literature is the ext. The term is divided into four sections: quantitiative techniques: (1) general systems theory, (2) ecosystem description methodologies, ( (3) lystems analysis-computer simulation; and qualitative techniques: (4) liscussion and present a short position paper on the theory underlying some of the important problems in ecosystem analysis. In addition, a
term paper is required demonstrating a creative application of these erm paper is required demonstrating a creative application of these
methodologies to an environmental problem at the ecosystem level. Students complete program sets and exercises in data analysis to gain experience using various techniques. Aquatic ecosystems are emphasized.
4617A Theoretical Population Dynamics: individual tutorial 3 hours, M.R. Rose. Prerequisites: Biology 2046 or 2060 , Math 1.000 , 1010 . The class is divided into six sections: (A) Single species population growthncluding discrete and continuous time models, (B) Prey-predator interactions - including continuous and discrete time models,
Competition - including Lotka-Volterra models, higher-order competition - models and symbiosis models, (D) Simplele ecosystems competirion models and symbiosis models, (D) Simple ecosystems -
including food chains, one predator and several prey; (E) Complex

4650/5650A Resource Systems and Economic Development.
lecture/ seminar 3 hours. A.J. Hanson. Major theories of natural resource management. (F) Migration. separately through 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.tong-term resource use, pest and disease conitiol. The course
focus on specialized topics such as fisheries or tropical resource management, as announced in advance. TTe class includes an introduction to practical problems of project cycles, of defining objectives and of budget analysis. It is
4652A Advanced Ecology Seminar, consult Department.
4653B Advanced Ecology Seminar, consult Department.
4660A Introduction to Biological Oceanography: lecture 2 hours, lab 1 plus hours, M.R. Lewis. Prerequisite: Biology 2060 or 2046 or 1 plus hours, M.R.L.Lewis. Prerequisite: Biology 2060 or 2046 or
biological oceanographic processes are used to explore interactions
with physical and chemical processes in various with physical and chemical processes in various oceanic ecosysi
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

4662B Biology of Phytoplankton: lecture 3 hours, some labs, M. eris. primary producers of organic materia in the sea, and as agents interactions with physical and chemical oceanographic processe interactions with physical and cheere.
Emphasis is on the current literature.
-4664B History of Oceanography: lecture and seminar, E.L. Mill Oceanography Dept.) Permission of instructor required. This class
describes the development of Oceanography from biological, chemical physical and geological knowledge going back to the 18 th century in scientific political and social contexts. Incluces: plankton dynamics, deep sea biology, ocean circulation and plate tectonica

4666 B Benthic Ecology: E.L. Mills. Permission of instructor required Oceanography Dept). An advanced level undergraduate class concenirating on the major problems of benthic ecology, such as how biological communities and how the benthos is related to processes in he sediments. Year-to-year the course content changes, keeping up with current problems of research workers in this discipiline

## 4800 Special Topics

4806A/4807B/4808C Special Projects, starl
4900 Honours Research and Thesis.

## Canadian Studies Program

Who are eligible
Dahousie students who are planning to do, or are at present doing. The programs in any of the following six departments, are eligible.
The

## Economic

English,
French,
History
History,
Political Science and
Sociology \& Social Anthropology.
The purpose of the program is to allow such students to concentratepart 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 Political
Science would take at least 3 of his political science classes in classes designated as Canadian. He would in addition take four classes outside his major fitld in Canadian Economics, Canadian History, Canadian Literature (either English or French), or Canadian Sociolog) In other words, the Canadian Studies Program does not attempt to
establish a new maior field. It seeks to use any one of six present departments in the Faculty of Arts and Science as a base around which a student may effectively cluster a number of classes in Canadian subjects.

How to arrange it
Students wishing to discuss a Canadian Studies Program, or wishing to take it, should get in touch with any of the following Professor B. Lesser, Economics Departmen
Professor M. G. Parks, English Department Professor Hans Runte, French Department
Professor P. Professor P.G. Clark, Sociology \& Social Anthropology Department
Professor D.S. Professor P.B. Waite, History Department

## Chemistry

Chairperson of Department
Professor Emeritus
W.J. Chute, BSc (Acad.), MA, PhD (Tor.

Professors
D.R. Arnold, BS (Bethany College), PhD (Roch.)
W.A. Aue, PhD (Vienna)
R.J. Boyd, BSC (UBC), PhD (MCG)
T. Cameron, BA, MA, DPhil (Oxon) Associate Dean of Faculty of Arts
and Science
A. Chatt, BSc (Calcutta), MSc (Roorkee), MSc (Wat), PhD (Tor.)
H.C. Clark, BSc, MSc, PhD (Auckland), PhD, ScD (Cambridge),
P

President, Dalhousie University
J.A. Coxon, MA (Cantab.), MSc, PhD (East Anglia)
T.P. Forrest, BSc (MtA). MSc (Dal). PhD (UNB)
K.E. Hayes. BSc (Lond.), PhD (Ore.)
W.E. Jones, BSC, MSc (MAA), PhD (MCG), Chairman of Senate
O. Knop. DSC (Laval), Harry Shirreff Professor of Chemical Research
CT Kwak, BSc. MSC. PhD (Amsterdam)
C.T. Kwa
P.D. Pacey, BSC (MCG), PhD (Toronto)
D.E. Ryan, BSc (UNB), MA (Tor), PhD, DSc (Lond.), DIC, MCLeod Professor of Chemistry; Director, Trace Analysis Research Centre and R. Stephens, MA (
R.E. Wasylishen, BSc (Wat), MSC, PhD (Man) (London), DIC

Associate Professors
T.B. Grindley, BSc, MSc, PhD (Queen's
J.S. Grossert, BSc, MSc, PhD (Natal)
K.R. Grundy, BSc, MSc, PhD (Auklan
R.D. Guy, BSc (SFU), PhD (Carl.)
D.L. Hooper, BSc, MSc, PhD (UNB
J.A. Pincock, BSc, MSc (Man.), PhD (Tor,
L. Ramaley, BA (COI.), MA, PhD (Prin.)

## Assistant Professors

N. Burford, BSC (Wales), PhD (Calgary)
M. A. White, BSC (UWO), PhD (McM)

Visiting Scientists (1986)
Visiting Scientists (1986)
K.Sakai, Tokai University, Japan
Xi Feng. Chinese Academy of Sciences
T.Z. Guo, Qinghai Geology Bureau, Chin
hi-Lian ling Inst Environmental Che
Shi-Lian Jing, Inst. Environmental Chem., Beiiing, China
Yong Chong Luo, Sichuan Teachers Coll.,Sichuan, China
Tohru Miyaima, Kyushu University, Japan
N. Ohno, Akita National College of Technology, Japan

Caiying Wu, Wuhan University, China
Research Assistants
Research Assistant
S.C. Choi, MSc (Dal)
S.W. Kim, PhD (Wayne State)
B.J. MacDonald, MSc (Guelph)

Instructors
C.D. Burkholder, BSc (Wat).
C.M. Byers, BSCHonors (Dal)

Gabors, BSC. Honors (Da)
S.A. Sawler, BSc, (MSVU)
D.J. Silvert, MS (CWRU)
W.D. Thacreiter, MSC (Krakow)
M.E. Warren, BSc. (Western)
postdoctoral Fellows and Research Associates (1986)
D. Adhikesavalu, PhD (IIISc. Bangalore)
J.F. Briten, PhD (MCMaster)
J.F. Britten, PhD (MCMaster)
R. Dang, PhD (IIT, Bombay)

CHEMISTRY
K. Darvesh, PhD (UNB)
H. Furue, PhD (Queen's)
G. Hamitton, PhD (Dal)
A. Linden, PhD (Melbourne)
M.S. Mackinnon, PhD (Guelph)
S. Muddukrishna, PhD (IIT, Kanpur)
G. Neshvad, PhD (Essex)
A.M. de P. Nicholas, PhD (Dal)
D.L. Pegg. PhD (UBC)
S. Pihlaja, Phaki, PhD (Turku)
P. Pruszynski, PhD (A. Mickiewicz, Poznan
R. Ravindra, PhD (IIT, Bombay)
G. Re Roe, PhD (Latroobe)
K. Roychowdhury, PhD (IIT, Kanpur)
U.K. Roychowahury, PhD (IIT, Kanpur)
P. Sunkada, PhD (IISc, Bangalore)
H. Tan, PhD (Queen's)
J. Wierzchowcki. PhD (Warsaw)
F. Yamashita, PhD (Hokkaido)

Chemistry is one of the fundamental sciences. It explores the interactions among different forms of matter and energy. Its main how compounds react and when and why they form particular product Chemical knowledge helps us influence the world in which we live: hemical principles and procedures are found embedded everywhere in he groundwork of the natural and medical sciences. Chemistry, in shor constitut
man.
A student considering an honours program in chemistry should be A mpetent in mathematics as well as chemistry. The honours BSC is the ninimum professional requirement for a chemist - the general BSC with a major in chemistry has no professional standing. Chemists with honours degrees are employed in widely differing areas in industry and 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 origina
research or university teaching.
Chemistry 110 (or 111 or 112 or 120 ) is an introduction to the
discipiline. All students intending to take classes in chemistry beyond the first-year level should include classes in mathematics and physics in heir first year. Final grades in these classes should not be less than C ; dify are, the student is bound lo tind advanced classes in chemistry
At the second-year level the student is exposed to the four traditional reas of specialization in chemistry. Inorganic chemistry deals with all e chenical elemens ex chen is imitless number of compounds containing carbon. Analytical chemistry is concerned with the determination of the composition of substances, nd with the detection of elements in quantities however minute. .hysical chemistry is concerned with both bulk phenomena (including phenomena (through the application of spectroscopic techniques). Beyond the second-year level, a student's studies in chemistry become creasingly concentrated in one of these four areas. The student may introduced to biochemistry or the chemistry of living organism

## Degree Programs

In order to obtain as general a chemical background as possible, the student, after taking Chemistry 110 , or 111 , or 112 , or 120 , must includ his/her program the classes $211 \mathrm{~A} / \mathrm{B}, 222 \mathrm{~A} / \mathrm{B}, 231 \mathrm{~A}, 232 \mathrm{~B}$ and 240 , Which give exposure to the four areas of specialization in chembistry. Th tourth-year classes depending on the student's major interests. Each student who plans to major in chemistry should consult with a Chemistry Counsellor each year regarding a program of study. The student's | 100 . |
| :--- |

The Chemistry Counsellors this year are N. Burford, A. Chatt, P.D.
acey J.A. Pincock and L. Ramaley. All students are encouraged to eet with one of these faculty members to discuss any problems that ay arise.
ust beinal
in Chemistry
program is intended to provide a broad training in chemistry while at the same time making provision for the individual interests of student Advisor (P.D. Pacey or J.A. Pincock) and obtain his approval of the
course selection. mistry classes must be passed with a grade of at leas
All required chemistry classes must be passed with a grade of at leas
Year I will normally consist of:
Chemistry 110 or preferably Chemistry 120; Mathematics 1000 and $10 ;$ a foreign language at the 100 level; one of Biology 1000 , Geology 1000 or Physics 1100; plus an elective.
Years II, III and IV must include
Chemistry $211 \mathrm{~A} / \mathrm{B}, 220 \mathrm{~A} / \mathrm{B}, 231 \mathrm{~A}, 232 \mathrm{~B}$, and 240
2. Six full classes from Chemistry 300 and 400 levels. Chemistry 300 A $311 \mathrm{~A}, 312 \mathrm{~B}, 321 \mathrm{~A}, 322 \mathrm{~B}, 335 \mathrm{R}, 341 \mathrm{~A}$, and 342 B are required classes . 335R.
4. Five other classes. These must be chosen as follows:
a) If If Physics 1100 was not taken in Year ! it must be taken in Years
b) Two classes beyond the 100 -level must be taken in a minor subject Minor subjects allowed for this degree are biochemistry, biology,
computing science, geology, mathematics or physics.
These five other classes should be chosen according to the future

## Combined Honours Program

 The department has designed a number of programs which allow astudent to obtain a Combined Honours Degree in Chemistry with one of Biochemistry, Biology, Computing Science, Geology, Mathematics or Physics. To obtain an introduction into all the basic areas of chemistry,
Chemistry $211 \mathrm{~A} / \mathrm{B}, 220 \mathrm{~A} / \mathrm{B}, 231 \mathrm{~A}, 232 \mathrm{~B}$ and 240 must be part of all combined honours programs involving Chemistry, and múst be passed with a grade of at least C.
In addition to the above second-year chemistry classes, the following
programs are suggested for guidance to the student.
Chemistry $341 \mathrm{~A}, 342 \mathrm{~B}, 343 \mathrm{~A} / \mathrm{B}, 433 \mathrm{~A} / \mathrm{B}, 440 \mathrm{~A} / \mathrm{B}, 441 \mathrm{~A} / \mathrm{B}, 442 \mathrm{~A} / \mathrm{B}$ and 8880 , together with Biochemistry 2000 R, $2600 \mathrm{~A} / \mathrm{B}, 3200 \mathrm{~A}, 3300 \mathrm{~B}$, one must be in Biochemistry.

Combined with Biology
Chenity $23 \mathrm{~A}, 3,342 \mathrm{~B}, 343 \mathrm{~A} / \mathrm{B}, 440 \mathrm{~A} / \mathrm{B}, 441 \mathrm{~A} / \mathrm{B}, 442 \mathrm{~A} / \mathrm{B}$ and Biology and Chemistry of which at least two must be in Biology.
Combined with Computing Science
B, 430A/B, 435A/B and 8880 with other credits in Chemistry and Computing Science of which at least $1-1 / 2$ must be in Computing Science. Students are reminded that Math
1000 A/B, 1010A/B, 2030A. Computing Science $1400 \mathrm{~A} / \mathrm{B}$ and $14100 \mathrm{~A} / \mathrm{B}, 101 \mathrm{~A} / \mathrm{B}, 2030 \mathrm{~A}$, Computing Science $1400 \mathrm{~A} / \mathrm{B}$ and

Combined with Geology
Chemistry $311 \mathrm{~A}, 312 \mathrm{~B}, 321 \mathrm{~A}, 322 \mathrm{~B}, 410 \mathrm{~A}, 412 \mathrm{~B}$ and 8880 with Geology least two must be in Geology.

## Combined with Mathematics

Memistry
3000 and 4000 level Mathematics, of which at least two must be at the 4000 level.

## Combined with Physics

Chemistry 300A, 335R, 336B, 400 B and 8880 with Physics 2110,2120
$\qquad$ Pincock) and the Chairman of the other area of study before registering
in the combined program. Interested students should also consult the in the combined program. Interested students should also consult the
Department's Handbook "Undergraduate Studies in Chemistry" for more Department'
information.

## 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. Consult the
timetable for up-to-date details. timetable for up-to-date details.
Early registration for classes is strongly encouraged. In recent years Early registration for classes is strongly encouraged. In recent years
certain classes, particularly Chemistry 110,211, , 220, and 240, have
reached maximum possible enrollment long before completion of the reached maximum possible enrollme
final registration period in September.
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 advanced Students who have passed a tirst-year Chemistry class win a grade
of s should onside themselves inadequately prepared for advanced
studies in this subject. Such students will not be allowed to register studies in this subject. Such students will not be allowed to register names be put on a waiting list. Consult the Department for details. Duly
registered students, who do not show up during the first week of classes, may lose their place to students on the waiting list.
Students, who voluntarily withdraw from any Che
Students, who voluntarily withdraw from any Chemistry class, may be
placed on a waiting list if they want to register again so to this class within placed on a waiting list it they want to register again for this class within
12 months after their initial withdrawal (Students who duly register with the Department for a particular course but do not show up for classes. are considered to have "withdrawn" for purpose of this rule). First Year and Senior Resource Centres are located in Rooms 167
and 166. The former is staffed with people who can help with Chemistry and 166. The former is staffed with people who can help with Chemistry
problems. Facilities include study areas, computer terminals with special problems. Facilities include study areas, computer terminals with special
programs designed for Chemistry students, molecular models, audiovisual aids and a small library.
visual aids and a small library.
The professor (s) most likely to teach the class is (are) listed following
the class title in the next section.
110 General Chemistry: lecture 3 hours, lab/tutorial 3 hours, T.P. Forrest, R.D. Guy, W.E. Jones, J.C.T. Kwa, P.D. Pacey, L. Ramaley, R. Stephens. 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
and
 Mature students should consult the Department. It is important that
students be familiar with exponents and logarithms, proportionality and variation, and graphical methods, and be able to solve quadratic and
simutaneours equations.
111 General Chemistry for Engineering Students. lecture 3 hours,
lab/tutorial 3 hours. K.E. Hayes. Similar to Chemistry 110 , but with a lab/ tutorial 3 hours, K.E. Hayes. Similar to Chemistry 110 ; but with a
greater emphasis on the mathematical approach ty chemical thermodynamics is presented in an exact algebraic manner and includes a study of isothermal and adiabatic transformations for ideal gas systems as well as isothermal equilibria between liquids and vapors. All of the other topics, such as gas phase equilibria, the Gibbs-
Helmholtz equation, electrochemistry and reaction kinetics are treated mathematically. Wherever possible examples and problems are selected from the real world. This class is open only to students enrolled in the Engineering program.

112 General Chemistry for Health Science Students: lecture 3 hours 112 General Chemistry for Health Science Students: lecture 3 hour
lab/tutorial 3 hours. This class is intended in particular for Pharmacy students. Its content is essentially the same as that of Chemistry 110 , and it does serve as prerequisite for all second-year chemistry
Some emphasis is given to topics of importance to students in Pharmacy and other health sciences. Aside pharmacists, other students in the Health or Life Sciences can enroll in this class if space is
available. available.
120 Principles of Chemistry: lecture 3 hours. lab/tutorial 3 hours, R.J.
Boyd. M.A. White. Similar to Chemistry 110 but with more emphasis on atomic and molecular structure, thermodynamics, equilibria and kinetics.
This This class is intended for prospective science students and dor stud
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 one of the lecturers prior to registering for this class. Concurrent enrollment
Mathematics 1000 and 1010 , or in Mathematics 1500 is advised.

Any of Chemistry $110,111,112$ or 120 may serve as a prerequisite for
any 200 level class in chemistry and as a credit in the Faculty of Arts any 200 level class in chemistry, and as a credit in the Faculty of Arts
and Science. However, credit will only be given for one of $110,111,112$ and Scie
or 120 .
141A Introductory Chemistry: lecture 3 hours, tutorial 2 hours. A descriptive introduction to chemistry with emphasis on materials related gases; acid/ base eqciences. This class will cover the properties of functional groups; chirality; carbohydrates amino acids and other biologically important chemicals; as well as a brief discussion of NMR

This class is considered terminal; it does not count as a prerequisite for
any other Chemistry class.
143R Introductory Chemistry and Biochemistry. This class combines Chemistry 141 A and Biochemistry 1428 for use

211B (or A) Introductory Inorganic Chemistry: lecture 3 hours, lab hours, K.R. Grundy. Prerequisite: Chemistry $110(111,112,120)$. The
fundamentals of inorganic chemistry are covered. Specific topics fundamentals of inorganic chemistry are covered. Specific topics
include: ionic bonding and the nature of solids, the structure of atoms and simple molecular orbital theory, coordination chemistry of the organic compounds Than amount of systematic chesistrition of organic compounds are the laboratory assignments

213A (or B) Inorganic Chemistry of Life: lecture 2 hours, lab 3 hours, subject to availability of professor. Prerequisite: A good understanding of
the principles studied in Chemistry 110 . This class may not be included the principles studied in Chemistry 110 . This class may not be included $n$ nine chemistry creadis required 10 . Academic Programs, page 12, it may however be taken by int and heir compounds in living. systems, their special properties, structures and reactivities are studied. The laboratory illustrates class work with experiments on compounds isolated from living systems and on
inorganic compounds that are used as models for these systems.

220 (or B) Introductory Analytical Chemistry, lecture 3 hours, lab 3 hours, A. Chart. Prerequisite: Chemistry 110 (111, 112, 120). A
introduction to non-trace analytical techniques and to those instrumental techniques most often encountered in the laboratory Topics include theory of titrations; gravimetric analysis; acid-base precipitation and redo equilibria; spectrophotometry; potentiometry with on selective electrodes; and chromatography. Examples of topics qualitative and quantitative chemical analysis.
231 A Introduction to Physical Chemistry - Energetics: lecture 3 hours, lab 3 hours, R.E. Wasylishen. Prerequisites: Chemistry 110.(11)
112, 120), Mathematics 1000, 1010. This class together with 232 B introduces students to the fundamental principles of physical chemistry The course stresses the energies of both molecular systems, where
quantum mechanical results are introduced, and macroscopic system quantum mechanical results are introduced, and macroscopic systems,
which are treated using the laws and basic concepts of classical which are treated using the laws and basic concepts of classical
thermodynamics. The molecular basis of the ideal gas laws is also discussed. The laboratory sessions illustrate many aspects of the material presented in lectures.
2328 Introduction to Physical Chemistry - Dynamics: lecture 3 2328 introduction to Physical Chemistry -Dynamics.
hours, $J$. Cox on. Prerequisites: Chemistry 231 A or equivalent. An
intr introduction to statistical mechanics, reaction kinetics, and atomic and molecular spectroscopy
233 B (or A) Physical Chemistry for the Life Sciences: lecture 3 hours, lab/tutorial 3 hours, R.E. Wasylishen. Prerequisites: Chemistry 110 $(111,112,120)$. Chemistry majors may not apply credit for Chemistry
233 towards the major requirements for a degree in Chemistry, although they may take Chemistry 233 as an elective. Credit will not be given for they may take Chemistry 233 as an elective. Credit will not be given for and Chemistry 233 . Those who do not plan a career in chemistry, bu who can use the principles and concepts of physical chemistry in
related areas, are introduced to the basic ideas of physical chemistry
win 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.

240R Introductory Organic Chemistry: lecture 3 hours, lab 3 hours,
D.R. Arnold, T. . Grindley. J.A. Pincock. Prerequisite: A D.R. Arnold, T.B. Grindley, J.A. Pincock. Prerequisite: A good
comprehension of the principles studied in Chemistry 110. 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 the way in which they take place, and the application of spectroscopy to of fundamental operations and techniques used in modern organic chemistry laboratories.
300 A Introductory Theoretical Chemistry: lecture 3 hours, C.H. $211 \mathrm{~A} / \mathrm{B}$ or 231 A or 232 B . An introduction to quantum mechanics and its application to spectroscopy and the electronic structure of atoms. The postulates of quantum mechanics are presented and applied to some simple physical systems, followed by a discussion of the rotation
and vibrations of molecules, and the electronic structure of atoms, concluding with an introduction to the simple Hückel molecular orbital method.
311A(orB) Chemistry of the Main Group Elements: lecture 2 hours, ab 3 hours, T.S. Cameron. Prerequisite: Chemistry $211 \mathrm{~A} / \mathrm{B}$. A systematic study of the chemistry of the main group elements, with particular emphasis on the nonmetals of the first and second row
elements. Use is made of modern bonding concepts. The laboratory elements. Use is made of modern bonding concepts. The laboratory introduces synthetic procedures for the preparation of inorganic
compounds including study of their reactions. Some of these experiments involve special handling techniques, such as controlled
atmosphere, high temperature or vacuum line manipulation.

312B(or A) Chemistry of the Transition Metals: lecture 2 hours, lab 3 hours, $O$. Knop. Prerequisites: Chemistry $211 A / B$, Mathematics 1000
nd 1010 . Modern bonding theories are used to unity the discussion of he 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

321A Solution Equilibria and Analytical Spectroscopy: lecture 3 hours, lab 3 hours, A. That. Prerequisite: Chemistry 220A/B. Che
321 A is organized into three units. 1 . Introduction to Statistics; 2 . Chemical equilibria and their analytical applications; and 3 . Spectrochemical methods of analysis. Laboratory experiments illustrate
the above techniques with practical examples.
${ }^{3228}$ Analytical Electrochemistry and Separations: lecture 3 hours, ab 3 hours, R.D. Guy. Prerequisites: Chemistry 220A/B and 321 A or permission of the instructor. Chemistry 322B deals with the application electrochemical and separation techniques to chemical analysis. The analytical problems are examined and instrumentation is described. The laboratory work is concerned with practical examples of the above techniques in both qualitative and quantitative analysis.

330A Chemical Thermodynamics No longer offered.
${ }^{3} 1 \mathrm{~B}$ Chemical Kinetics No longer offered.
335R Intermediate Physical Chemistry - Properties of Matter: lecture 3 hours. lab 3 hours, alternate weeks, J.A. Coxon, P.D. Pacey
and M.A. White. Prerequisites: Chemistry 231 A. 232B and 300 A and Mathematics 2000 or 2200 or equivalents. Chemistry 300 A should normally be taken concurrently. Credit will not be given for both
Chemistry 335 R and Chemistry $337 \mathrm{~A} / \mathrm{B}$, or for Chemistry 335 R Chemistry 335R and Chemistry 337A/B, or for Chemistry 335R and
Chemistry 330A, or for Chemistry 335R and Chemistry 331B. This course begins with a discussion of the thermodynamics of real systems
including activities, chemical potentials and phase diagrams for pure including activities, chemical potentials and phase diagrams for pure and mixed gases, liquids, and solids. Approaches to understanding the course will conclude with a study of microwave, infrared, Ramen, electronic, laser, photoelectron and magnetic resonance spectroscopy.

36 B Numerical Methods in Chemistry: lecture 3 hours, C.H. Warren and Mashes tics 2000 or 2200 or permission from the instructor. This
Prem class provides an introduction to numerical methods that can be applied
to various problems in chemistry. Students will utilize these techniques microcomputers, and Dalhousie's mainframe computer. Topics to b on microcomputers, and Dalhousie's mainframe computer. 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 wavefunctions, gas laws, potential energy contours, coordinate transformations and molecular.

337 B (or A) Applied Physical Chemistry: lecture 2 hours, tutorial I hour, lab 3 hours (alternate weeks), stat: Prerequisites: Chemistry 231 and 2328 or 233 with permission of the instructor. Credit will not be and Chemistry 330A, or for Chemistry 337 and Chemistry 331 B . This is an intermediate level class in applications of physical chemistry concepts, intended for students other than honours chemistry students.
Topics covered will include the theory and experimental methods of determining the following: the phases of matter, the non-laeality of matter, molecular weights, molecular structure, rates of chemical reactions. The course will give an introduction to and draw examples rom solution chemistry

341 B (or A) Identification of Organic Compounds: lecture 3 hours, lab 3 hours, T.B. Grindley, Prerequisites: Chemistry 240 (or equivalent). The techniques necessary for the identification of organic compounds given, but the main emphasis is on modern spectroscopic techniques. The class builds on the framework of the functional group classification developed in introductory organic chemistry classes. Students work dependently in the laboratory to identify unknown substances and techniques.
342A (or B) Synthesis in Organic Chemistry: lecture 3 hours, lab 3 hours, J.S. Grossert. Prerequisites: Chemistry 240 (or equivalent). The step organic syntheses are surveyed. Examples chosen include pharmaceutical industries. Students work independently in the laboratory and carry out a variety of syntheses. Experiments are designed so that students learn to monitor the purity of their products by the use of

343 A (or B) Bioorganic Chemistry: lecture 3 hours, T.P. Forrest. Prerequisites. Chemistry 240 (or equivalent). This class may not be degree (Academic Programs page 24). It may however be taken by honours chemistry students in addition to these nine. Since molecules in nature operate under the same rules as those in an organic laboratory. one can apply the principles elucidated in the organic laboratory to the study of the behavior 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 a particular reactivity. An analysis of the requirements for reactivity, methods by which these can be achieved and the influence of various consideration of selected naturally occurring reaction pathways.
388 General Topics in Chemistry. A non-credit class to be given by invited speakers which must be taken by all 3rd year honours Chemistry students.
$* 400$ Theoretical Chemistry: lecture 3 hours; R.J. Boyd. Prerequisites
Chemistry 300 A . A continuation of 300 A . Molecular orbital theory and its applications are examined in greater detail. Group theory is introduced applications are examined in greater detail. Group theory
and applied to spectroscopy and molecular orbital theory.
*410A or B Inorganic and Organometallic Reaction Mechanisms in Synthesis: lecture 2 hours, lab 3 hours, subject to availability of instructor. This class examines the fundamental aspects of inorganic at


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#### Abstract

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reaction mechanisms such as substitution, isomerisation, oxidative
dddition, insertion, etc., together with their applications to inorganic synthesis. The laboratory is project oriented with each project illusstrating incorporate modern inorganic synthetic techniques and characterization by instrumental methods where appropriate
412B Solid State Chemistry: lecture 2 hours, lab 3 hours, O. Knop. Prerequisites: Chemistry $211 \mathrm{~A} / \mathrm{B}, 330 \mathrm{~A}$, and 435 A (or equivalents) or
consent of instructor. All chemical elements and compounds can exist as crystalline solids, and most of them normally do. The arrangements scrystaline solids, and most of them normally do. The arrangements of reflect the bonding properties and constituent elements. They can be studied by methods that do not destroy or modify the crystal structure. The methods most frequently employed for this purpose are cov

20A Analytical Instrumentation: lecture 2 hours, lab arranged, W.A. Aue. Prerequisites: Chemistry 321 A and 322 B or permission of istructor. This class is given in conjunction win a graduate class. IT chemistry. In $198 \hat{0} 8$, the subject will be Separations; with Radiochemistry, Electronics and Atomic Spectroscopy to follow in subsequent year

421 B Instrumental Analysis: lecture 2 hours, lab 3 hours, staff Preequisites: Chemistry 321A and 322B or permission of instructor. This is a survey class of instruments and methodologies found in modern analytical laboratories. It will include atomic spectroscopy, chutomatography, nuciear methods, surface analysis, aboratory atrechemistry and some instruments of interest to the life sciences. The laboratory will consist of demonstrations and experiments on instruments at Dalhousie or at cooperating institutions

4308 Introductory Statistical Thermodynamics: lecture 3 hours, M.A. White. Prerequisites: Chemistry 330A or Chemistry 335 R (concurrently) or permission of the instructor. An introduction to the
principles of statistical thermodynamics and quantum statistical principlen of stanisical termodynamics and
mechanics. Wherever possible the application of statistical thermodynamics to chemical systems as well as physical and biological processes is emphasized.
433 B (or A) Biophysical Chemistry: lecture 2 hours, lab 3 hours, alternate weeks, R.E. Wasylishen. Prerequisites: Chemistry 231 A. 232 B and either Chemistry 330 A and 331 B ; or 335 or 337 , or permission of application of physical chemistry in life sciences and mecicanse tor the nclude the structure and contormation of biological macromolecules, techniques for the study of biological structure and function, transport processes and biochemical spectroscopy. The laboratory is on
basis with at least four experiments completed during the term.

435A Symmetry and Group Theory: lecture 2 hours, compulsory tutorial 3 hours, O . Knop. Prerequisites: Chemistry $211 \mathrm{~A} / \mathrm{B}$ and abstract groups and their represenstations, crystallographic and of orystallographic point groups, and an introduction to the theory of space groups are presented. Examples from stereochemistry, crystallography, and spectroscopy illustrate the theory. Knowledge of elementary

440A (or B) Organic Spectroscopy: lecture 2 hours, lab 3 hours, D. Hooper. Prerequisites: Chemistry 341 A or equivalent, or permission of instructor. Nuclear Magnetic Resonance experiments and their interpretation. Application of NMR and other spectroscopic methods to
ine structure determination of organic molecules.

* 441 B (or A) Stereochemistry and Synthesis in Organic Chemistry lecture 2 hours, lab 3 hours, D.R. Arnold. Prerequisites: Chemistry 341A,
342 A or equivalent, or permission of instructor. Organic stereochemistry including conformation and synthesis, illustrated with examples from modern, advanced synthetic techniques and principles.
*442A (or B) Organic Reaction Mechanisms: lecture 2 hours, lab 3 hours, K.T. Leffek. Prerequisites: Chemistry 341 A, 342 and Che
230A or equivalents, or permission of the instructor. Methods for
delermining the mechanisms of organic reacions are discussed from viewpoint or he physica plationshiss and acid and base catalysis. The laboratory illustrates the variety of methods used to study the above topics.
488 Advanced Topics in Chemistry, a non-credit seminar to be give invited speakers which must be taken by all 4th year Honour stry student

8880 Honours Examination. This is an additional class required of all Academic Programs on page 24. It should be taken in the final year of concentrated chemistry honours program. All honours students, whether a concentrated or unconcentrated program, must consult with the

## Classics

Chairperso
R. Friedrich
cting Chairperson (1986-87)
. Starnes
rofessors Emeritus
A.H. Armstrong, MA (Cantab.), FBA

Adjunct Professor
T.E.W. Segelberg, DTh, FK (Upsala)

Professor
Crouse, BA (Oxon.), PhD (Liverpool) R. Friedrich, Dr.phil. (Goettingen)

Associate Professors
W.J. Hankey, BA (Vind.), MA (Tor.), DPhil (Oxon.), Undergraduate
W.t. Hankey, BA
Studies Advisor
P.tudies Advisor

Stres BA (Bishop's) STB (Harv) MA (McG) PhD (Dal)
ssistant Professors
.J. Cakin, BA (UBC), MA (Dal), PhD (Dal)
A. House, MA (Dal), PhD (Liverpool), Gi)

Classics is the study of our origins - how the Christian-European adition to which we belong arose out of the ancient civilizations of the mediterranean area. The fundamental ideas and belieits of Europeans dians, and those of other traditions, were formed in the meeting o Greek and Oriental cultures in ancient times. To understand fully our wn contemporary culture, we must study its historical origins.
Classics is more than the study of ancient languages. Langu Classics is more than the study of ancient languages. Languages are sientific study of ancient history, literature, religion, mythology and hhilosophy. The Classics Department at Dalhousie provides instruction oth in these subjects and in ancient languages. While previous preparation in one or more ancient tanguages is desirable, it is
nevertheless quite feasible for a student who discovers an interest in classics to begin his language studies at university. Instruction is also
Students of classics usually iearn Greek and Latin. Students of classics uscually yearn Greek and
It is obvious that 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 een regarded as pertinent to a career in politics and the higher level the most relevant preparation.
Classical studies also prepares students for a life of teaching and cholarship in several directions. Canada is responsible for its own culture, and we have grear need of scholars and leachers whe know
hard to find in Canada. Classics is also the best preparation for the study of non-European cultures (Chinese, Indian, Islamic, etc.), and there is
growing need for specialists in these fields. For the older history of hilosophy and to the hists in these filids. For the older history of Reformation, a knowledge of classics is indispensabie. The same may be said for medieval studies. Classics leads also to ancient Near

## Degree Programs

BS
Of classes offered by the department, Classics 1000, 1010, 1020, 1030 and 100 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, and the Department is glad
working out programs according to their interests
working out programs according to their interests.
Note: The following classes satisty the first-year writing requirements

Honours Programs
The candidate may choose between three programs: BA with Honours in Classics (Ancient Literature), BA with Honours in Classics (Ancient
History), or BA with Honours in Classics (Ancient Phiosole case, it is highly desirable, but not essential, that the student begin the 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
students must complete nine to eleven classes in Classics beyond
he 1000 level chosen in accord with the general Faculty regulation for Honours.
The program must include work in either Greek or Latin Language
and Literature to the 3000 level and work in the other languag to and Literature to the 3000 level and work in the other language to
an appropriate level as determined by the Undergraduate Adviser.
The program must be approved by the Undergraduate Adviser.
Whether the Honours degree is awarded in Ancient Literature, History or larger part of the work is done.
Combined Honour
Classics may be taken as part of a combined honours program with French and German. Students interested in either of these progr
should consult with the chairmen of the respective departments.
Undergraduate Adviser
The programs of all students majoring or honouring in the Department nust be approved by the Undergraduate Adviser. Currently, Professor

Changes and Additions
As the Calendar goes to press before all plans for the next academic As iear are completed, there may be significiant changes in the classes sted below. Students should consult the Department for names of

## Classes Offered

Literature, History and Philosophy, Art, Archaeology and Mythology $\qquad$ Note: The Introductory classes, c. o more elementary classes in
Ancient History and Religions, and C.ssical Philosophy yistedbelow do
hot require knowledge of the ancient languages. However students who lan to do advanced work in any of these areas are advised to begin sudy of the appropriate languages as errly as possible.

## ntroductory: Origins of the West

 Classics 1000 Ancient Literature in Translation: This class is the same as Classics 2000 (see below) but meets the first-year writingClassics 1010 Ancient History: An Introduction to the Cultural
 term is devoted to a study of the major pre-classical civilizations (Sume ese cultures as well as their political development in the second ter he civilizations of Greece, Rome, and lsrael 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

Classics 1100 Classical Mythology: This class is the same as - 110 A Che

Classics $1101 \mathrm{~A} /$ Classics 1102 B Classical Mythology: Same as Classics 1100 but designed to form two indepen

Classics 1020 Archeology and Art: lecture 2 hours, W.J. Hankey, J.P. Atherton, P.F. Kussmaul. A study of Greco-Roman civilization through it an introductory class. No special preparation is expected and there is no oreign language requirement.

Classics 1030 Origins of Western Thought: Introduction to Ancien hilosophy: lecture 2 hours, J.P. Atherton, W.J. Hankey. An introduction classical culture through a study of its philosophical Ideas. The historical development

Classics 2000 Classical Literature: lecture 2 hours, R. Friedrich, R.D. ouse, C.J. Starnes and others. An inrooduclion to classical civilization yy way of the literature, read in English translations. Authors studied are
Homer, the Greek Dramatists, Plato, Vergil and St. Augustine. This class isen to first year students.
Classics 2100 Classical Mythology: lecture 2 hours, A.M. Johnston. of ancient Greece and Rome. First the major gods and goddesses thei worship and their myths will be studied, then the major cycles of Gree and Roman heroic mythology (the Trojan War, the Argonaut expedition
he cycles centering on Hercules, Perseus, Theseus and Aeneas) as cycles centering on Hercules, Perseus, Theseus and Aeneas) as
hey were recounted in Vergil, Ovid and in the visual arts. All texts read hey were recounted in vergil, Ovid and in tre visual a

## Ancient History and Religions

Ancient City: lecture 2 hours. P ussmaul. 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 Englis anslation. This class is open to first-year students. There is no for

Classics 2210 Roman History: The Roman Empire and the Rise of hristianity: lecture 2 hours, P.F. Kussmaul. A continuation of the constitutional arrangements of the Roman Empire from the time of augustus. The relation of the Empire to Christianity is a topic of primary class is given alternately with 22

Classics 2220 Greek History: lecture 2 hours, D.K. House. Given
Classics 2230 Homan History: The Cultural History of the Roman orld: lecture/seminar 2 hours, D.K. House. Given alternately with Classics 2220.

Classics 3280/5280 Christian Beginnings and the Early History of he Church: seminar 2 hours, W. Hankey. The study of the beginning of the Christian Church against its Jewish background within the
Hellenistic culture. The history of the Church is followed up through the irst $3-4$ centuries. Emphasis in alternate years on various features such as the development of Christian Initiation, the Eucharist or Ministry and

Classics $3290 / 5290$ Greek Religion: seminar 2 hours. The history
Classics 3260/5260 Roman Religion: seminar 2 hours.

Classics 3270/5270 Near Eastern Religion: seminar 2 hours. Classics 3520/5520 Seminar on Problems of the Hellenistic period
seminar 2 hours; Religions in the Hellenistic Period.

Classics 4530/5530 Seminar on the Roman Empire and the Rise of Christianity: seminar 2 hours, P.F. Kussmaul. Selected topics from the ransition from Classical to Christian culture are studied. Pariticular attention is paid to tele connecion between religious inn of the new beliefs on literature, art and philosophy
effect

## Classical Literature

Classical Literature: See description for Classics 2000 isted above.

Classics 2012 Greek Tragedy: Sophocles, seminar 2 hours. P. Calkin R. Friedrich, A. Johnston. This class introduces the student to $G$. ragedy yhrough an in-deph stuay of the seven extant plays of
Sophocles. This will be accompanied by a study of Aristotle's Poetics. This class is open to first year students. All texts will be read in ranslation.
Classics 2014A/2015B Euripidean Tragedy: seminar 2 hours, A Johnston. These classes introduce the student to Greek tragedy through an in-depth study of a number of plays by Euripides. This will be accompanied by a study of Aristotte's Poetics. All texts read in ranslaion. These classes, which may be takt.
consecutively are open to tirst-year students.

Classics 3510 Ancient and Modern Drama I: seminar 2 hours. A. Friedrich. Ancient and Modern Drama is a study of Western drama from presented in two parts, each forming a full credit course. However, both parts (Classics 3510 and 3511 ) are designed in such a way that they can be taken independently from one another. Ancient and Modern 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 wil of Poetry. All texts will be studied in English translation. (Cross-listed as Comparative Literature 3510).
Classics 3511 Ancient and Modern Drama II: seminar 2 hours. Friedrich. This is Part II of a study of western drama from its ritual
beginnings in ancient Greece to its 20 th century forms. Athough th class is a continuation of Ancient and Modern Dramal (Classics 3510), Part II can be taken independently of Part 1 . Thus Classics 3510 is not a prerequisite for Classics 3511 . The class will open with a few lectures
reviewing the results of Part I of Ancient and Modern Drama. A brief study of Aristotle's Poetics and Horace's Art of Poettry will provide a guide to the study of the plays. The chief purpose of this class is to trace the formation of European drama and to study the influence of the ancients on this process. This will be done by studying a number of
plays ranging from Medieval and Elizabethan Drama to 20th century drama, each representing a type and/or period of European Drama. All texts will be studied in English. (Classics 3511 is crosslisted as Comparative Literature 3520 .)

## Classical Philosophy

lecture 2 hours. C.J. Starnes Wf Christian Doctrine to Augustine: lecture 2 hours, C.J. Starnes, W.J. Hankey. The meaning of Christ
doctrines in relation to their Jewish and Greek origins and their doctrines in relation to their Jewish and Greek origins and their
development in the classical world. The basic text is Augustine. The city
of God. Classics 3360. Ancient Philosophy from its Beginning to the Sixth
Century AD: (same as Philosophy 3360) lecture 2 hours, W. H. Hankey J.P. Atherton. A survey of the whole history of ancient Greek philosophical thought from its beginnings in lonia in the sixth century $B C$
to the end of the public teaching of Greek philosonhy by non-Christians ot the end of the eublic teaching of Greek philosophy by non-Christ
in the sixith century AD. Proper attention is paid to the great classical philosophies of Plato and Aristotle studied in their historical context. philosophies of Plato and Aristore studied in their historical context.
Much emphasis is laid on the Greek hhilosophy of the first centuries AD
and its influence on developing Christian thought.
lassics 3370/5370 History of Christian Doctrine Il From ugustine to Calvin: W.J. Hankey. The class considers the theologica nature of man and the sacraments by medieval thinkers.
Classics 3380 Medieval Philosophy: (same as Philosophy 3380 ) ecture 2 hours, R.D. Crouse. A study of the development of philosophy in the formative age of European civilization related to political, stitutional, literary and theological concerns. An attempt is made to how how the legacy of classical and Christian antiquity was Christendom. The lectures are devoted mainly to the study and discussion of a few fundamental texts, beginning with Boethius' Onsolation of Philosophy. Special attenion is given to Anselm's the object of lectures to present the continuity of the historical development and to emphasize broad implications of the philosophical octrines presented in the texts. In the later part attention is given to late medieval Platonism and Mysticism, to show something of the

Classics 3400 The Dialogues of Plato: seminar 2 hours, D.K. House This class presupposes some knowledge of the history of Ancient
lassics 3410 St. Augustine's Confessions: seminar 2 hours, C.J. Starnes. A study of the three parts of Augustine's Confessions with a
view to understanding his dissatisfaction with the various positions he ew to Anderstanding his cissaissiacion win he various positions $h$ onsequences of this conversion (Part II), and the new theoretical nderstanding of time, space and motion which come out of his Trinitriaian exegesis of the first chapters of Genesis (Part IIII). This class resupposes some knowledge of the history of Ancient Philosophy, an
some of Latin This class is given alternatively with Classics 3420 .

Classics 3420 St. Augustine's City of God: seminar 2 hours, C.J Empire and of the new Christian 'city' that replaced it The course Empire and of he new Christian city that replaced it. The course 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, urning to the first ten books of the City of God. This class is given alternatively with Classics 3410 .
Classics 3450/German 345 Hegel's Philosophy of Nature: seminar ours, J.A. Doull, W.J. Hankey. Hegel's Philosophy of Nature and its oo discover in what sense a thinking of nature in essential continuity with ncient physictis s currently possible or in what sense modern natural
science constitues a philosophy of nature.

Classics 3470, Reading and Research: Ancient Literature Classics 3480, Reading and Research: Ancient History Classics 3490, Reading and Research: Ancient Philosophy Classics 3500 Aristotle: seminar 2 hours, D.K. House. This class studies a treatise of Aristotle, usually the De Anima or the Physics. resupposes some $k$.
nowledge of Greek.
Classics 4200/5670 Ancient Practical Philosophy: seminar 2 hours. J.A. Dossics 420. W.J. Hankey.
lassics 4300/5600 Seminar on the Philosophy of Aristotle: eminar 2 hours, J.A. Doull, w.J. Hankey.
Classics 4310/5610 Seminar on the Philosophy of Plato: seminar hours, J.A. Doull. Classics $4320 / 5620$ Ancient and Modern Dialectic: seminar 2 hours,
J.A. Doull. Diaiectical method in Fichte, Schelling and Hegel in relation to Plato and Aristotle.

Classics $4400 / 5700$
Fathers: R.D. Crouse

Classics 4450/5640 Medieval Interpreters of Aristotle: seminar ours, J.P. Atherton, R.D. Crouse, W.J. Hankey

Classics 4500/5800 Seminar on Neoplatonism: seminar 2 hours, J. J. heology of the Greek Church are studied

Classics 4580/5580 Reading and Research
Classics 4680A/4690B Reading and Researc
Classics 4900/5900 Departmental Seminar: seminar 2 hours.
Classical Languages and Literature
Classics 1700 Introductory Greek: lecture 3 hours, P.J. Calkin. This is the beginner's class in the Greek language. No previous knowledge is
required. The aim is to teach the student to read a Greek text. Atter becoming accustomed to the new alphabet - which does not take long - the study of grammar is introduced along with reading and translation f texts from original Greek literature
Classics 2700 Intermediate Greek: lecture 3 hours. P.J. Calkin. Classics 2700 is a continuation of Classics 1700 or 2710 . The aim is to develop the students ability and to read and translate prose as well as
Classics 2710 Greek Prose: seminar 3 hours, P. Calkin. A study of
Greek accidence and syntax throing the reading of Greek prose Greek accidence and syntax through the reading of Greek prose
or equivalent. .
Classics 3700 Advanced Greek: seminar 2 hours, J.A. Doull, D.K. oth a prose and a poetic work is the normal third class in Greek.

Classics 3710/5710 Greek Epic: seminar 2 hours, R. Friedrich rerequisite: Classics 2700

Classics 3720/5720 Greek Lyric: seminar 2 hours, staff. Prerequisite. Classics 2700.
Classics 3730/5730 Greek Drama: Tragedy: seminar 2 hours. R. riedrich. Prerequisite: Classics 2700.

Classics $3740 / 5740$ Greek Drama: Comedy: seminar 2 hours, R riedrich. Prerequisite: Classics 2700.
lassics 3750/5750 Greek Philosophical Texts I: seminar 2 hours, taff. Prerequisite: Classics 2700 .
Classics 3760/5760 Greek Philosophical Texts II: seminar 2 hours, aff. Prerequisite: Classics 2700.

Classics 3770/5770 Greek Philosophical Texts III: seminar 2 hour taff. Prerequisite: Classics 2700

Classics 3751 Ancient Comedy; Greek New Comedy and Roman comedy: seminar 2 hours. R. Friedrich. A comparative study of This course is croslisted as Classics 3850 or as Cospative Lieratue his course is crosslisted as Classics 3850 or as Comparative Literature
3750 .

Classics $3780 / 5780$ Greek Historians: seminar 2 hours, staff rerequisite: Classics 2700.

Classics $3790 / 5790$ Greek Literary Criticism: seminar 2 hours, R.
Friedrich. Prerequisite: Classics 2700 riedrich. Prerequisite: Classics 2700 .
Classics 3791 A \& B Reading and Research: seminar 2 hours, staff rerequisite: Classics 2700.

Classics 3725 Biblical Greek: This class enables the student who aready knows the basics of Classical Greek to familiarize himself with the Septuagint will authors. The Greek

Classics 4700/5700A/B Reading and Research: staff. Prerequisite.
ny Classics 3000 -level class.

Classics 1800 Introductory Latin: lecture 3 hours, C.J. Starnes. A
introduction to Latin through the study of its basic grammar.
Classics 2800 A Study of Latin Prose and Poetry: lecture/discussion 2 hours, P.F. Kussmaul. A study of the poetry and prose literature of Rome hrough a selecien of exss. Particular attention is paid to atin language.

Classics 2810 Latin Prose: seminar 3 hours. C. Starnes, P. Kussmau study of Latin accidence and syntax through the reading of Roman Alcero). Pir

Classics 2860 Latin Historical Texts: lecture 2 hours, J.P. Atherton
Classics 3800/5800 Roman Satire: seminar 2 hours, staff.
Classics $3810 / 5810$ A Study of Vergil: seminar 2 hours, J.P. Atherton rerequisite: A class in Latin at the 2000 level. A study of the development and importance of Vergil's basic themes and ideas 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 Roman political. religious and social ideas which have greatly influenced our own beliefs and institutions.

Classics 3820/5820 Advanced Reading in Latin Literature: staff.
Classics 3830/5830 Latin Religious Poetry: seminar 2 hours, J.P. Atherton, P.F. Kussmaul. A study of religious poetry writen in the Latin
anguage from the Carmen Saliare ( 680 BC ) to Calvin's Epinicon (154 AD) and the poems of Leo XIII ( 1890 AD)

Classics 3840 Latin Philosophical Texts: lecture 2 hours, R.D. Crouse. Prerequisise: Classics 1800,2810 or Senior Matriculation in Latin. The purpose is to give students experience in reading philosophical Latin.

Classics 3850: A Latin (ie. 800) listing for Classics 375
Classics 4800 Reading and Research: staf
Classics 4850/5850 Reading and Research: staff.
Near Eastern Languages
The classes in Hebrew, Coptic, Syriac and Arabic, are sometimes vailable as electives at the discretion of the Department, only in relation Note: The classes in Hebrew and Arabic are taught by the Atlantic School of Theology.

Hebrew
010 Elementary Hebrew and Introductory Reading
2020 Intermediate Hebrew
3030 Advanced Hebrew

## Arabic

tudents wishing to take a class in Arabic must consult with the
Department before registering for the class
1000 Introductory Grammar and Reading of Texts
2000 Intermediate Arabic
Special Topics
Classics 4910A/4920B Special Topics
Classics 4710A/4720B Special Topics
Classics 4810A/4820B Special Topics

## Comparative Literature

A. Andrews (Theatre) J.A. Barnsteàd (Russia)<br>J.A. Barnstead (Russian) S.A.M. Burns (Philosophy)<br>R. Friedrich (Classics) (Chairman)<br>R.M. Huebert (English)<br>S. Jones (Spanish) J.M. Kirk (Spanish)<br>J.M. Kirk (Spanish) R.M. Martin (Philosophy)<br>H.R. Runte (French)<br>M.C. Sandhu (French)<br>H.G. Schwarz (German) H.S. Whittier (English)

Comparative Literature, despite its name, is not so much defined by comparisons' as by studies involving literary work 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 18 th century with the rise of relatively recent date. It originated in the 18 th 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 par 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 Comparative Literature; and last bui not teast, comparative Literature
forms a bridge between literature and other fields in the humanities such as philosophy, religion, and politics.
The Departments of Classics, English, French, German, Philosophy, Russian, Spanish and Theatre offer the following classes in Comparative concentration. All lectures are given in English and works are read in concentration. All lectures are given in Eng
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.

Note: At present the Comparative Literature Program is being revised;
the entries may therefore be outdated at the time when this Calendar wil the entries may therefore be outdated at the ime when this Calendar wil be published. Students interested in the Comparative Literature Program
should contact R. Friedrich, Classics Department, 424-3468; or H.R. should contact R. Friedrich, Classics
Runte, French Department, 424-2430.
2000 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 inclute works by Dante. Chaucer, Cervantes, SSakespeare, Moliére,
Geethe, and otherc. Note: English 100 or Classics 2000 is acceptable a Goethe, and others. Note. English 100 or Clas

2010 The History of the Theatre: A. Andrews. This class is cross-listed as Theatre 2010.

2030 Masterpieces of Western Literature: H.S. Whittier. This class is
2040 The European Novel: Staff. This class is cross-listed as English 204.

2100 Classical Mythology: A. Johnston. This class is cross-listed as
Classics 2100

2110 Theories and Manifestations of Love in Medieval Europe .i.R.R Runte. A literary and anthropological study of major poetic, roubadours, and German Minnesaenger, with special emphasis on ther relation to our time.

- 2120 Realism and the 18th Century English and French Novel: B. unte. Novels by such authors as Marivaux, Richardson, Prévost, realism in style and structure provide the basis for comparison/contras of the works read.
2140 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 Arthurian texts dealing with the medieval legend of King Arthur and the

2180 Germanic and Greek Mythology: This class is cross-listed as German 235.
2370 Restoration and 18 th Century Comedy: R. Runte. A comparative study of English and French plays by such authors as Marivaux, Voltaire, and Beaumarchais. Critical essays on comedy are tudied with a view to defining the universal, national and temporal nature of comic elements in the works read
 500 The Modern Theatre: A. Andrews. This class is cross-listed as 3500 The Mo
Theatre 3500.
510 Ancient and Modern Drama I: R. Friedrich. This class is cross sted as Classics 3510 .

511 Ancient and Modern Drama II: R. Friedrich. This class is cross isted as Classics 3511.
4900 Dramatic Theory and Criticism, and the Aesthetics of the

## Comparative Religion

Professor (Chairperson)
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.)

## Special Lecture P. Murray, MA

The University study of religion aims at an intellectual understanding his more than intelectual reality. Religion is a phenomenon virtually 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 eflection concerning the relation between the personal and the objective, can find material to engage them in the courses described
below.

BA
Students wishing to major in Comparative Religion must successfully complete Comparative Religion 1010 or 1301 , and at least four to eight

000 -level. These must include at least two from each of the groups 2001, 2002, , 2003) and ( $2011,2012,2013$ ).
Atter earning teat least 10 credits of any kind students must successfully complete one elass in Comparative Religion beyond the
$3000-$-evel (see "Topies in Comparative Religion". 3000-level (see "Topies in Comparative Reigion t.
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. Programs should be planned in consultation with the
Please consult the current timetable on registration to determine

## Classes Offered

1010/2010 Love in World Religions: lecture and seminar 3 hours, R. Ravindra (no prerequisite). What is love? Why is something so universal
and important also so problematic? Is it possible to love in the midst of intense suffering and hatred? Various aspects of love and related
feelings, such as eros, agapee, compassion and mercy, are studied in feelings, such as eros, agapé, compassion and mercy, are studied in
this class from the perspective of maior religions. Material is drawn from many sources such as the Song of Songs, Love Song of the Dark Lord, mystical poems of St. John of the Cross, Kabir, and others. Tradition rites associated with a Hindu and a Christian wedding will also be examined.

1301 Introduction to the Study of Religion: lecture 2 hours, section meeting 1 hour, C.T. Sinclair--auukner. (No prerequisite). Religion is: a way of life an encoun hod? a neurosis? he essential huma 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

The following semester-Iong classes serve variously as prerequisites to eligious traditions by examining its founder(s), scriptures, history. communal forms, a kex ritual, and the impact of the modern world. The
common text for all six classes is Nielsen et al. Religions of the World. 2001 A/B Judaism: lecture and seminar 3 hours, C.T. Śinclair-Faulkner 2002 A/B Christianity: lecture and seminar 3 hours, C.
Sinclair-Faukner
2003 A/B Islam: lecture and seminar, 3 hours, C.T. Sinclai-Faulkner.
2011 A/B Hinduism: lecture and seminar, 3 hours, R. Ravindra
$2012 \mathrm{~A} / \mathrm{B}$ Chinese Religions: lecture and seminar, 3 hours, R .
Ravindra.
2013 A/B Buddhism: lecture and seminar, 3 hours, R. Ravindra.
3001 Western Spirituality: lecture and seminar 2 hours, C.T. SinclairFaulkner. Prerequisite: At least one of 2001, 2002, 2003 or permissiso
of the instructor. The Western world has known many different ways to be religious: personal, mystical, poolitical, rationnal, sensual. Original studied in their historical context. Each student undertakes a guided study of some twentieth-century reigious experience of his or her choice. A delailied syl ,
3002 Religion in Story: lecture and seminar 3 hours, C.T. Sinclair-
Faulkner Prerequisite: At least one of $2001,2002,2003$ or permissi the instructor When reliqious people seek answers to ultimate questions he instructor. When religious people seek answers to ultimate questions
or 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 trom the broader western culture the context of related material from the broader western culture,
including the Jewish scriptures. A detailed syllabus is available fro Department of Comparative Religion.

3003 Religion in. Canada: lecture and seminar 3 hours, C.T. Sinclai 3003 Religion in. Canada: lecture and seminar 3 hours, C.T. Sinclair
Faulkner. Prerequisite: 2001 or 2002 or permission of the instructor.

When Canadians have built cities, gone to war, founded economic mpires, fallen in love, designed school systems, and elected religion has beent the decisive factor. What is "religion" in Canada? In
the course of this extensive historical study of life in Canada fom the . . course of this extensive historical study of life in Canada from the
sixteenth century to the present, a variety of answers will be explored. detailed syllabus is available from the Department of Comparative Religion.
3010 Death and Afterlife in World Religions: lecture and seminar 3 hours, R. Ravindra. Prerequisite: At least one of 2001, 2002, 2003, 201 meaning can life have in the face of the inevitability of death? Doe Individual identity come to a complete end or does one continue Iudgement atter life? Is there reincarnation? These questions will. be discussed on the basis of material drawn from major religions in a omparative perspective
3011 Religion and Culture in India: lecture and seminar 3 hours, R. avindra. Prerequisite: 2011 or 2013 ; or permission of the instructor. An froduction to the rich variety of spiritual and religious expressions in the ast culture of India. Some of the major ideas, practices and gods of the hem in the develooment of Buddhism, and in their encounter with Islam and later with Christianity in India will be examined. The' second term is Noted to an intensive study of the Bhagavad Gita and its relevance to

3012 Comparative Study of Christianity and Other Religions: lectue and seminar 3 hours, A . Ravinara. Prerequisite: 2002 or 2011 , or . challenging, demanding integrity, empathy and self-critical awareness. is also a radical task, calling into question the very roots of other traditions as well as of one's own. The first half of the class asks undamental general questions. What materais in different traditions are or such a study? Also, the students are introduced to the major religions of the world. The second haff is devoted to a comparative study of the hagavad Gita and the Gospel According to st. John, particularly around themes of love, knowledge and action.

3013 Religious Myths, Symbols, and Rites: lecture and seminar 3 hours, R. Ravindra. Prerequisite: At least one of 2002, 2011, 2013; or permission of the instructor. Myns, symbols and ites have been among religions. Atter a general discussion of the nature of symbolic understanding, the focus is on the major myths and symbols associated with the lives and acivities of Kishna, Shiva, Gautama Buddha and he Buddha and the

3531 Mystical Consciousness and Modern Science: seminar 2 hours, R. Ravindra. Prerequisil: A class in Comparative Reigion or in Scien spiritual disciplines have gathered an enormous amount of experientia and theoretical material about human consciousness and its many evels, from the ordinary to the mystical and cosmic. The first term is dese 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 scienc hthe light of the universal experience and knowledge of the many evels of consciousness.

3502A/B The Rise of Modern Science:: lecture/tutorials 3 hours, J. arley (Biology) and R. Ravindra (Physics). The modern world has bee 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 origin of modern science in the 16 th and 17 th centuries, its growing popularity in the 18 ch century, and ine ine ot he scientific profession and scienc

3503A/B Nuclear Bombs: Survival and Moralilty: seminar 3 hours, Ravidra. his class, designed for sudens in the arts and the sciences.
involved in the destruction of Hiroshima and Nagasaki, and the
concerns about human survival raised by the proliferation of these
weapons. Prerequisites: Comparative Religion 3502A (or equivalent) permission of the instructor. Classes at the 4000 -level will normally only be arranged at the reques
of a student who is majoring in Comparative Religion, though. other 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 to integrate the work of many previous classes and lines of study while examining some chosen opic in the academic study of religion.
4310A/5310A-4320B/5320B Topics in Comparative Religion: guided study depending on the interests and needs of the students and he faculty. The intention is to devote some concentrated time to a speciric 10 in orinterest, such as Cuits and New Religions, The
Feminine in World Religions, Religious Aspects of Middle-East Politics, Tradition and Modernity, etc. Please consult the Department for the topic which may be discussed in any given term

## Computing Science

Director of Computing Science Division
M.A. Shepherd

Professors
A.G. Buckley. MSC (Alta.), PhD (UBC)
P.Keast, PhD (St. Andrews)
P.Keast, PhD (St. Andrews)
K.J.M. Moriarty. MSc (Dal).

Associate Professors
Associate Professors
B.W. Fawcett, MSc, PhD (McMaster)
C.S. Hartzman, MS (Purdue), PhD (Colorado)
M.A. Shepherd, MSc, PhD (Western)

Assistant Professors
R.D. Holmes, MSc (Princeton), PhD (Dal)
J. Mulder. PhD (UBC)
A.E. Sedgwick, MS (Wisconsin), PhD (Tor)

## Degree Programs

Students who plan to major in Computing Science should arrange a and Computing Science.

## 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. Inan 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 1010, Con
required:
2nd year. CS2270, CS2350, CS2450, CS2610, Math 2030 or Math 2130 3rd year: CS3690

Students wishing to major in Computing Science will normally take the nto a Computing Science program The main purpose of CS1200 1210 however, is to provide an introductory computing course suitable for science majors. This pair of courses leads naturally into CS2270 Uumencal Linear AIgeba), CS3210 (Numerical Analysis) and CS3350 (Introduction to Supercomputers). In addition, CS1200/1210 (as well as
ine pair CS1400/1410 satisfies the first year requirement for TUNS programs (see Other Information section)
Students who wish to arrange inter-disciplinary programs (with fields

## Such as Malnemaics, Physics, Psychology,

## Honours in Computing Science

The Honours program in Computing Science must include the following
1st year: Math 1000 , Math 1010, CS1400, CS1410
2nd and 3rd year. CS2450, CS2350,CS2610, CS2270, CS2660,
CS3690, Math 2070, Math 2080, Math 2130 or (Math 2030, Math 2040)

4th year CS8870, and four 4000 level CS courses.
For the purposes of Regulation 11.4 page 29 , for this degree, Math 2070, 2080 are counted as Computing Science courses, and
consequently may not be counted. toward a minor in Mathem other faculty and departmental requirements must be satisfied. See the Director of Computing Science for program information.

## Combined Honours

Students interested in taking honours in Computing Science and anothe subject as a combined program should consult the honours advisor through whom a suitable course of study can be arranged. 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 program may be insufficient for entry to a regular graduate program, and

## Cooperative Education Programs

The department offers two Co-op education programs involving Computing Science, a concentrated program in Computing Science and a combined program with Mathematics. Both these programs are
Honours programs. Students enrolled in the Computing Science Co-op are required to take all the courses Computing Science honours students are required to take.
Further information about the
Further information about the Co-op programs is included under the some Departmental regulations for Co-op students differ from those regulations affecting straightforward Honours students.
Any student who is interested in enrolling in a co-op
Any student who is interested in enrolling in a Co-op program is urged
to contact the Director of Co-op Education as early as possible in teir. academic career for course advice and other information.

## Prerequisites:

If a Computing Science course is listed as a prerequisite for a Computing Science course beyond the first year level, a grade of C or

## Other Information

The Department operates a VAX- 750 system, running Unix, for Computing Science studedents. The terminals are located in the Killam
Library. In addition, a VAX-785 system, running Unix, is available for Library In addition, a VAX-785 system, running Unix, is available for faculty and graduate students.
Computing Science may co first two years of a Dalhousie program in Computing Science may complete their programs 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 program may be obtained from TUNS or the Dep
Mathematics, Statistics and Computing Science.
Note that credit may not be obtained for the same class twice even it the nu
360 ).

## Classes Offered

Classes marked * are not necessarily offered every year. Please consull
1200A Introductory Computing Science: lecture 3 hours, tutorial hour. Prerequisite: Nova Scotia Math 441 or equivalent. Together with
previous knowledge of computing is assumed. The course will teach the elements of programming and algorithm development. The language whil be on numerical and scientific applications. Credit will be given for wily one of CS1200 and CS1400.
1210B Scientific Applications and Algorithms: lecture 3 hours, 1210 B Scientific Applications and Algorithms: lecture 3 hours,
tutorial 1 hour. Prerequisite: CSi 200 (or CS1400 and the permission of the instructor), and Math 1000 . 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 the development of algorithms for scientific problems. Elementary
numerical techniques will be taught and deterministic and random simulation will be discussed. Credit will pe given for only one of CS1210 and CS1410.
1400A Introduction to Computing Science: lecture 3 hours, tutorial hour. Prerequisitits: Nova Scotia Math 444 or er equivalent. This class
together with CS1410 provides a general introduction to algorithmic logether with Csture provides a general introduction to algorithmic
concepts, structured programming, and Computing Science. Students develop programming skills in a higher-level language such as Pasc
with emphasis on structured. programming. The exercises involve with emphasis on structured. programming. The exercises involve sequential file processing.
1410B Applications and Algorithms: lecture 3 hours, tutorial 1 hour. Prerequisites: CS1 100 (or CS1200 and permission of the instructor) and
Math 1000. This is a continuation of CS1400. The applications tend to be more mathematical and include numerical calculations with truncation and rounding errors, statistics, modeling and simulations, data processing, non-numerical applications involving networks and graphs,
interpreters and translators. Students are introduced to elementary data structures and algorithm analysis.
2270B Introduction to Numerical Linear Aigebra: lecture 3 hours (same as Mathematics 2270B). Prerequisistes: Math 1010,2030 and
CS1410. We begin by examining the floating point number system and its arithmetic. Next, we investigate the numerical solution of systems of linear equations, examining Gaussian Elimination and some iterative
methods. The idea of condition numbers, both of a problem and an methods. The idea of condition numbers, bol or a problem and an algorithm, is introduced, together with some techniques of estimating the condition number of a matrix. The Singular Value Decomposition of a matrix and generalized inverses are also examined. The Modified Gram Schmidt process, the solution of undetermined linear systems, and overdetermined inear systems using a least squares approach, are
discussed. Reference is also made to various software libraries available, including LINPACK. Time permitting, interpolation is also discussed.
2350 B Introduction to File Processing: lecture 3 hours. Prerequisite CS2610. This class begins with a review of sequential file algorithms. However, the primary subject is direct-access file systems and the various access methods. Some of the theoretical topics covered include
hashing and tree data structures appropriate for file directories. Internal hashing and tree data structures appropriate for file directories. Int
and external sorting methods are covered in considerable detail.

2450A Introduction to Computer Systems: lecture 3 hours Prerequisite: CS1410. An introduction to machine architecture from the familiarity with an assembly language and the translation process needed to produce machine code. Common addressing modes, macros and file $\mathrm{I} / \mathrm{O}$ are discussed, together with the internal structure of memory control units and processing units.

2610A (formerly 360) Data Structures and Algorithmic Analysis: ecture 3 hours. Prerequisite: CSI 14 . Data types and the operations on them are covered in this class, including stacks, queues, trees and various inked structures. The efficient represeniation of graphs and the
corresponding algorithms are discussed. Considerable emphasis is placed on the analysis of algorithms.
2660B Discrete. Structures: lecture 3 hours. Prerequisite: CS2610. A variety of topics from algebra, graph theory, logic, computability theory and finite state machines having applicability to computing Science.
This course is intended for honours students in Computing Science This course is intended for honours students in Computing Science
$3040 \mathrm{~A} / \mathrm{B}$. Introduction to Computer Organizations: lecture 3 hours
computer architecture. Basic logic elements such as gates and tlip--liops are discussed and the design of combinational networks, registers and communication between components, instruction fetch and sequencing, interrupts and 1/O controllers are also discussed.
3090A/B Computers and Society: lecture 3 hours. Prerequisite: Topics include the history of computing and technology, the place of the computer in modern society, legal issues such as the copywwiting of software, the computer scientist as a professional, the impact of dalabanks on individual pivacy and and computer scientists.

3210 A (formerly part of 320 ) Introduction to Numerical Analysis ecture 3 hours (same as Mathematics 3210A). Prerequisites:
Mathematics 2000 and CS2270. See class description for Mathematics

3220B Numerical Solutions of Ordinary Differential Equations: ecture 3 hours (same as Mathematics 3220B). Prerequisites: CS321 and Mathematics 3110,3090 . See class description for Mathematics

3250A Data Base Management Systems Design: lecture 3 hour rerequisites: CS2610, CS2350. 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 as well as the concepts of elational algebras and relational calculus.
$3350 \mathrm{~A} / \mathrm{B}$ Introduction to Supercomputing: lecture 3 hours. Prerequisites: CS 2270 and CS2450. An introduction to the computer CDC CYBER 205, ETA-10, FIJTTSU VP200 and NEX 2X-2. The sotware for the efficient implementation of vectorization and parallel processing will be discussed
3390A/B Statistical Computing: (same as Statistics 3390) lecture 3 hours. Prerequisites: Statistics 2080 , Mathe
1410). For description see Statistics 3390

3690 A (formerly 270) Programming Languages: lecture 3 hours. Prerequisite: CS2610. 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 are given in several languages such as C,Lisp and Prolog. Recursion
and functional programming are extensively discussed as well as an introduction to program correctness.

3700 B Operating Systems I: lecture 3 hours. Prerequisite: CS2610, 3040. This class covers ine principles of modern operating system concurrent processes interprocess communication synchronization scheduling policies, multi-level storage management, and associated algorithms.
3750B Artificial Intelligence: lecture 3 hours. Prerequisite: CS3690. An introduction to basic concepts and techniques of artificial intelligence or 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 a emphasized and existing syste
fairly large project using Lisp.
3810 (formerly Physics 421) Microcomputers in the Real World ecture 3 hours (same as Physics 3810B). Prerequisites: CS2450, Physics 2200A/2210B or $2110 / 2120$. See class description for Physics
$3810 B$.
*4100A/B Operating Systems II: lecture 3 hours. Prerequisites: material of Operating Systems I. Topics include concurrent processes, address space management, resource allocation, multiprogramming systems, protecting access to objects, pipelining, user interfaces and

4130A/B Analysis of Algorithms: lecture 3 hours, (same as Math
4130 A/B) Prerequisite:Cs3690. 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 fo unordered and ordered sets, graphs, fast muitipilication, prime testing, 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
-4140A/B Software Design and Development: lecture 3 hours. the-art techniques in sottware 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, program libraries milestones and estimating, chief-programmer teams, program libraries
and documentation are included.
*4150A/B Theory of Programming Languages: lecture 3 hours Prerequisite: CS3690. This is a class in the formal treatment of 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 as $L L(k)$, procededence, $L R(k)$, $S L R(k)$ are included
*4200A/B Selected Topics in Artificial Intelligence: lecture 3 hours.
CS4250A Information Retrieval: lecture 3 hours. Prerequisite: CS23 An introduction to online information retrieval systems for textual databases. The major models of information retrieval will be covered well as suc
*4270A/B Numerical Software: lecture 3 hours. Prerequisite: CS3210 The design and implementation of reliable programs and libraries for as EISPAC, LINPAC and IMSL are reviewed. Particular attention is paid ot the choice of subroutine parameters and the tradeoffs between

4350A/B Topics in Computer Science: lecture 3 hours. Prerequisites Three 3000 level CS courses. See the Department for the current topic.

4400A/B Programming Methodology: lecture 3 . hours. Prerequisite: B average in 3000 -level Computing Science courses. Techniques tor
verification of computer programs. Formal specification of software.
$4450 \mathrm{~A} / \mathrm{B}$ Introduction to Data Communications: lecture 3 hours. Prerequisites: CS370. The elements of data communications and the so model as a reference and includes an introduction to basic data ransmission techniques, computer network topologies and architectures, and a look at some specific implementations and

4500A/B Computational Linguistics: lecture 3 hours. Prerequisite: CS3750. An introduction to the computer modelling of natural languag understanding. Recent developments in Aritical Intelligence will b
eviewed.
*4660A/B Automata and Computability: lecture 3 hours (same as Mathematics $4660 \mathrm{~A} / \mathrm{B})$. Prerequisites: CS 2660 . This class
finite state, pushdown and linear bounded automata thei
inite state, pushdown and linear bounded automata; their Turing machines. Appropriate closure properties and non-determinism are discussed as well as computable and noncomputable functions and
*4700A/B Advanced Topics in Data Base Design: lecture 3 hours.
4800A/B Computer Systems Modelling: lecture 3 hours. Prerequisites: CS2700 and Stats 2070/2080. This course develops queuing network models suitable for modeling computer systems.
ngle and mutiple classes of users are considered. Modeling onsidered. Finally, some of the modeelling techniques are applied to ther situations such as database performance. The models are devely
theory

8700 (non credit) Co-op Seminar
8701 (non-credit) Co-op Seminar I
8870 C Honours Seminar
8891 Co-op Work Term I
8892 Co-op Work Term II
3893 Co-op Work Term III
8894 Co-op Work Term IV

## Economics

Chairperson of Department

Professor Emeritus
Professors
R.L. Comeau, BA, MA (St FX), PhD (Brown), Coordinator of Graduate studies
J.L. Cornwall, BA (lowa), MSc (Lond.), PhD (Harv.)
R.E. George, BSc (Lond.), MA (Brist), PhD (Lond.) William A. Black

Profoessor of Commerce
J.F. Graham, BA (UBC), MA, PhD (Col.), FRSC, Fred C. Manning
J.F. Graham, BA Pobcessor of Economics
E. Klein, LLM (Buenos Aires), MSc (Dal), Dr.Rer.Pol. (Hamburg)
C.T. Mariels, Dr.Rer.Pol. (Berrin)
L. Osberg, BA Hons (Queeer's), MPhil, PhD (Yale)
A.M. Sinclair, BA (Dall), MA, B. Phil. (Oxon).) PhD (Harv)

## Associate Professors

F.M. Bradfield, BComm (MCM), PhD (Brown)
M.G. Brown, BA (W.Ont), MA (Queen's), AM, PhD (Chi
M.L. Cross, AA (Dawson College), BA (Montana), MA (SFU), PhD
S. DasGupta, BA (Calcutta), MA (Delhi), MA, PhD (Rochester)
P.B. Huber, BA, MA, PhD (Yale)
G. Kartsakis, CE (Athens). Dr.Rer
G. Kartsakiis, CE (Athens). Dr.Rer.Pol. (Boonn
B. Lesser, BComm (Dal), MA, PhD (Corn.)
U.L.G. Rao, MA, MSC (Andhra), PhD (W.Ont.)

## Assistant Professor

D. Gordon, BA Hons (Lethbridge), MA (Saskatchewan), PhD (UBC)
R.M. Jamieson, BA (UBC), MA, PhD (Tor.)
R.L Mazany, BSFS (Georgetown) PhD (UBC)
S.A. Phipps, BA Hons (Victoria), MA (UBC)

Special Lecturer
Economics is a social science - a science because it involves gorous intelectual eftor to derive egical conclusions from basic fact heir 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 economics in its relevance to our needs, problems and goals. Economic man is rational man consuming, organizing and producing within a amework of laws and customs in an effort to use the limited resources of our world efficiently for the greatest satisfaction II is int an easy areas of study you could choose in the university when you pursue it beyond its elementary levels, but some basic knowledge of economics
the subject is an invaluable complement to other fields of specialization such as law, commerce, politics and other studies in social sciences
interesting career opporiunities.

## Degree Programs

students choosing to major in economics at the undergraduate level may do so in the three-year BA Program, or they may seek a higher combined programs 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, mathemaics- ans possibly others.
Final program approval for all maiors' students must be obtained from the appropriate coordinator.

General Principles: The following program arrangements are provided
to the students as guidelines to facilitate the selection of classes ot the students as guidelines to facilitate the selection of classes construed as straitiackets nor as a reason for not seeking individual guidance from faculty members. In suggesting such program frameworks, two principles have particular weight: (a) students taking economics as a major, or in an honours program, should strike a
balance between breadth of coverage among disciplines and depth 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.

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. However, a student whe
desires to take a major in economics with more than the minimal requirements should undertake a program of study along the following lines:
Year 1: Principles of Economics: Mathematics $1000 / 1010$, or equivalen (usually Mathematics 1100); and three classes in fields other than conomics.
Year 2 and 3 : A minimum of 5 and a maximum of 8 classes in Economics; Classes in Political Science, History, Mathematics and othe three-year period to 15
No more than one credit will be given for Economics 1100,1105 B and 1120 . For persons considering an honours degree, or any advance work in economics, intermediate micro and macroeconomic theory classes and intermediate statistics (Economics 2228 or equivalent) are $2200 \mathrm{~A} / \mathrm{B}$ and $2220 \mathrm{~A} / \mathrm{B}$, or for Economics $2201 \mathrm{~A} / \mathrm{B}$ and $2221 \mathrm{~A} / \mathrm{B}$

## Specific Program

 ollowing program suggestions:
Canadian Development Studies, Economic Analysis and Policy, Economics and the Citizen, Economics and Government, Economic Development in Historical Perspective, International Development
Studies, Labour and Society. Mathematical Economics and Econometric Methods, Regional and Urban Economics, or Resources and Environment.
The details of these programs are in a brochure obtainable from the Students with interests not covered in the above-listed programs are encouraged to set up their own programs with the advice and approval of the Department. The Department is prepared to assist students who wish to devise their own programs under the present curriculum
regulations. Interested students should consult the Undergraduate Coordinator.
BA Honours Degree Program (Four Years)
The necessary core classes for an Honours Degree in Economics are:
Economics $1100 ; 2220$ (A or B): 2221 (A or B): $4420 \mathrm{~A}: 4421 \mathrm{~B}: 2228$ Economics $1100 ; 2220$ (A or B); 2221 (A or B); $4420 \mathrm{~A} ; 42421 \mathrm{i} ; 2228$;
Mathematics $1000 \mathrm{~A} / \mathrm{B}$ and $2030 \mathrm{~A} / \mathrm{B}$ or equivalent; a class in Econom History, a class in the History of Economic Thought. A minimum of nine classes in Economics beyond the elementary level is required. and must have the approval of the Department. The 21 st mark required
for the honours program is based on an honours essay, graded on a pass fand fouth $y$ sidents must include at least two classes ahove he elementary level.
Since mathematics is required for graduate work in most good graduate schools, the value of econometrics and of additional may permit conomics and may permit minor variation's in the required classe students must arrange their courses to ensure that they satisfy the overall requirements for the General BA degree.
Combined Honours
ombined honours programs may be arranged with other department Combined programs with Biology, Geology, History, Mathematics,
Political Science or Sociology are available; others can be arrange consultation. For combined honours programs with economics where he major concentration is in the other discipline, students should

## Classes Offered

Classes marked * are not offered every year. Please consult the curren 100 Principles of Economics: lecture 3 hours, tutorial 1 hou 100 Principles of Economics: lecture 3 hours, tutorial 1 hour
optional), various members of staff. For those lacking a background economics, taken as the first in a series of classes in economics or as a background elective. Emphasis is on developing the basic analytical Canadian appling heco moters Section 5 of Economics 1100 ofters 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 $1100,1105 \mathrm{~B}$, and 1120
$101 \mathrm{~A} / \mathrm{B}^{*}$ Principles of Microeconomics: lecture 3 hours, tutorial hour (optional), various members of staff. Available only to students who have one half credit of introductory macroeconomics which is being ansferred from another university, this class completes the principles of conomics complement Consut Departmen.

102A/B* Principles of Macroeconomics: lecture 3 hours, tutorial 1 hour (optional), various members of staff. Available only to students who ransferred from another university this class completes the principles economics complement. Consult Department.
1105B* Principles of Economics: lecture 6 hours, tutorial 2 hour rolling for the first time in tanuary or who are dy to students who ar majors, in that order of priority. For description see Economics 1100 Consult Department. No more than one credit will be given for 110

1106A/B Introductory Statistics for Non-Mathematicians: (crosslisted with Mathematics $1060 \mathrm{~A} / \mathrm{B}$ ), lecture 3 hours. Prerequisite: Nova Scotia Mathematics or equivalent For description see Mathematics 060A/B.

1107A/B Statistical Techniques of Scientific Experimentation: (cross-listed with Mathematics 1070A/B), lecture 3 hours. Prerequ

120** Principle of Economics A Historical Approch leture hours, tutorial 1 hour, B. Lesser. Note. Economics 1120 is not open to Commerce students needing to satisfy their Economics 1100 requirements. Episudes from Canadd's past, such as the economic economy, the building of the CPR, the beginnings of U.S. investment in Canada, and the Great Depression, are examined as a means of developing the basic analytical principles of economics. No more tha
$2200 \mathrm{~A} / \mathrm{B}$ Intermediate Microeconomics: lecture 3 hours, various members of staff. Prerequisite: Economics 1100 or equivalent. An
introduction to microeconomic theory and its applications which satisfies the minimum microeconomic theory requirements for maiors 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 prerequisita for higher-l-evel classeses in economics. Note:
Students may not receive credit for both $2200 \mathrm{~A} / \mathrm{B}$ and $2220 \mathrm{~A} / \mathrm{B}$. 2201ABB Intermediate Macroeconomics: lecture 3 hours, various members of staff. Prerequisite: Economics 1100 or equivalent. Inflation,
unemployment, exchange rate and related macro problems, with nemployment, exchange rate and relaled macro problems, with emphasis ococomacian policy experience in these areas. An infro
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 nol higher-level classes in in sonomics. Note- Students may not receive higher-level classes in economics. Note:
credit for both $2201 \mathrm{~A} / \mathrm{B}$ and $2221 \mathrm{~A} / \mathrm{B}$.
2220AB Microeconomic Theory: lecture 3 hours, (offered both lerms). Prerequisite: Principles of Economics. Microeconomics deals
with the economic behaviour of households as purchasers of output and suppliers of input services, and of firms as producers of outputs and purchasers of inputs, as well as with the behaviour of groups of households and irms. In addation to standard topics, an introductory ireatment of general equilibrium, external economies, and welfare applications of these ideas are also considered. Of particular interest to
those planning to maior or to do honours in economics. Note: Students hose planning to major or to do honours in economics. Note: Student

2221A/B Macroeconomic Theory: lecture 3 hours, (offered in both terms). Prerequisite: Principles of Economics. The various models that
economists use to analyze an economy at the macroeconomic level are economists use to analyze an economy at the macroeco
developed, showing how they relate to the formulation of macroeconomic policy: Of particular interest to those planning to maior or to do honours in economics. Note: Students may not receive credit or both 2201A/B and 2221A/B

2222A Economic Statistics I (cross-listed with Commerce
2501 A/B): lecture 3 hours, workshop 2 hours, various members of staff
For description see Commerce $2501 \mathrm{~A} / \mathrm{B}$.
2223 B Economic Statistics II (cross-listed with Commerce $2502 \mathrm{~A} / \mathrm{B}$ ): lecture 3 hours, workshop 2 hours, various members of staff. .

2228 Intermediate Statistics: lecture 3 hours, U.L.G. Rao. The student is expected to have at least a one-year course in calculus (Mathemail
100 or 1000) and preferably linear algebra too. Including the basic heory of mathematical statistics and an introduction to econometrics, his class concentrates on the theory of probability, discrete and enineraous probability models, mathematical expection, mome is also discussed. A critique of various problems that arise consequent violations of the assumptions of the general linear model is present as a preparation for applied econometric work and advanced work in conometrics.

2231A Health Economics: lecture and seminar 3 hours, M.G. Brown. $2220 A / B$ is desirable. An examination of the allocation of resources to and within the health care sector of an economy. Characteristics claimed to be unique to the health care sector are anallysed within an economic riamework. Determinants of demand, supply and us organization and evolution of Canada's health care system. This onelerm survey class consists of a literature review, lectures, and student eminar presentations on selected topics. To accommodate part-time week.

2232 Canadian Economic History: lecture 3 hours, B. Lesser. As prerequisite, a class in economics principles and some knowledge of discovery to now, presented in relation to the larger system of the proceeds, the focus shifts more and more towards Canada and more ormal theory is introduced in discussing Canadian problems and policies, especially in the twentieth century
. onczacki and P.B. Huber. Prerequisite: Introductory Economics or 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 arricular relevance for those interested in the economic history of stem. Emphasis is on the economic, social and technieal changes of hese industrial "revolutions" to disclose common elements in the experience of industrialization

239B*The European Economy in Historical Perspective: After the ndustrial Revolution: lecture 2 hours, P.B. Huber and Z.A. Konczacki. Prerequisite: Introductory Economics or permission of the Instructor. A elf-contained class (may be taken separately from Economics 2238A) xamining the contrasting development patterns of various industriaize bout 1960 . Focus is on the development of hypotheses regarding the auses and effects of differences in the experience of growth of matur conomies.

241A* Comparative Economic Systems: National Economies: 2241A. Comparative Economic Systems: National Economies:
seminar 2 hours, P.B. Huber. Prerequisite: Introductory Economics.
detailed background of institutional material on the structure and detailed background of institutional material on the structure and
performance of several economies is featured. Reading on specific performance of several economies is featured. Reading on specific
countries provides the basis for several short papers. There is no writte countries provides the basis for several short papers. There is no written
xamination. A student taking this class must understand the interrelated character of economic activity and grasp the nature of the price system.
22428* Comparative Economic Systems: Economic Organization and Planning: seminar 2 hours, P.P.B. Huser, Prerequisite: Introductory
Economics, plus an addititonal hall-class in Economics. The economic enaviour of organizations and the ways in which this can be controlled rovide the basis for consideration of the theory and practice of economic planning at micro-economic and macro-economic levels in various institutional contexts.
250 Applied Development Economics: seminar 2 hours and tutorial .1. McAllister. Prerequisite: Introductory C conomics. Analysis of eveloping countries and regions. There are three main elements policy and theory for economic development, focussing on foreign aid nd regional aid; (2) development plans, budgets, and programs essons from experiences of agencies such as CIDA, CUSO, and the Word first-hand field work. Experienced advisors from government and the ivate sector join the instructor during project visits
315 A Labour Economics: lecture 3 hours, L. Osberg or S.A. Phipps. Prerequisites: Economics 1100 ; Economiscs 22200 and 2201 or
equivalent) : are recommended. The theory of labour markets is equivalent) are recommended. The theory of labour markets is mphasized, in particular the aftermath of alternative viewpoints which eek to explain relative wages, unemployment and the allocation of
$316 \mathrm{~B}^{*}$ Collective Bargaining and Labour Market Policy: lecture and seminar 3 hours, L. Osberg. Prerequisite: Economics 3315 A . Topics
covered are the theory and institutions of collective bargaining and current issues in labour market policy, e.g. discrimination, manpowe planning, wage/price controlsst impact of unemployment insurance or

317B* Poverty and Inequality: lecture and seminar 3 hours, L. Osberg. Prerequisites: Economics 1100 : Economics 3315 A is highly ecommended. The extent of poverty and the distribution of income and wealth in contemporary societies are discussed. Most data are drawn purposes. The theories underlying alternative measures and anal
3324 Public Finance: lectures and seminar 3 hours, J.F. Graham. Prerequisites: Introductory Economics, Economics $2200 \mathrm{~A} / \mathrm{B}$ or .组 pubic finance and public policy, i.e. the economics of the pubic sector
the two major sections are (1) the theory of public goods and public expenditures and (2) the theory of public revenue, principally taxation. ther important areas are public borrowing, fiscal (stabilization) polic
nd intergovernmental fiscal relations. Both
normative and postive
theory are considered. Particular attention is paid to the Canadian
heory are considered. Particular attention is paid to the Canadian
ederal system, with its three levels of government: federal, provincial tederal System,
and municipal.
3326A Money and Banking: lecture 3 hours, R.L. Comeau, $2221 \mathrm{~A} / \mathrm{B}$ is desirable (complemented by Economics 4426B.) Deals with the nature and operation of the financial system, with particular reference to Canadian experience. It is concerned with financial
instruments and institutions and the process of the social contro of th struments and insititutions

3327* History of Ecơnomic Thought: lecture 3 hours, M.L. Cross. Prerequisite: Economics 1100. Classes in micro- and macroeconomics are advised. The approach taken is to study the intellectual efforts that
men have made in order to understand economic phenomena.' The presentation is largely non-mathematical; the main requirement is an ability to read and assimilate a certain body of hiterature rather quickly.
3328 Industrial Organization: lecture 2 hours, C. Marfels. Prerequisite: Economics $2200 \mathrm{~A} / \mathrm{B}$ or $2220 \mathrm{~A} / \mathrm{B}$ which may be taken concurrently.
Students may also be admitted by permission of the instructor. The Students may also be admitted by permission of the instructor. The
application of the models of price theory to economic reality. In any industry, the problems of a firm competing with its tivals in order to
survive and acauire a higher market share are far more complex tha 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.
$3330 \mathrm{~A} / \mathrm{B}^{*}$ International Trade: lecture 3 hours, R.L. Mazany or A.M
Sinclair. Prerequisites: Introductory Economics and $2200 \mathrm{~A} / \mathrm{B}$ or Sinclair. Prerequisites: Introductory Economics and $2200 \mathrm{~A} / \mathrm{B}$ or
2220 A
B . The causes of internationa lexchange of goods and services are considered and the effects of international integration on the
incomes and growth rates of national economies are analyzed. 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. 3332B* Resource Economics: lecture 3 hours, M. Cross. Prerequisite.
Introductory Economics. Economics $2200 \mathrm{~A} / \mathrm{B}$ or $2220 \mathrm{~A} / \mathrm{B}$ is also Introductory Economics. Economics $2200 \mathrm{~A} / \mathrm{B}$ or $22220 \mathrm{~A} / \mathrm{B}$ is also desirable. This class focusses on economic theory pertaining to fisheries
and the economic history of the Canadian Atlantic and Newfoundland anisheries since 1870. Reference is made to other resource sectorsagriculture, forestry, mining and energy-and students may undertake. study of them.
$3333 \mathrm{~A} / \mathrm{B}^{*}$ Theories of Economic Development: lecture 2 hours, Z.A. Konnczacki. Prerequisite: Introductory Economics. A class in macro-
economics equivalent to Economics $2201 \mathrm{~A} / \mathrm{B}$ or $2221 \mathrm{~A} / \mathrm{B}$ and Economics 3327 are desirable. 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 the seminars are devoted to the problem of the foundations of the theory of
economic development, and the distinction between the concepts of unilinear and multiinear evolution is discussed.
$3334 \mathrm{~A} / \mathrm{B}^{*}$ Economic Development: Recent Debates, Controversies and Conflicts: lecture 2 hours, Z.A. Konczacki. Prerequisite: Economics
1100 . Economics 2201 or 2221 and Economics $3333 \mathrm{~A} / \mathrm{B}$ are desirable. Whereas Economics 3333 A 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 confilicts, with far reaching developmental
consequences, are provided. Attention is paid to the much debated consequences, are provided. Attention is paid entorent.
33368 Regional Development: seminar 2 hours and tutorials, R.I. McAlister. Prerequisite: Introductory Economics. At least one class in both Political Science and Canadian History are desirable. Most
countries have richer and poorer regions. The energy crisis has raised additional complications. Economic development issues, policies, and
theories facing more industriaized nations are analyzed with particular theories tacing more industriaized nations are analyzed with pa
tocus on Canada (especially the Attantic region), the European Economic Community, U.S.A. Japan, and Austraila
3338 A Introductory Econometrics I: lecture 3 hours, R.L. Mazany or $L$
sberg. Prerequisites: Mathematics 1000 (or equivalent) and one of he theory of some quantitative methods commonly used by economists is introduced in the context of the classical linear mode
Estimation problems caused by violations of the assumptions of the assical model are discussed including heteroskedasticity, autocorrelation and simultaneous equations bias.
3339 B $^{*}$ Introductory Econometrics II: lecture 3 hours, R.L. Mazany or 33398* Introductory Econometrics II: lecture 3 hours, R.L. Maz
Osberg. Prerequisite: Economics 3338 A . Practical problems
associated with economic data and with model specification and associated with economico data and with model specification and estimation are discussed. The techniques introduced in Introductory dditional methods of estimation and forecasting are introduced
$350 \mathrm{~A} / \mathrm{B}^{*}$ Social Cost Benefit Analysis: seminar 3 hours, T.A. Pinfold. rerequisite: Introductory Economics. Intermediate Microeconomics and ost 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 ublic sector agenciess, the latter is employed by private sector firm olving problems which illustrate basic concepts and a paper reporting on an actual application of the methods taught are important requisites
355R Marxian Economics: lecture 3 hours, G.A.B. Kartsaklis. Historically, the economics of Karl Marx defined a.very important period
in the development of economic theory; more recently, several attempts ave been made to integrate Marxian economics or parts of it into the an introduction to Marxian economics. Special attention will be paid to the labour theory of value and its dual character, the theory of exploitation and Marx's fundamental theorem underlying the way in
which the industrial capitalism is working, the theory of reproduction an which the industrial capitalism is working, the theory of reproduction and ssue of class struggle in a growing economy. Prerequisites: Both halflasses in intermediate micro or macro theory are required; a class in the history of economic thought is recommended. Students may also be

3432* Regional Economics: seminar 3 hours, F.M. Bradfield. rerequisite: Economics $2200 \mathrm{~A} / \mathrm{B}$ or $2222 \mathrm{~A} / \mathrm{B}$. A variety of growth heories assessment from the various theoretical points of view Policy discussion and the presentation of seminar papers are involved. A ramework for understanding the reasons for the development of egional problems is provided Focus is onderdeveloped region developed nations
$8000^{\circ}$ Seminar on Economic Policy: Public Policy in the $80^{\prime}$ 's: 2 hours. The discussion centres on the problems of formulating and carrying out économic policy in Canada. Recent budget addresses;
industrial policy and tax and expenditure policies are reviewed. Other opics 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 expo
interdisciplinary.

4400A Linear Models $1:$ lecture 3 hours, S. Dasgupta. Prerequisites lgebra Exposition of aspectis of economic theory from the standpoint of linear economic models. A brief systematic exposition of linear programming, ollowed by applications such as in: Theory of the Firm, Leontief Inter Equilibrium Theory, Game Theory.

4408R Competition Policy/Antitrust Economics: lecture 2 hours, C Marels. Prerequiste. A course industial organizan (EC. J328R instructor. In this course 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 he 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 under the third, the state not only owns but manages and operates the
productive facilities. Specific attention will be paid to the means of mplementing the compeetitive approach the antitrust laws.
44098* Linear Models II: lecture 3 hours, S. Dasgupta. Prerequisites permission of instructor possible. Introduction to dynamic models of economic growth and planning over time. Efficient programs of capital accumulation, growth with terminal objectives and balanced growth optimal savings over time, theories of interest and capital, money, exhaustible resources and population are discussed

4420A Microeconomic Theory: lecture 3 hours, E. Klein. Prerequisite conomics 2220 or 2200 . Mathematics 1000 and 1010 are desirable. basic but rigorous introduction to modern microeconomic heory. Deals and discusses the working of an economy as a system of lerdependent decision-makers. Emphasis is on the comparison of solution concepts for competitive economies ending with an introduction to stability theory

4421A. Macroeconomic Theory: lecture 3 hours, J. Cornwal rerequisite: Economics $2201 \mathrm{~A} / \mathrm{B}$ or $2221 \mathrm{~A} / \mathrm{B}$ and Mathematics 1100 (or equivalent, For tossibly 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; eynesian models of income and employmen, he ineory of economic hours, J. Cornwall Prerequisite: Economics 2201 or 2221. A A. lecture 3 onsideration of different theories of inflation that have been developed olicy solutions are appraised. Forms of incomes policy are taken up in some detail. 44268" Monetary Policy: lecture 3 hours, R.L. Comeau. Prerequisite: have completed Economics 3326A as well. Assuming a basic knowledge of monetary institutions and macro-economics, a critica nalysis of the objectives and effectiveness of monetary policy is eveloped. Paricular atention is give -
4431A/B* International Payments: lecture 3 hours, R.L. Mazany or A.M. Sinclair. Prerequisite: Economics 2 201A/B or 22LALA/B. Selected 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 iternational development inance and problems of instability and growth

4433B* Intergovernmental Fiscal Relations: seminar 2 hours, J. Graham. Prerequisite: Principles of Economics. Economics 2200A/B erovernmental fiscal adiustment and their aplication political system, particularly Canada, at both federal-provincial and ovin

446 B Classical Liberalism, and Democracy: (seminar in Philosophy Politics, and Econ
Philosophy 4470 .
4447B The Theory of Games as an Approach to the Foundations of hics and Politics: (seminar in Philosophy, Politics and Economics) 2 hours,
4485 B.
448A Social Choice Theory: (seminar in Philosophy, Politics, and conomics) 2 hours, D. Braybrooke. For description see Political (e)

4449 B The Logic of Questions, Policy Analysis, and Issue Processing: (seminar in Philosophy, Poilitics, and ECO.

Graduate Studies
The Department offers a graduate program leading to the MA and PhD degrees. Details of these programs, incluaing a ist of graduate courses, undergraduates may be admitted to some graduate classes at the

English
hairperson of Departmen
Alan Kennedy
Professors Emeritus
M.M. Ross, OC, BA (UNB), MA (Tor).). PhD (Corn.), D Litt (UNB), LLD St. Thion.), LLD (Dal.), D Litt (Trent), (Edin.), FRSC
S.E. Sprott, MA, BD (Melb.). PhD (Col).

Professors
Fraser, MA (Oxon.), PhD (Minn.) George Munro Professor of English
Gray, MA (Aberd.), MA (Oxon.), PhD (Montreal), FRSC, FRSA
McCulloch Professsor
R.M. Huebert, BA (Sask). MA, PhD (Pitt.)
R.M. Huebert, BA (Sask.), MA, PhD (Pitt)
A.E. Kennedy, BA, MA (UBC), PhD (Edinburgh)
M. G. Parks, MA (Dal), PhD (Tor.)
.J. Smith, BA (Natal), MA (Oxon.), PhD (Natal) ${ }^{\text {P. }}$. Varma. MA (Patna). PhD (Leeds)
Associate Professors
R. Baxter, BA, BEd, MA, PhD (Alta.)
S.A. Cowan, BA (Montana), MA (Yale)
MacG. Dawson, MA (Tor). M Lit (O
R. MacG. Dawson, MA (Tor.), M Litt (Oxon.)
i.A. Klug, BA (Minn.), MA (Kan. State), PhD (III.)

Monk, BA (Reading), MA (Carleten), PhD (Queen's
R. Tetreault, BA (UBC), MA, PhD (Corn)
J.A. Wainwright, BA (Tor), MA, PhD (Dal)

Assistant Professors M. MPhil, PhD (Yale)
M.M. Furrow, BA (Dal), MA, MPhil, PhD (Yale)
B. Greenfield, BA (York), MA (MCG), PhD (Columbia)
A. Higgins, BA (Conn.), MA (McGill), MA (Mass.), MA, PhD (Yale)
H.E. Morgan, BA (UBC), MA (Wash.), B Litt (Oxon.), PhD (Wash. H.E. Morgan, BA (UBC), MA (Wash.), B Litt ( ( xon.), PhD
D. MCNeil, BA (Concordia), MA (UNBB), PD (MCMaster)
M.I Stone. BA (Guelph), MA, MPhil (Wat), PhD (Tor.)
djunct Professors
N.F. Budgey, MA (Glas.), DPhil (Marburg), D.Litt. (Geneva Coll.)
R.L. Raymond, BS (Yale), MA (Tor.)

Senior Instructor Choyce, BA (Rutgers), MA (Montclair), MA (CUNY)
The study of English literature at Dalhousie is not just the study of the herature of England. Although largely concerned with the rich witien Canada, the United States, parts of the English-speaking It ranges widdely in time from early Anglo-S countries, in translation. It ranges widely in time from early Anglo-Saxon works of the eighth he still-changing thoughts, feelings and expressions of our own time. The many forms that the written word may take - poetry, fiction, drama, ssay, history - are read, not only for an understanding of the literary volution that brings them to be what they are, but also for an 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
eading is a source of pieasure, knowledge and wisdom, to sharpen the deas, to gain some understanding of the process by which great writing is achieved and indeed to inspire students to their won best expression In the first year. English 100 is required of all students who wish
take further English classes. There are some thity different sections anging 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 English 100 supplement which includes the aims and reading lists of each secion
Classes numbered from 200 to 244 are especially suited for those concentrating in English, studying it as a complement to their main area, or taking an elective, and classes beyond 250 are designed as studies of specialized areas for Honours students. Honours classes are open General students wiln pet describing Upper-year General and Honours concerned. A supplemen in detai is available from the English Department.

## Degree Program

BA Program
Students in the $B A$ program must take from four to eight classes in Students in the BA program must lake from four 10 eight classes in Eonsult with faculty advisors and to form coherent programs of study; it strongly recommends that these programs contain at least six classes in
English beyond 100 . English beyond 100
English majors must take at least one class from each of the following groups, uniess they have departme
class to meet a group requirement.
GROUP I: English 207, 209, 210, 211, 212, 213, 221, 231, 232, 233, 234.

GROUP II: English 205, 206, 208, 215, 218, 219, 224, 229. GROUP III: English 200, 201, 202, 203, 204, 214, 216, 220, 225, 226, 227, 228, 244
The purpose of the requirements stated above is to ensure some variety in each student's program. The Department recommends that the concentrates on fiction, and at least one class from each of two differen historical periods. There is, of course, more to a sound program than
variety. From the Department's offerings, students may approach the study of English literature in a number of different ways. They may choose programs 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 programs to meet their individual needs and interests, and should consult with their departmental advisor if they need help in doing so.
The following program of study is recommended for English majo
intending to become teachers of English at the high-school level:
200 Advanced Composition, or 201 The English Language, or 202 History of the English Language
207 Canadian Literature
214 Shakespeare
228 The Short Poem in English, or 215 Romantic Poetry, or 210 Modern Poetry in English, or 224 Renaissance Poetry, or 229 Victorian Poetry.
220 English Drama, or 226 Tragedy, or 227 Comedy and Satire, or 232 Modern Drama.
208 English Novel to 1900, or 209 Modern Fiction, or 212 British Literature of the 20th Century, or, 213 American Literature of the 20 th
Century

At least one class chosen from the last three groups should involve a The student may also choose a maximum of two more classes in
English.
Classes numbered from 200 to 244 (excepting 201, 202, 218, 244 are not accepted as preparation for Graduate Studies in English.
Students who may desire to change to an Honours Program or continu Graduate Studies should arriange with their advisor and with the Chairman of the Department to complete several Honours classes efore graduating with a General BA. It is possible to enter a two-yea

A course on completion of a General BA degree, but only if the Iudent has completed four or five Honours rather than General classes the concentra
The BA with Honours in English (Major Program) he Honours course in English offers a systematic study of the major writers and trends from medieval times to our ceety. Engish as a basis of a liberal education, to the prospective high-school eacher of English who needs a comprehensive understanding of the ubject, and to the student intending to proceed to the graduate study nglish and to complete in one year the requients for the MA
degree.
Students intending to enter the Honours course in Year II must consult the Department in advance to plan their course and be formally nrolled. In the subsequent years, Honours students are encouraged to eek advice of the Department in choice of classes.
The Honours course consists of nine classes (in addition to English
51A) beyond English 100. At least one class must be taken from ead of the following six sections:

Section A: English 252 (recommended for third year)
Section B: English 253, English 351
Section C: English 251, English 352
Section D: English 254, English 356
Section E: English 354, English 355, English 452, English 457
Section F: English 357, English 453, English 455
The student may choose the three remaining classes from those not
already chosen in Sections B to Fo, of from Section G : English 201, 202 44.

## Introduction to Literary Research

eets one hour per week,in the irst term is required of all Ho
tudens and is to be takenin the first Honours students must meet the requirements for the General BA degree. They are advised to select a minor from one. of the subjects
sted under either Group A or Group B in the "Academic Programs section of the Calendar.
BA with Combined Honours
norish and Geverman Enined Honours programs: English and French, English and Spanish, English and Theatre. Students interested in any hese combinations or any other that involves English and another

## Classes Offered

00 introduction to Literature. lecture 3 nours, members of the Department. Since English 100 consists of sections taught by many
different instructors, statements about its objectives and approach must different instructors, statements about its objectives and approach must wo 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 fortnightly 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.

Classes for General Degree
Successtul completion of English 100 is the prerequisite for entry into Upper-Year classes
For a more complete description of classes and of texts, students Not all classes shown are taught every year.
(Tentative List)
200 Advanced Composition: lecture 3 hours, P. Monk. Prerequisite: English 100. An advanced class in the theory and practice of writing and interest in writitg. The class is not a "remedial" class and not a "creative writing" class.

201 The English Language: lecture 2 hours, M.M. Furrow. This class, questions about the nature of language, and goes on to investigate the yntax, semantics, phonology, and dialects of modern English, with an texts.
202 History of the English Language: lecture 2 hours, R. MacG. 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 synntactic structures, the distinction of dialects and literary styles e studied 203 Masterpieces of Western Literature: lecture 3 hours. H. Whitier. Itensive reading of selected major works from Western literature, is 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.

204 The European Novel: lecture 2 hours. An intensive study of about onsiderable amount of attention is paid to the philosophical lideas which re an important feature in many of the novels studied

05 Landmarks of English Literature: lecture 3 hours, A. Kennedy, R.R. Tetreault. This class studies works by many of the most influential rovide some orientation in the literary landscape and help to make
 aimed at, but not limited to, English majors.
206 American Literature of the Nineteenth Century: lecture 2 hours S.A. Cowan, H.S. Whitier. An introduction to American literature through
representative works by maior writers from 1800 to 1900 . Among those studied are Cooper, Hawthorne, Poe, Emerson, Melville, Whitman, Dickinson, and Twain. Both fiction and poetry are studied. Students are ncouraged to discuss the works, and classes usually proceed by a

207 Canadian Literature: lecture 2 hours, 'R.J. Smith, M.G. Parks, P.
Monk, J.A. Wainwright. This class offers an introduction to Canadian Monk, J.A. Wainwright. This class offers an introduction to Canadia development of Canadian fiction and poetry from the nineteenth century to the present through discussion of selected texts.
208 The English Novel to 1900 : lecture 2 hours, H.E. Morgan, M. 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

09 Twentieth-Century Fiction: lecture 2 hours, R.J. Smith, J.A. Wainwright, H.S. Whittier. An introduction to the main thematic and technical trends in the modern

210 (Formerly 301) Modern Poetry in English: lecture 2 hours. A study of modern poetry in English is based on the seminal poets Yeats, poetry from the 1930's to the present are considered. For readers. beginning and more experienced, who wish to get their bearings in modern poetry.
211 Commonwealth Literature: lecture 2 hours, R.J. Smith, A Kennedy. An introduction to the literature of the British Commonweath, excluding that of Canada and the British Isles. Writing from Africa, ustralia, the Caribeean and Thill be discussed and common modern. 212 British Literature of the Twentieth Century: lecture 2 hours. Survey introduction to the past seventy-five years of British fiction drama, and poetry.

213 American Literature of the Twentieth Century: lecture 2 hours drama by American poeets and novelists of the twentieth century.

214 Shakespeare: lecture 2 hours, M.M. Furrow, R.M. Huebert.C.J Myers, A. Higgins. An introduction to Shakespeare's career as a playwright, through discussion and interpretation of a dozen or more of
his plays. his plays

215 Poetry of the Romantic Period: lecture 2 hours, D.P. Varma, R.R. Tetreault. 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 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.
216 The Gothic Novel: lecture 2 hours, D.P. Varma. A survey of the origins and development of The Tale of Terror and Supernatural during
the later half of the eighteenth century and its various manifestations and influences in succeeding fiction. Not only the chiof landmarks of gothic fiction will be charred, but the students also explore the various chambers of horror-literature.

218 Medieval Literature: lecture 2 hours. H.E. Morgan, A. Higgins 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 develop saga and romance, concluding with a look at some post-medieval use If the inherited matter in Tennyson, Morris, Lewis and Tolkien.An nniched English 218 is available for Honours credit students who have reviously taken English 351.

219 Chaucer and his Contemporaries: lecture 2 hours. M.M. Furrow,
A. Higgins, H. Morgan. A selection from the genres of late medieval A. Higgins, H. Morgan. A selection from the genres of late medieval
literature in English: romances, fabliaux, plays, Iyrics and legends works are studied in translation; others (including Chaucer's) are read in the original Middle English.
220 English Drama: lecture 2 hours, R.M. Huebert. An introduction to some of the major plays and playwrights in the history of English drama Special emphasis is given to plays by such heading dramatists as
Mariowe, Whebster, Wycherley, Shaw, Pinter, and Stoppart. Some Marlowe, Webster, Wycherley, Shaw, Pinter, and Stoppard. Some attention is paid to the principal changes in staging 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.
221 Fictions of Development: lecture 2 hours, M. Stone. A study of 221 rictions of Development: lecture 2 hours, M. Stone. A study of
variety of literary works (chiefly novels) which portray the crises and variety of literary works (chiefly novels) which portray the crises and
conflicts involved in growing up, finding a vocation, and finding oneself. conficts 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 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.
224 Renaissance Poetry: lecture 2 hours, J.R. Baxter. An introduction to English poetry from the early sixteenth to the mid-seventeenth century,
concentrating on authors whose works have exercised a continuing fluence: Sidney, Shakespeare, Donne, Jonson, and Milton.
225 Epic, Romance, and Fantasy: lecture 2 hours, P. Monk. This class offers a consideration of epic, romance, and fantasy. Starting with a consideration of primary epics it will then go on
literary epic spirit as manifest in modern works.

226 Tragedy: lecture 2 hours, R.R. Tetreault. A study of the nature and 26 T ragedy: lecture 2 hours, R.R. Tetreaut. A study of the nature
method of tragedy in literature. Examples are taken from Greek, Shakespearean, and modern drama, as well as from poetry, and from

227 Comedy and Satire: lecture 2 hours, J. Gray, D. McNeil. The comedian and the satrist 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 discussions are augmented with play readings, films and other ilustrative materials.
228 Short Poems in English: lecture 2 hours, A. Kennedy, J.A. Wainwright. 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, tree verse, ine nokku, lyric as song, spoken poetry, pp
possibly other topics to suit the class.
229. The Victorian Age: lecture 2 hours, MI. Stone. A survey of selected Victorian texts designed to deconstruct modern myths about
the Victorians and to introduce students to the diversity of the Victorian the Victorians and Mill Tennyson, Arnold, the Brownings, the PreRaphaelites, and Wide demonstrate that Victorian Literature is animated by a spirit of rebellion and a zest for controversy, marked by innovation and experimentation in literary torms and subjectis, and notabie tor bou
its passionate defences of individual liberty and its surprisingly modern atfirmations of women's rights.
231 Modern American and Canadian Novels: lecture 2 hours, M.A Klug, members of the Department. Six Canadiain and six American
novels are treated as related "pairs." with the instructors dividing their novels are treated as related "pairs," with the instructors dividing
time equally between the two sections. Both sections and both instructors meet together to discuss each pair of novels, atter the novels have been dealt with individually.

232 Modern Drama: lecture 2 hours, R.M. Huebert. An introduction to the major developments in drama from losen to the present. Special attention is given to changes in dramatic style and to the growth of
modern theatrical movements. The playwrights represented include modern theatrical movements. The playwrights represented inclue
Strindberg, Shaw, Pirandello, Brecht, Genet, Ionesco, Pinter, Albee, and Stoppard. A few recent Canadian plays provide a focus for discussion of contemporary trends.
233 Science Fiction and Fantasy: lecture 2 hours, S.A. Cowan, P. Monk. Selected works of speculative fiction are read for pleasure
studied for understanding. The study emphasizes analysis and stealuation of the works as literature. Each student is responsible for selfdisciplined study of the history of science fiction and may expect
examined in detai on his knowledge. Non-majors are welcome.
234 The Short Story: lecture 2 hours, A. Kennedy, J.A. Wainwright. This class attempts to combine detailed consideration of a wide range o
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 tomprove reading bability
and to develop the capacity to understand and interper literature and to develop the capacity to understand and interpret literature. 244 (formerly 454) Literary Criticism: lecture 2 hours. A. Kennedy. A
survey of Classical Greek and Latin theory. English critics and some survey of Classical Greek and Latin theory, English critics and some

## Classes for the Honours Degree

051A I Introduction to Literary Research: lecture 1 hour (first term only), C.J. Myers, H. Melanson. A departmental (ie., non-university and non-credit) technical llass for honours and graduuate students. It is
planned a acquaint the student with centain research tools in the library planned to acquaint the student with certain research tools in the library
that are most frequently used by students of English (bibliographies, that are most trequentil used by students of Engish (ibibiographies,
catalogues, indices, digests, journals, dictionaries, microfilms), many of catalogues, indices, digests. Journals, dictionaries, microilms), mat
which the student is unikely to stumble upon himself in his 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. Successfúl completion of exercises and attendance at lectures one hour a week for the first term will constitute fuffillment of requirements for the course.

251 Sixteenth-Century Prose and Poetry: lecture 2 hours, M.G. Parks, A. Higgins. This is a class in the prose and poetry of the English Renaissance from its beginnings to the 1590 s. The major writers to be
studied are More, Sidney, Spenser, and Shakespeare; brief selections studied are More, Sidney, Spenser, and Shakespeare; brief selections
from Wyatt, Surrey, Elyot, Ascham, Hooker, Marlowe and a few others will also be read.

52 Shakespeare and the Drama of His Time: lecture 2 hours, J. . . choice of the class, are read in the context of representative plays by his earlier and later contemporaries, especially Marlowe and Jonson. preliminary reading.

253 OId English: lecture 3 hours, R. MacG. Dawson. An introduction to he.Old English language ( $700-1100$ AD), followed by a study of some e prose and minor poems, and, in the second term, of Beowurf. archaeology. Some knowledge of a classical or modern European language (preferably German) is desirable, though not essential and an nderstanding of traditional grammatical terminology will be helpful. This who are not thoroughly fluent in modern English.
254 Restoration and Eighteenth-Century Literature: 'lecture 2 hours J. Gray. D. MCNeil. The emphasis is on three great satirical authors
Dryden Pope and Switt), on a study of Restoration drama and on najor works of Samuel Johnson. Since the literature of the period is related closely to the men and manners of the age, some time is spen number of writers representative of literary, political, social, and
 Addison and Steele, Mandeville and Shaftesbury.
351 Middle English: lecture 2 hours, H.E. Morgan, M.M. Furrow, A. Higgins. An introduction to the language and literature of feudal and
chivalic 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.
352 Seventeenth-Century Poetry and Prose: lecture 2 hours, M.G. arks. R.M. Hebert. 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,

354 Victorian Novel: lecture 2 hours. The.novels of the period from 5cott and Austen to Hardy are studied

355 American Literature to 1900: lecture 2 hours, B. Greenfield. This class deals with major writers of the 19th century, as well as works from he colonial period which raise important cultural questions.

356 The Romantic Period: lecture 2 hours, R. Tetreault, V. Li. A close reading of the maior poetry of Blake, Coleridge, Wordsworth, Byron,
Shelley, and Keats. Attention is also given to their critical writings in Shelley, and Keats. Attention is also given to their critical writings in
prose, and to the intellectual, cultural, and historical milieu in which they prose, and

357 Modern Canadian Literature: lecture 2 hours, A. Wainwright, $P$ Monk. A study of Canadian fiction and poetry since the 1920 's wii emphasis on the changing form and conten
Classes consist of lectures and discussion.

360 OId Norse: lecture 1 hour, H.E. Morgan. Prerequisite: One of English 218, 253, 351 or instructor's permission. 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 the comparative study of he verr
452 Nineteenth-Century Prose and Thought: lecture 2 hours, C.J Myers. The study of representative non-fictional prose works of the nineteenth century, for their intrinsic merits, with the object of exploring
the ideas of the period about politics, religion, education, art and society Instruction is chiefly by means of lectures, but there are ample seminar paper per term
453 Twentieth-Century English Literature: lecture 2 hours, J. Frase year. E or honourr sudenis and for MA students in their make-up
starting-points for the class discussions. There are no examinations, but
regular attendance is expected in the interests of effective debate. 455 Modern American Literature: lecture 2 hours, M.A. Klug, V. Li. In the first term, this class studies 20th-century American fiction. In the
second term; modern American poetry is assessed. Classes are a second term, modern American poerry
combination of lectures and discussion.
457 Victorian Poetry: lecture and discussion 2 hours, C.J. Myers, M.I Stone. Poems by Tennyson, Robert Browning, Elizabeth Barrett
Browning. Arnold and selected Pre-Raphaelites are studied in the Browning, Arnolid and selected Pre-Raphaelites are studied in the
context of the social and political, the religious and scientific ideas

## Graduate Studies

The Department offers graduate classes leading to the degrees of $M A$ and Ph. Details relating to admission, scholarships and fellowships, Graduate Studies

## French

## M. Bishop

Professor Emeritus
P. Chavy, Agrégé des Lettres (Paris), Chevalier de la Légion d'Honneur

Professors
M. Bishop. BA, BEd (Manch.) MA (Man).). PhD (Kent, Canterbury)
J.W. Brown, AB (Miami), MA (Middletury) PhD (Penn) J.W. Brown, AB (Miami), MA (Middlletury). PhD (Penn.)
i. Kocourek, State Examination, PhD, CSc (Charles U.. Prague)
McCulloch Protessor, (Graduate Coordinator)
D.W. Lawrence, BA, MA, PhD (Lond.)
H.B. Runte, MA, MPh. PhD (Kansas)

Associate Professors
P. De Méo, BA, MA A PhD (UCLA)
B.E. Gesner, BA (Kings), BEd, MA (Dal), Dr. de 3e cycle (Toulouse, II)
W.T. Gordon. BA. MA Ph , Tr, M. Sandhu, Licence ès Leetres (Montpellier). PhD (Yale) N. Treves-G-Gold, BSC (American U... Cairo), PhD (Rice)
K. Waterson, BA (Long Island), MA (NYU), PDD (CUNY)

## Assistant Professors

Z. Oore, BA (Tel-Aviv), MA (Waterloo), PhD (Western Ontario)
E. Boyd, BA (SMU), BEd (St FX), MA (Middlebury

Lecturer
B. Bednarski, BA (Lond.), MA (Dal)
Adjunct Professor
Adjunct Professor
R. Runte, BA (SUNY), MA, MPh, PhD (Kansas)
The Department of French offers students not only the opportunity to
develop fluency in classes backed up by excellent laboratory and 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 Frenchspeaking 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
ollowing skills: speaking, listening, reading, and writing Other classes re specially designed for students who are interested in teaching ranslation, or other areas of language study. The role of French in Canada and in the Maritimes is stressed in classes in Acadian and rench-speaking nations is brought to life in classes orance and va theme, a genre, or a historical period.
The Department of French urges students to practise the language a which students may live with native spes are two houses on campus environment. The French Club organizes activities including films, French meals, parties and plays in which all students may participate
Exchanges with Quêbec and individual student travel and study are
couraged. Normally the Department offers at least one ampus in a francophone en ironment. In the past we have offered an
tiensified version of French 30008 in Mayenne, France and in Saintierre and Miquelon. Please consult the Department for infermation A BA degree in Fre
A BA degree in French with Honours or with Honours in French and Aother subject combined may lead the student to a career in careers in many fields, incluading radio, television, law, social work, public elations, business, diplomacy, journalism and library science. Students considering French as an area of concentration in a BA degree course nember of the Department. The accent is on the particular needs aspirations of the individual. An Honours degree is normally required for access to graduate studies and an MA or MAT degree may be pursued
in the Department (see the Calendar for Faculty of Graduate Studies) the Department (see the Calendar for Faculty of Graduate Studies). of French, take up to one year ( 5 full credits) of work at a Univeristy in a rancophone environment and receive credit at Dalhousie.
Students considering a career in teaching French are encouraged to iscuss their goals and program as early as possible with Professors

## Degree Programs

## BA Program

tudents should consult the Chairperson or a Department Advisor abou heir choice of classes. The Department expects students majoring in
French to form coherent programs of four to eight full classes or French to form coherent programs of four to eight full classes or
equivalents beyond 1020 or $1000 \mathrm{R} / 2000$ The toll owing lasse equired: $2040 \mathrm{R}, 2201 \mathrm{~A}, 2202 \mathrm{~B}, 3040 \mathrm{R}$ and one other full credit at the 3000 -level. Normally. three full credits are taken in the second year (an a minimum of two). Courses other than those required may be chosen eely in consultation with the Major Advisor, according to the stu desire to obtain a general knowledge of the field, or a greater Canadian Studies, etc
Students wishing to change to an Honours Program may do so during
he second or third year of studies, given sufficiegt standing Those we second or third year of studies, given sufficient standing. Those Major in French, should consult the Chairpersoz or the Honours Advisor.

## BA with Honours in French

This program offers systematic, comprehensive and individulized study of French language and /or literature bothensive within and individualize without the
classroom It is therefore Classsoom. It is, therefore, an option which should be considered
seriously by any student who, with career or personal seriously by any student who, with career or personal objectives in mind,
wishes to obtain a strong background in French and by those who to teach or earn a graduate degree in French. Honours students are strongly encouraged to entrich their more
traditional learning experience by traditional learning experience by living in one of the Maisonssfrançaise and by spending at least one summer in a French-speaking area.
Majors or honours students may, with the aporoval of the take up to one year (five full credits) of work at a university in a francophone environment and receive credit at Dalhousie. Pleas consult department for information on programs available
Financial support may be available. Please consult the Chairperson of Combined Honours students should consult the Chairperson before proceeding to see the Honours Advisor. Following is a description of the for each*:

1. Concentrated Honours (from 9-11 credits in French beyond the first year. First year does not necessarily mean 1000 -level courses;
refers to any course taken in the first year of study) refers to any course taken in the first year of study). The following
courses are required: $2040,2201 \mathrm{~A} / 2202 \mathrm{~B}, 3020,3040$, one full-

2. Combined Honours (from 11-13 credits in French and another
subiect. No ther subject. Not fewer than 4 nor more than 9 may be chosen in either
subject.) Minimum requirements for the combined honours program subject.) Minimum requirements for the combined honours program
are as follows: $2040,2201 \mathrm{~A} / 2202 \mathrm{~B}$, plus a minimum of two credits in language, literature and/or culture.
III. Honours Certificate The honours certificate is an option for

Ontinued study open to anyone who has previously completed a BA coninued sluay open to anyone who has previousty completed a an oral interview based on course work and /or a specific topic. Requirements for the honours certificate are similar to those for the rs program, but wil according to individual stances.
A requirement may only be waived in exceptional circumstances

## Classes Offered

1000R Français pour débutants/Beginners French: lecture 3 hours, language lab $3-6$ hours, according to individual need, members of the department. This class, intended for students with
little or no previous instruction in French, covers a sufficient range basic linguistic structures and high-trequency yocabuliary to e enable
students to engage in simple, everyday communication on varity 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 class meetings per
week is supplemented with both oral and written exercises in the week is supplemented with both oral and written exercises in the
Dalhousie Learning Laboratory and with reading assignments, Dalhousie Learning Laboratory and with reading assignments,
compositions, and written exericises to be completed outside of class. Students are also introduced to se sigificant aspects of French, French-Canadian, and other francophone cultures. Upon completion
of French 1000, students wishing to complete the study of basic of French 1000 , students wishing to complete the study of basic
French language structures and to increase their written and spok French language structures and to increase their written and spoken
fluency should enroll in French 2000. Anyone wishing to register in 1000 must provide the grade 12 transcript at the time of registration.
1001A/2001B Français pour débutants: Niveaux I \& II/Beginners French: Levels 1 I Il: lecture 6 hours, language lab $6-12$ hours, French: Levels s \& il: lecture 6 hours, language lab $6-1 / 2$ hours,
according to individual need, E. Gesner. This course offers highly
motivated first year students the opportunity to do the work of french motivated first year students the opportunity to do the work of French year. 1001 A and 2001B each give one full credit. Neither is counted year. 1001A and 2001 B ea
towards a Major in French.
1020R Révision de français oral et écrit/Spoken and Written French in Review: lecture 3 hours, language lab $1-2$ hours,
according to need, members of the department. This is the 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 and listening skills, as well as in reading and writing. Classes are 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 comprehen independent study and classroom practice. Listening co mprehension 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. 1060R Pratique de la lecture/French for reading: lecture 3 hours, members of the department. 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 $t$ 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). French 1060 is given in translations (from French to English only). French 1060 is given in
English and is not, by itself, suitable for students who plan to maior in English and is not, by itself, suitable for students who plan to major in
French. It may, however, be taken by those with na prior training in French.
Note: All classes above this level are normally given in French.
2000R Français pour débutants: Niveau II/Beginners French Level II: lecture 3 hours, language lab $3-6$ hours, according to individual need, members of the department. No student may enrol
in French 2000 without having first completed French 1000 . This class continues the work begun in French 1000 , focusing on more advanced forms of expression including the vocabulary, verb forms,
and syntactic structures necessary for communication at a relative high level of abstraction and complexity. As in French 1000, al
Classes are conducted as much as possible in French, with additional practice provided through the Dalhousie Learning Laboratory and through regular reading and witing assignments. Reading selecions crawn from the press and he literature of rench-speak ceerening and enriching the students' understanding of the people whose language they are studying Understanding of the people whose language they are studying.
Credit awarded for French 2000 may not be counted towards a
major in French.)

2001B: See 1001A above.
2021A/2022B Etudes pratiques/Practice in Language Skill ecture 3 hours. Follows 1020 or $1000 / 2000$, members of the provides the opportunity to practice and improve language skills already acquired. Sections approach language learning through different subjects such às Acadian studies, African and Caribbean lasses 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 lect or study one semester only. Students should consult the
$2023 \mathrm{~A} / 2024 \mathrm{~B}$ Etudes pratiques II/Practice in Language Skills ecture 3 hours, members of the department. For non-majors only. students having completed French 2021A/2022B. These classes provide the opportunity for further practice and improvement of anguage skills already acquired. As in 2021 A/2022B, sections approach language learning through subject areas such as French French Canada, etc. All classes and assignments are entirely in rench. Students must choose sections with different topics to earn credit for A and B. The topics chosen for 2023A/2024B must also ake different 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
2025A/2026B Etudes pratiques III/Practice in Language Skills ii: lecture 3 hours, members of the department. For non-majors only. Permission of coordinator of French 2021 required. Open only
o students having completed 2023A/2024B. Topics chosen must ostudents having completed 2023A/2

2030A/2030B De lorthophonie a lintonation expressive/From Corrective Phonetics to Expressive Intonation: lecture 3 hours, language lab, according to need, $K$. Waterson. Prerequisite: French 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, nderstand the role of non-phonemic features in oral communication and develop self-expression and audio-comprehension.
$2031 \mathrm{~A} / 2031 \mathrm{~B}$ Interprétation/Simultaneous Translation: lecture 3 hours in language laboratory, supplementary lab hours, as necessary or individuals, H . Runte. Pracicara introduction, given 1 , oral English-French and French-English transliting (interpreting) with emphasis on fluency, vocabulary-building and comparative syntactico-stylistic analysis.
2040R Introduction à la stylistique du français/Introductory Composition: lecture 3 hours. R. Kocourek, D. Lawrence, I. Oore, M. sandhu. These classes constitute a detailed and comprehensive review of grammar by means of various exercises including study of written style and manner of expression.
$201 \mathrm{~A} / 2202 \mathrm{~B}$ Introduction à la litterature/Introduction to Fre Literature: lecture 3 hours, M. Bishop, D. Lawrence, H. Runte. A.
survey of literature in French from the Middle Ages to the 2oth century, presenting selected works of prose, poetry and theatre from ance, Quebecc, Acadia and other francophone areas. Introduction
to general notions of iterary history and to the basic concepts
involved in reading literary texts. Attention is paid to the develo of both oral and written expression of ideas. French 2201 A and 2202 B may be taken conseccutively. Classes involve, principally,

3000 B Cours supérieur de francais oral/Advanced Oral Frenc Workshop: lecture 3 hours, members of the department. Class discussions and oral presentations based on themes of contemporary
concern. This class may be offered off campus in France in the summer in an intensive fashion. This class is intended to build vocabulary, perfect facility of expression (ffiuency) and style. Reading and research are necessary for the oral presentations.
3020R Linguistique/Linguistics: lecture 3 hours, R. Kocourek. This class has three main objectives: to explain the major branches of the modern study of language (pronunciation, spelling, morphology, syntax vocabulary, meaning); to refine and systematize the students ${ }^{\prime}$ understanding of French grammatical categories: to show how to
identify, observe and analyze linguistic aspects of interesting texts. class report on a linguistic topic of the student's choice is an important component of the class. Regular assignments and exercises
-
025A/3025B Les Parlers acadiens: Introduction inguistique/Linguistic Introduction to Acadian Dialectology: Students wishing to take the course must have taken, be concurrently Gesner. An examination of the phonetic, morphosyntactic and lexic ystems 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.

040R Etudes pratiques de stylistique $1 /$ Intermediate Composition ecture 3 hours. M. Sandhu, D. Lawrence. This class develops further the lught to express themselves in clear accurate eidiomatic French and to perform a number of tasks of a practical nature: writing repots, and to summaries, letters, etc. A good knowledge of grammar is essential.
3081 A/3082B Didactique du français langue seconde à lécole econdaire/Methods of Teaching French at the Secondary Level: lecture 3 hours, $P$. De Méo, M. Myers. Open only to students who have demonstrated adequate competence in French language and culture (passing a French language proficiency exam is required). Student
taking this class are normally completing a BEd. Other students aking this class are normally completing a BEd. Other students
interested must consult the instructor. A consideration of foundations a second language teaching which moves to a discussion of methodology, techniques, materials (including visual aids), and testing.
Emphasis is on developing teaching strategies whic enable students use French as a tool for authentic self-expression, orally and in writing. Directed observation of experienced teachers and practice in the evelopment of teaching skills are integral parts of the class. Evaluation based upon class participation (microteaching, oral reports,
examinations.
30858 Didactique du français langue seconde à l'école élémentaire et en immersion/ Methods of Teaching French in the Elementary School and Immersion: Prerequisite: Students must have enrolled in or actively audited French 3081 A. P. De Méo, M. Myers. This class focuses on specific methods and materials appropriate for the
child in the French core program and/or immersion.
3100 R Civilisation de la France et du Canada français/Civilization An attempt, through talks, reading and discussion to understand and to suggest fruitful ways of studying, from an English-speaking Canadian point of view, what is essential in French and French-Canadian culture
$3200 \mathrm{~A} / 3200 \mathrm{~B}$ Appréciation de la littérature/Literary Appreciation: lecture 3 hours, $M$. Bishop et al. An approach to the critical reading of
various periods of French literature. The class offers discussion of epresentative works of major writers, centering either on genre, theme or period and involving close textual analysis. II also includes.some specific details in any given year
$300 \mathrm{~A} / 3300 \mathrm{BLa}$ littérature médiévale/Mediaeval French Literatur erresenting the major literary genres tromesening the major itierary 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 ilierature provic
critical approaches to literary texts.

3400A La littérature du seizième siècle/16th-Century French Literature: lecture 3 hours, N. Trèves-Gold. Reliving the awakening, though 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
ortill
$3500 \mathrm{~A} / 3500 \mathrm{~B}$ La littérature du dix-septième siècle/17th-Century French Literature: lecture 3 hours, K . Waterson. The theatre in 17 th Racine and Molière; an attempt to define these dramatists' vision of man and the world and to assess their contribution to the history of ideas and the development of French theatre.
3600A La littérature du dix-huitième siècle/18th Century French Literature: lecture 3 hours, members of the department. An introduct 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, weath and power).

3700A/3700B La littérature du dix-neuvième sièle/19th Century French Literature: lecture 3 hours, J. Brown. An introduction to the ran literary movements of the 19 th century. Romanticism, Realism, one or more of these trends.
$3800 \mathrm{~A} / 3801 \mathrm{~B}$ La littérature du vingtième siècle/20th Century rench Literature: lecture 3 hours, M. Bishop. Poetry and Theatre, work of contemporary poets such as Yves Bonnefoy, Jacques Dupin and Michel Deguy; and of modern theatre from Jarry to Beckett, lonesco

900A/3901B La littérature canadienne française/French-Canadian Lierature: lecture 3 hours, B. Bednarski, I. Oore. In-depth study of a few from 1945 to the presennadian literature with emphasis on the period (e.g., 3900A Poetry, 3901B Novel) and choice of genre may differ from year to year.
3910A/3910B Etudes acadiennes/Acadian Studies: lecture 3 hours, H. Runte. Critical investigation into the historical, socio-cultural, linguistic and literary significance of past and present Acadian writing. May follow - 3

4001A/B Histoire de la langue français/history of the French Language: lecture 3 hours. H. Runte. 4000A 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 culturalliterary context of linguistic development; etc. 4002 B 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 normaivia yurs, the Baroque, Préciosité, the Revolution, scientific French, (Rheloriqueurs, the Baroque, Préciosite, the Revolution, scientific French
argot), etc.

4010A $/ 4010 \mathrm{~B}$ Grands Linguistes du vingtième siècle/Great
Linguists of the 20th Century. lecture 3 hours. R. Kocourek. Ling Century: lecture 3 hours, R. Kocourek. How French-speaking linguists of the 20th century contribute to the
understanding of the language? Interpretation of passages by six
linguists (such as Sassur linguists s such as saussure, Bally. Tessietiere, Guillaume, Gougenheim,
Martinet) will show how interesting questions were asked, and how new Martinet) will show how interesting questions were asked, and how reports, discussions, assignments.
401.1A/4011B Lexicologie/Lexicology: lecture 3 hours, R. Kocoure 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 clas.
4012A/4012B The Structure of French: Comparisons with English: lecture 3 hours, R. Kocourek. Characteristic properties of the French
language will be examined, mainly in respect of correspondences and language will be examined, mainly in respect of correspondences and
contrasts between the French and English systems contrasts between the French and English systems of pronunciation,
wititing, grammar and vocabulary. Parallel French-English excerts stron wititing, grammar and literary masterpieces will be used for observation, analysis, discussion and assignments.
4015R Cours supérieur de version/Advanced Translation into English: lecture 3 hours, W.T. Gordon. Development of awareness the expressive resources of french by deaing 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 context and choice, context and meaning, ambiguity, verb systems of French and English, textual redundancy, simultaneous interpretation, and French and Engish, texual redundancy, simun of metaphors. Occasionally, alternate English translations of
French text are studied for revealing contrasts.
Fran
$4041 \mathrm{~A} / 4042 \mathrm{~B}$ Cours avancé de stylistique littéraire/Advanced Composition: lecture 3 hours, members of the department. These classes present an in-depth study of style. The class has as a goal to
teach students to express themselves with elegance and refinement.

4300A/4301B Le roman et la poésie courtois/Courtly Novels and Poetry: lecture 3 hours, H. Runte. Le Roman courtois/The Courtly Noxels in bilinger lierary analysis . Lrench) editions $L$ a Poésie an romances courtoise/Courtly Poetry: A stylistic and socio-cultural study of French courtiy love poetry from the 9 th to the 15 th centuries. Early texts in modern French translations.

4400A/4400B Poésie de la renaissance: Théorie et pratique/Renaissance Poetry: Theory and Practice: lecture 3 hours, N. Treves-Gold. A seminar-style study of poetic theories and practices recommended.

4401A/44018 La pensée philosophique, politique et morale de la renaissance/Philosophical, Polititical and Moral Thought of the. major currents of Renaissance thought: humanism, scientific awakening the beginning of litterature engagée, and the emergence of the moralistes and philosophes.
4500A/4501B L'aventure intellectuelle du grand siecle/The Intellectual Adventure of French Classicism: lecture 3 hours, K. Waterson. The focus of these classes, which examine, at an advanced
level, a major figure, movement, genre or theme in 17th-century French literature, will vary frequently. Please consult the professor for detailed information on the topic to be treated in any given semester.
$4600 \mathrm{~A} / 4601 \mathrm{~B}$ Le sièle des lumières: forme et philosophie/The Enlightenment: Form and Philosophy: lecture 3 hours, members of
the department. An in-depth study of the French Enightenment 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 philosophical or historical value. The study is unified by an examination of recurring philosophical ideas and iterary themes important to consult the professor for information on the theme treated and the work to be studied in any given semester
4700A/4701B Du romantisme au réalisme/From Romanticism to Realism: lecture 3 hours, J. Brown. 4700 A La révolution Romaniquue/The Romantic Revolution: Romanticism is viewed primarily
as a rebellious and creative force which gratily contriuted traditional society. The origins, main themes and trends of to te moveme are studied with an attempt to show Romanticism as a European movement, the impact of which was felt in ifields beyond the boundaries of literature Classes are conducted as seminarss 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 largel participate in class discussions. The choice of texts depends largely on
the students' previous experience: they include works by Mme de Stae Chateaubriand, Lamarine. Hugo, Vigny. G. Sand and others. 4701 B Le man/ The Novel: Intensive sluay of he development of the novel and of his contribution to the genre. The class involves a considerable amount of reading and regular reports and exposés.
4710A/4710B Du symbolisme au surréalisme/From Symbolism to Surrealism: lecture 3 hours, M. Bishop. Analysis of the evolution of rench lierature from the various symbolist manners of Verlaine. Rimbaud, Mallarmé, Lautreamont and Latorgue, through the period of principally, through the work of Breton, Eluard, Aragon and Desnos.

4800A/4801B Le théáre et le roman modernes/Modern Theatre t 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. 4801 B Le nouveau Roman/Anti-novels of the 20 th 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 conventioria deas regarding the form of the novel.
4811A/4811B La poésie francophone de Perse et Char à Senghor et Césaire/Francophone Poetry from Perse and Char to Senghor Cesaire: lecture 3 hours, M. Bishop. Discussion of the works or ive or six major francoophone poets of the modern period, chosen from: Glissant, Miron and others.

4902A - 4903 BE Ecrivains Québécois Contemporains
4994A/4995B, 4996A/4997B, 4998A/4999B Recherches indendantes/Independent Research: May only be taken with the approval of the Charperson as well as that of the taculty member

## Graduate Level Courses

Classes in the 5000 series are for graduate students who, for more detailed information, should consult the Graduate Calendar and arrange to meet the Graduate Coordinator. Special seminars and graduate
colloquia are arranged each semester. Students may obtain currient colloquia are arranged each semester. Students may obtain current
information as to topics, dates, and places, in the Departmental office.

## Geology

Chairperson of Department

Undergraduate Advisor
M. Gibling

Graduate Advisor
Professors Emeritus
H.B.S. Cooke, MSc, DSC (Witwatersrand)

Professors
D.B. Clarke, BSC, MA (Tor).) PhD (Edin.)
JM.
F. Medioli, PhD (Parma)
P.T. Robinson, BSC (Mich.), PhD (Calif), Mobil Professor of Geology
M. Salisbury, BSC (MIT). PhD (Washington)
P. . Scherk BS (W. Ont). MSc. PhD (Wisc)
P.E. Schenk, BSc (W.Ont.), MSc, PhD (W
M. Zentili, BSc (Chile), PhD (Queen's)

Associate Professors
M. Gibing. BA ( (xor.), PhD (Ottawa)
R.A. Jamieson, BSC (Dal), PhD, (MUN)
R.A. Jamieson, BSC (Dal), PhD, (MUN)
G.K. Muecke, BSc, MSc (Alta), DPhil (Oxo

P.J.C. Ryall, BSC (Dal), MSc (Alta), PhD (Dal)

Assistant Professors
R. Boyd, BSC, PhD (Sydney)
N. Culshaw, BA (Keele), PhD (Ottawa)
N. Culshaw, BA (Keele), PhD (OHtawa)
D.B. Scott, BSc (Wash.), PhD (Dal)

Instructor
P. Wallace, BSc, MSc (McM)

CIDA/NSERC Research Fellow
S.O. Akande, BSC (lbadan), MSc (Western), PhD (Dal)

Research Associate
(has
Adjunct Professors
J.S. Bell, BA (Oxon), PhD (Princeton)
F. Gradstein, BA, MSc, PhD (Utrecht)
P. Hacquebard, PhD (Groningen)
L. Jansa, BSc, MSc (Masaryk), PhD (Charles)
P.J. Mudie, BSc (Leicester), PhD (Dal)
P.J. Muciee, BSC (Leicester), PhD (DDer, BSc, PhD (Cambridge)

Honorary Research Associates
P.S. Giles, BSc, MSc Ascadia). PhD (w. Ont.)
FJ. Hein BS (III) MSc. PhD (Mcmaster)
F.J. Hein, BSc (M.), Msc, (Dal). PhD (Cambridge)
C.E. Keen, BSc, MSc
C.T. Schafer, BSc, MSc, PhD (New York)

Geology is for those who wonder about the earth. How was it made? What changes it now? Where do we seek oil? Or nickel? What moves
continents? Its study is of enormous economic importance to Canada - and of course to the world as a whole - and is intellectually exciting The Halifax-Dartmouth region is one of the best places in Canada in
which to study the earth. The departments of geology, oceanography, and physics at Dalhousie are all involved, as are several government agencies in the region.
Classes in geology are offered for different types of students. Some as geologists, geochemists, geophysicists, oceanographers or teachers Some may need instruction in geoology as an aid to other discipilines: for example, a mining engineer, or a physicist interested in $X$-ray dififraction
spectrometry, or a chemist interested in crystallography, or a biologist spectrometry, or a chemist interested in crystallography, or a biologist
interested in protozoa. 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 the introductory class in geodlogy stimulates thei sciences will find that the introductory class in geology stimulates their
awareness of their surroundings, and their appreciation of the many awareness of their
facets of science.
Careers open to geologists are many and varied. The largest number of job opportunities is provided by industry, primarily in the search for the
production of raw materias. Geologists competent in mathematics migh prodinvolved in processing and analysing data using digital computers;
be those interested in going to sea might work with marine institutions. The federal and provincial governments also employ geologists.

## 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 earth, such as geology or geophysics, should note that it is sensible
try to have the following subjects in Grades XI and XII. Grade XII try to have the following subjects in Grades XI and XII: Grade XII
mathematics, plus two of Chemistry, Physics and Biology. (The third manemaics, plus two of Chemistry, Physics and
should have been taken in Grade XI if possible). 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. up deficiencies in high school preparation in the first year at Dalhousie.
Note too that, at present, Grade XII Geology is not counted as equivalen

Undergraduate Programs
anses for those whose is no
geology
These classes are specially designed for those who want to know

Something about the earth, but whose major field of study at Dalhousie .int istowhere, an economics student, interested in the role played by Canada's geoological al
histor
rame in the development of transportation a biol auna and flora inhabit the mud of the sea lloor. These classes are:

Geology 1040A/1050B, an evening class especially designed for
students in the humanities and social sciences.
There is one evening class, 2410 B , open to all with 1000 , or good rades in 1040A. This paricular maior is geology
For engineering students and science students in other disciplines:
Biologists: 1000, 2410B, 2200R; Chemists: $100,210,301 \mathrm{~A}, 302 \mathrm{~B}$ Biologists: $1000,2410 \mathrm{~B}, 22200 \mathrm{R}$ : Chemists: $100,210,301 \mathrm{~A}, 302 \mathrm{~B}$,
438 A , Physicists and mathematicians: $1000,2050 \mathrm{~B}, 3130 \mathrm{~B}, 4270 \mathrm{~A}$ 4280B, and 4290B.

## General Degree Program

hree-year programs with a major in Geology are suitable for students who intend to take further professional training or to enter fields where title value as a qualification for a professional career in the earth
sciences.
One program recommended for students undertaking a general BSC Wh a major in Geology is the first three years of the concentrated
onours program (see the table below). This program may not be suitable for all students, and others can be arranged may not be intending to major in geology are required to take Geology 1000 Geology 1000 is normally also available in the first summer session. The core program for a major in geology must include Geology 2100 and 200 and 2050B. Faculty regulations permit a student graduating with general degree with a major in Geology to convert it to an honours he core program for concentrated honours in Geoology and cannot. ount as a credit towards an. honours degree although it can form part of the General Degree Program.
Students undertaking a general degree with a major in Geology must
attend an approved field school. normally the first of the two field schools offered by the department. It should normally be taken at the end of
of second year.

## Honours degree programs

An honours degree is almost essential for any professional work in earth sciences, and for graduate study. Students must take the second and nird year classes of the G
ecommended program is:
Year 1: Geology 1000; Mathematics 1000A/1010B/1500R; one class in weet the faculty requirement for a class in which writing ability is emphasized). Note that Geology 2050 B fits best in Year 2 of the program and inath has physics 100 and Mathematics as prerequisite possible.

Year 2: Core program: Geology 2100, 2200, 2110A; one class in two Physics, Chemistry, Biology, Maihematics; and an elective. Geology
2050B is required but students not in the geophysics stream may elect to take this class in the 3rd year.
Year 3: Core program: Geology 3010A, 3020B, 3140A, 3300R; plus one class in Physics, Chemistry, Biology, Mathematics; and an elective.
Students in the geophysics stream will take 2050B in year 2 and 3130 B in year 3 .
Year 4: Geology 4200; 4350B, other 4000 level classes in Geology; and an elective.
A student who decides at the end of first year to take honours in Geology but has not taken Geology 1000 in that year may take Geology
000 in the summer session or may take 1000 and 2100 in Year 2 it he as obtained a B+ standing in Yay take 1000 and 2100 in Year 2 if he 1000 , but whose program does not meet the other requirements, should consult the department.
A student must normally complete one class in each of Biology, Chemistry, Physics, and Mathematics by the end of his second year lasses are Physics 1100 of these subjecis. The recommended fir 500 R , Biology 1000 or 2000. Recommended second classes are:

## ology 2000 or $3321:$ Chemistry 211 B, 220A, $230 \mathrm{~A}, 234 \mathrm{~B}$ : Physics $200 \mathrm{~A} / 2210 \mathrm{~B}$ or $2300 \mathrm{~A} / 23308$. Mathematics $2000,2200,1060 / 1070$,

 1300 R . 2270 B .Students
ubect should discuss their program in detail with the undergadathate
Suggestions for the tirst three years of study are given below
Combined honours with Biology: Students should follow the Geology
onours program in Years $1-3$, including Geology 2200 and 2110 A : but should take either a Biology class, or Geology 4500R in place of Geology $3010 \mathrm{~A} / 3020 \mathrm{~B}$. Suggested Biology classes are 1000 or 2000 in ear $1.2040 \mathrm{~A} / \mathrm{B}$, and 200 Year 3.
Combined honours with Physics (a possible geophysics program
students should follow the Geology honours program in Years $1-3$. including Geology 20508 and $3130 B$. but should take a Physics class in place of Geology 3010A/3020B. Suggested Physics classes are 1100 in Year $1.2300 \mathrm{~A} / 2330 \mathrm{~B}$ in Year 2. and two of $2200 \mathrm{~A} / 2210 \mathrm{~B}$ or
$3000 \mathrm{~A} / 3010 \mathrm{~B}$ or $3200 \mathrm{~A} / 3210 \mathrm{~B}$ and $3160 \mathrm{~A} / 31770 \mathrm{~B}$ in Year 3 . Math 2000 should also be taken in either Year 2 or 3 Combined honours with Chemistry: Students should follow the Chemistry classes in place of Geology 3300R and 2110A/3130B Suggested Chemistry classes are 110 in Year 1; 220A/211B and $30 \mathrm{~A} / 234 \mathrm{~B}$ or 240 in Year 2; any 300 level Chemistry in Year 3 Students in combined honours and unconcentrated honours programs sho
second year.
Marine Geological Resources
his program is a matter of emphasis within the regular program and is designed for the student who plans to make a career in the rapidly continental shelves and the deep ocean. The honours thesis consists a project in one of the marine related areas. Please consult the Geology epartment for selection of courses.
Field Work
camp at ithe end of second year The camp must complete one field May or September. It is designed to introduce the simpler techniques used in geological mapping. A geophysics field school is held in early
May and is an integral part of Geology $3130 B$. Field excursions are a mart of several classes and are conducted at appropriate times during he session. In addition, some optional field excursions may be held each year.
Students are sharged a contribution towards the cost of all field excursions. Charges tor those trips that are held. during the session, as
part of a class are payable at registration. Due to increased costs and uncertainty of external funding, fees for individual field excursions are xed yearly. (Please consult department.) The charges tor optional fiel ips are notified, and payable, several months in advance.

Thesis and Honours Qualifying Examination A student in an honours degree program may choose one of three options:

A thesis as Geology 4200 , followed by an oral examination, based on the general subject area of the thesis. This oral examination the
A thesis as Geology 4200, and a written comprehensive
examination, reflecting the content of the 3000 and 4000 level classes which the student has taken
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
heses must be completed by the second Monday in March of the Ourth year. Students who complete them after this date andibefore $M$ ay
31, will have to graduate in the fall, not the spring. Atter May 31 , the udent must re-register for Geology 4200 for the following academic ear, pay the fees for that class, and graduate at the spring convocation of that academic year.
Minimum Grades

## upon a minimum grade of $B$ - in Geo $A$ grade of $D$ in a later Geology Cla or which that one is a prerequisite.

## Classes Offered

1000 Introduction to Geology: lecture 3 hours, lab 3 hours, G. Muecke and staff. An introductory class for students who plan to take a material covers the whole field of geology including the origin of the solar system, earth history, mountain formation, volcanoes, continenta 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 major in Geology but have unresolvable scheduling conflicts with Geology 1000 should consult the undergraduate advisor
1040A/1050B The Earth and Society: lecture 3 hours, lab 1 hour per week. D.B. Scott. These classes are two parts of a single unit designe for students in the social sciences and humanities. Geology
deals with the nature and structure of the earth and with processes acting thereon, but only in sufficient depth to provide background fo
understanding of the matters discussed in Geology 1050B, without detailed study of rocks and minerals. Previous mathematics, physics, or chemistry is not required. Students with good grades in this class may enter Geology 2410B. Geology 1050 B applies to geological concepts economic, social. and political decisions of the past and future. Geolog 1040 A is a prerequisite
2050 B Principles of Geophysics: lecture 3 hours, lab 1 hour. P. .J.C. Ryall. Prerequisites: Physics 1100 and a first year class in mathematic Understanding the princ encreasingly important in geological studies gravity, magnetics, electromagnetics), their powers, and limitations, provides a foundation for later more practical classes.

2100 Introduction to Mineralogy and Geochemistry: lecture 3 hours, lab 3 hours, D.B. Clarke. Prerequisite: Geology 1000. This class deals into crystalline compounds (mineralogy) and the ways in which chemical changes affect rocks (geochemistry). The lectures cover the Crystallographic principles which determine the regular internal and external structure of minerals, the chemistry and structure of the maje groups of rock-torming minerals, the ways in which minerals
with melts, with other minerals and with solutions in geological environments, and practical applications of these principles to mineral exploration. The labs cover the identification and description of minerals 2110A Field Methods: lecture 3 hours, lab 3 hours, N. Culshaw Prerequisite: Geology 1000 . This is intended as an introduction to field escenniques for the accurate field description and identification of rocks and the use and construction of geological maps. Geophysical field -
2200 Sedimentology and Biostratigraphy I: lecture 3 hours. lab hours. M. R. Gibling. R. Boyd. F. Medioli, P.E. Schenk. Prerequisite
Geology 1000 or equivalent. This class studies the basic materials of sedimentary geoloogy: modern sediments and processes of deposition
ancient siliciclastic and carbonate rocks and macrofossil morphology and taxonomy The principles of stratigraphy are studied in order to and taxonomy. The principies of slratigraphy are studied in ordert oo
subdivide the strata into mappable units and understand the evolution of subdivide the strata into mappable units and
sediments and fossils through geological time
2410B Environmental and Resource Geology: lecture, lab 3 hours, one evening per week, G.K. Muecke. Prerequisite: any first level class
geology. Geology lies behind many of the evvironmental problems geology. Geology lies behind many of the environmental problems facing man today. In this class we consider topics such ar energy and and volcanic eruptions, the relevance of geology in the fields of and voldation engineering, pollution and waste disposal, and the role tha geology has to play in planning urban areas, especially in Nova Scotia

0001 Field School. The course provides ten days of training in
geoloogical field methods. A wide range of rock types are examined in
the field. and are described using traverses, measured sections, and
outcroo and structural maps. An individual field mapoing proiect forms 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 Geology 31308 ) is considered equivalent. Although the field school is a non-credit course. ppeears on transcripts and is a compulsory part of the geology

3010 A Igneous Petrology: lecture 3 hours. lab 3 hours. P.T. Robinson
Prereauisite: Geology 2100 The study of the field relations, mineralogy. rerequisite: Geology 2100 . The study of the field relations, mineralogy 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 crystalization history of igneous rocks microscope to determine the crystallization history of igneous rocks

3020B Metamorphic Petrology: lecture 3 hours, lab 3 hours, Robinson. Prerequisites: Geology $2100 \mathrm{R}, 3010 \mathrm{~A}$. Metamorphic
petrology is the study of the way in which pre-existing igneous, sedimentary, and metamorphic rocks respond to changes in pressure. emperature, and geochemical environment. The mechanisms of metamorphic reactions and recrystallizations, the stability relations of conditions, and the concept of metamorphic facies series are discussed In the labs, microscopic mineralogy and texture are used to decipher the netamorphic history of rock

3130 B General Geophysics: lecture 3 hours. lab 3 hours (every other week). P. Reynolds. Prerequisite: Geology 2050B. A second class in geophysics designed to follow Geology 2050 B and a prerequisite for the several 4000 -level geophysics classes. Topics include aspects of

3140A Structural Geology: lecture 3 hours, lab 3 hours, N. Culshaw. rerequisites Geology 2100R, 2200R. An introduction to the behaviou structures on the scale normally encountered by the exploration geologist, and their interpretation. The laboratory exercises in the onstruction and interpretation of geological maps develop skill in the terpretation and graphical representation of structures in three

3300 Sedimentology and Biostratigraphy II: lecture 3 hours, lab ours. P.E. Schenk. R. Boyd. M.R. Gibing, F. Medioli. D.B. Scott:
Prerequiste Geology 2200R. This course is concerned with the generation of siliciclastic, glacial, carbonate and evaporite sediments in heir environments of deposition. Weekend field trips to selected environments occupy the first month of class laboratory sessions. A includes a general. systematic study of maior groups of microfossils (mainly foraminifera, ostracoda and calcareous nannoplankton). Particular emphasis is placed on recent microfauna and laboratory

4064 C Pleistocene Biogeography: lab 3 hours, J.G. Ogden III. rerequisite at least two credits in Biology or Geology. Cross-listed with iology 4064C

150 Economic Geology: lecture 3 hours, lab 3 hours, M. Zentilli. rerequisites: $3010 \mathrm{~A}, 3020 \mathrm{~B}, 3140 \mathrm{~A}$. For those interested in mineral exploration. The Class starts win a bier intocaction to principles of leading to the formation of metallic mineral deposits. Later, and developed mainly as seminars, important examples of ore deposits are discussed with emphasis on their total geological environment and the the second term will be dedicated to the geology and petrology of coal the second term will be dedicated to the geology and petrology of coal
a self-contained course offered by Dr. P. Hacquebard (unless a special class on the geology of tossil fuels has been implemented; consult
department).

Honours Thesis: A research project and thesis are a normal pan the Honours BSc program and may be counted as a class under ertain conditions. Special regulations govern this, and the student 4270A Applied Geophysics: lecture 3 hours, P.J.C. Ryall. Prerequisites

Geology 2050B 3130B, or instructor's consent. The application geophysical methods to petrolewm and mineral exploration as evel. Assion 2050 B and 3130 B is here treated at a more advanced realistic geophysical data

4280B Marine Geophysics: lecture 3 hours, lab and occasional sea trip to be arranged. P.J.C.C. Ryall. Prerequisites: Geology 2050B, 3130B, 4270A or instructor's consent. (Oftered in 1986-87.) The application of ine various geophysical techniques to the study of the sea floor.and the creation, evolution and destruction of ocean basins and the implications of the experimental observations are also considered
4290A Geodynamics: lecture 3 hours. C. Beaumont (Oceanography Prerequisites: Geology 2050B, 3130 B and 4270 A , or Instructor's consent. 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 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 paleomagnetism allow us to follow

3350B Tectonics: lecture 3 hours. J.M. Hall, and staft. Prerequisites Completion of third year core courses. This is a required class for Geology Honours studentis. 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 crust in the past and continue to do so today. Part of the course deals with. modern plate tectoric processes as observed at active spreading centres, ubduction zones, and transtorm fauts. The rest of the, course examines he structure, stratigraphy, and petrology of mountain belts like the
Cordillera and the Appalachians in order to determine what processes, including plate tectonic processes, created them.
380A Advanced Geochemistry: lecture 3 hours, lab 3 hours, G.K. Muecke. Prerequisites: Geology $3010 \mathrm{~A}, 3020 \mathrm{~B}$. Geochemical aspects re formation and the exploration for economic mineral deposits are covered. How principles of crystal chemistry, isotope fractionation, hermodynamics, solution chemistry, etc. apply to the investigation of
hydrothermal solutions, models of ore deposition and redistribution, and geochemical cycles is demonstrated. Geochemical surveys, exogenic element dispersion and the origin and evaluation of geochemical nomalies are also discussed. In the laboratory the most common methods of rock and mineral analy
geochemical data are introduced.
4390 B Advanced Igneous Petrology: lecture 3 hours, R.A. Jamieso Prerequisites: Geology 3010A, 3020B, (offered in 1986-87). This class deals with advanced topics in igneous and metamorphic petrology. The
exact content of the class varies from year to year depending on the instructor. A project involving lab work outside the scheduled lecture ime is normally part of the course.

4400B Advanced Metamorphic Petrology: lectưre 3 hours, R.A. Jamieson. Prerequisites: Geology 3010 A . 3020 B . Metamorphic
are considered as equilibrium systems. The role of fluids in metamorphism, metasomatism and mass transport, and kinetics of metamorphic process are discussed. Laboratory projects and special opics are chosen to suit the student's interes
4500 Sedimentology and Biostratigraphy III: lecture 3 hours, F.S. Medioli, R. Boyd, M.R. Gibling. P.E. Schenk, D.B. Scott. Prerequisite Geology 3300 . This course is designed to present advanced topics of tasic elements presented in years II and III and provides a broad basic elements presented in years II and IIII and provides a broad
synthesis approach to topics such as: sedimentary tectonics and basin synthesis approach to topics such as: sedimentary tectonics and basin
analysis in the context of plate-fectonic theory; the diagenesis of ediments during basin filling: seismic stratigraphy and sedimentation in he world's oceans; Quaternary paleo-oceaanography and faunal distribution: and the evolution of North American fossils and sediments

4510A/4511B Directed Reading: Permission of the departmen required. This class is intended to permit further study of a s
of interest, or to correct a deficiency in a student's program.

## German

hairperson of
friedrich Gaede

## Protesors

W. Gaede, PhD (Freib.)

## Prerequisite: Successtul completion of an intermediate German Clas

 Structure of Program: (a) intensive language fraining, (b) philorogy and inguistics, (c) teaching methods, and (d) work in German civilization.Classes marked * are not offered every year. Please consult the

## German Language Studies

introductory Classes Offered
3 hours, members of the Department. German 100 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 tinal mark of $75 \%$ or better The class emphasize the poken language, and provides the student with a thorough knowledge of basic grammar. Language laboratory work and attendance of small conversation groups are required. The class fulfills the writing equirement for first-year students. German 100 or its equivalent is prerequisite for all classes on the 200 leve

101 German for Beginners: lecture 3 hours, members of the Department. An introductory language class, using the same methods and goals as German 100 . This class does not fulfill the writing requirement for beginning students.
105 German Reading Course for Beginners: lecture 3 hours, H.G. Schwarz. Students acquire a knoweedge of basic vocabulary and
grammatical structure sufficient to understand newspapers and texts in the humanities and sciences. No previous knowledge of German is required. The class is taught in English. For purposes of admission

106 German Reading Course for Beginners: lecture 3 hours, H.G. Schwarz. An introductory reading class using the same methods and goals as German 105. This class does not fulfill the writing requireme for beginning students.

100/105 Intensified German: lecture 6 hours, lab 2 hours. The mbination of German 100 and 105 is recommended to students who desire rapid progress in the German language.

## Intermediate Classes

Intermediate classes are based on German 100, high school German Grade $10,11,12$ or an equivalent basic knowledge accelerated Intermediate German course and is desives as an who want to make rapid progress in the language
200 Intermediate German: lecture 3 hours, G. Josenhans. H.G. Schwarz, E. Spence. 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

- 201 Scientific German: lecture 3 hours, E. Spence. Prerequisite: German 100 or equivalent. Primarily a reading and translation class designed to enable science students to read scientific papers, reports. and articles in scientific journals in the original language. A rea
knowledge of German is a prerequisite for many PhD degrees.
- 202 Exercises in Translation and Composition: lecture 2 hours, $G$ Josenhans. Prerequistie: German 100 or equivalent. English and
German texts from various periods of difterent types will be translate These translations lead to the discussion of specific difficulties of grammar and construction. Students must prepare translations or
compositions for each class. Dictations are given once a week. The compositions for each class. Dictations
class is conducted mainly in German.
203 Advanced German: lecture 3 hours, G. Josenhans. Prerequisite German 200 or equivent. Readings, essays and discussions will


## Study of German Literature and

## Culture

215 Goethe's Faust: lecture 2 hour

220 Introduction to German Literature: lecture 2 hours. E.A. Spence A study of texts representing major periods of German Literature. Special emphasis is on the interaction between literature, society and criticism.

- 230 In Pursuit of Freedom from Luther to Nietzsche: lecture 2 hours. D. Steften. A study of maior modern writers with special emphasis
on Hegel's "Philosoohy of Right"

235 Germanic and Greek Mythology: lecture 2 hours
240 German Art and Literature: lecture 3 hours. H.G. Schwarz. 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

245 Kant and the History of German Idealism: seminar 2 hours, Steffen. A study of Kant's relation to modern Rationalism and

305 History and Theory of the German Novel: seminar 2 hours, F Gaede Representative works trom the Baroque Age to the 20th Century

10 German Literature and Thought from Reformation Enlightenment: lecture 2 hours, F. Gaede. A study of German literature etween the 16 in and 18 th centuries as a direct rellection of the mportant religious, social and philosophical developments atter the
Reformation and during Absolutism.

315 Goethe and the Enlightenment: lecture 2 hours. D. Steffen. A tudy of German literature and thought of the time winessed the great revoluions of the 18 it century.

- 320 Goethe and Romanticism: lecture 2 hours. D. Steffen. A study of

324 Literature of the 19th Century: lecture 2 hours. F. Gaede. A discussion of essential literary texts which throw a critical light on the growing forces of materiaism and positivism.

- 325 Modern German Literature: lecture 2 hours. F. Gaede. Modern authors as witnesses of the political catastrophes and social changes of
ur century a study of the plays of $B$. Brecht and of selected prose tex our century: a study of the plays of B. Brecht and of selected prose texis

335 Hegel's Aesthetics and the Ancient: seminar 2 hours, F. Gaede.

- 340 Heidegger and German Idealism: seminar 2 hours.
- 345 Hegel's Philosophy of Nature: seminar 2 hours:

410 Aesthetic Theory: seminar 2 hours. F. Gaede. An historical stud
of the development of literary theory.
420 Seminar on Heger's Phenomenology of Spirit: 2 hours. D. irst maior work He inentended to wiritt an introduction in whis Hegel's demonstrating the necessity of the advance from the most immediate orm of knowledge to absolute knowledge. To achieve this he had to -.

## 425 Studies in German Idealism

## Graduate Studies

The Department offers a graduate program leading to the MA degree.
Details of the MA program are given in the Calendar of the Faculty of Details of the MA
Graduate Studies.

## Health Education

The course of study for the Bachelor of Science (Health Education) degree is described in the calendar entry for the School of Recreation, Physical and Health Education. The following health education course is
approved as an elective for students in Arts and Science.

HE4412A/B Human Sexuality: lecture and discussion 3 credit hours. E. Belzer. Prerequisitie:Completion of at least one year of university studies. This class is concerned with basic knoweedge and
understandings regarding biomedical, psychological. historical. legal. religious, semantic and comparative cultural aspects of human sexuality from conception to senility

## History

\section*{Chairperson of Department

## G.D. Taylor

## G.D. Taylor

## Professors

P. Burroughs, BA, PhD (Lond.), FR HistS
M.S. Cross, BA, MA PhD (Tor)
J. Farley. MSC (UWD), PhD (Man.), Biology (Adiunct)
J. Fingard. BA (Dal
J. Fingard, BA (Dal), MPhil, PRD (Lond.)
J.E. Fint, MA (Cantab)
P. Fraser, MA (Cantab.).) PhD (Lond.).) FR Hists, FRSC
H.S. Granter, BA (Dal). AM (Harv.)
R.M. Haines, MA
R.M. Haines. MA, M Litt (Durh.), DPhil (Oxon).) FR HistS, FSA
N.G.O. Pereira,
N.G.O. Pereira, BA (Williams),
M. Turner. BA. MA (Manc.). PhD (London
P.B. Waite, MA (UBC), PhD (Tor.), FRSC
J.B. Webster, MA (UBC), PhD (Lond.)

## Associate Professors

Associate Professors
J.E. Cowley. AB (Princ.)., MA (Mich.). PhD (Johns Hopkins)
J.F. Goodrey, BA (Tor), B Phil, DPhil (Oxon.) - President, King's College J.T. O'Breien, BA (Wisconsin), MA PhD Phoghenter).
L.D. Stokes, BA (Tor), MA, PhD (Johns Hopkins)
L.D. Stokes, BA (Tor). MAA, PhD (Johns Hopkins)
D. . Sutherland. BA (MAA) MA (Dal) PhD (Tor)
D.A. Sutherland, $\mathrm{BA}($ (MIA), MA
D. Wootton, MA, PhD (Cantab)

Assistant Professors
R. Bleasdale, BA, MA, PhD (UWO
1.L. Parpart, BA (Brown). MA, PhD (Boston)
J.R. Phillips, MA (Edinourgh), PhD (Dal)

Research Scholars
C. Neville, BA (Hons), MA (Carleton). PhD (Aberdeen)

Honorary Special Lecturers
D.B. Flemming
N. Jannasch
N. Jannasch
M.E. Moore

## History as a Subject for Study at

 UniversityA 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 they are and how they arived wher their own past as part of their culture.
The academic study of history, therefore, is concerned to discover as
much as possible of the rialty 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
he way it uses evidence, but still an ant because the reconstruction of he past requires a disciplined imagination and an effective rhetoric for the communication of meaning.
The contemporary world is one of intensive speciaization, in which
the varieties of human knowledge have increased well beyond the
capaciy of any the role of history as the foundation of a person's 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 exclude any belect that portion of it especially relevant for them. History
will want to sta
field of study will always be the whole of human experience.

Aims of Teaching and Study
The subject of history does not have a monolithic body of knowledge. Historical understanding is a matter of interpretation, of offering explanations sor events ana moves scepticism and controversy are thus he very stuff of history. The history student does not merely acquire a

## Degree Programs

Classes in history are set out below. There are several levels of study. 1000 -level classes are erimarily for first-year students: most 2000 -level classes treat broad geograbhical areas over speciified periods; and advanced work for the undergraduate

Bachelor's Degree Programs
Students who wish to maior in history
Students who wish to major in history are urged to choose a 1000 -leve class and must take at least four and no more than eight upper-level
classes, of which two should be at the 3000 -level. First-year students may take two 1000 -level classes in history.
 the minimum requirements may do so by taking classes of an his,
nature given by the Departments of Classic̣, Economics, Music. Philosophy, Political Science, Theatre, etc.
Interdisciplinary Programs
Merieval Studies Program
Atrican Studies Program
Canadian Studies Program
Honours Degree Programs
Students may choose from several honours programs: European, Students may choose rom several honours programs. European,
Canadian, North American, British Imperial/ African/Caribbean or General. For details consult the History Honours Coordinator.
Note: Some former full-year classes are offered as two halt classes or version of such a class. Please consult the timetable and History Calendar Supplement for current offerings and the timing of $A / B$

## Classes Offered at the 1000 Level

1000 The Making of Modern Europe: lecture/tutorial 3 hours, staff. An introduction to the history of Europe from the beginning of the Middle Ages to the period since the end of World War II, divided into
periods of differing chronological length: medieval times the Renaissance, Reformation and early, modern era; the 19 th century (from the French Revolution to the outbreak of World War 1); and the 20 th century. The lectures, supplemented by tutorials, highlight a selec number of en and which particularly characterized its development.
confronted
1010 Preindustrial Europe, 1450-1800: lecture/tutorial 3 hours, J. in social and economic history such as demography agriculture topic transport, commerical towns, military, technology,scientitic measurement, printing and literacy and metrogooises. The spring term
will be devoted to scenes of political and ideological contict will be devoted to scenes of political and ideological conflict: Renaissance Florence, Reformation Germany. Cromwellian England,
Enightenment France and Scotland and the French Revolution. The first term will emphasise monographic literature and the second, primary
sources.
1050 The Modern World: lecture 3 hours, J.F. Godrey, G.D. Taylor. History cannot foretell the future, but historians seek to determine the
origins of the problems that confront us today, and provide a perspective for people to consider how their ancestors coped with their world. This class relates current events to broader trends of political. economic and 1200 .
1200 History of Canada: lecture 3 hours. P.B. Waite. The development
of social and political history 1300 United States History: 3 hours, staft. This class investigates the political, social and cultural development one American colonies the Unied staes by addressing such fundamentar matters as the over territorial expansion, the interplay of immigration with industrialization and urbanization, and the growth of the federa

1400 Europe and the Third World: lecture/tutorial 3 hours, J.E. Finit M. Turner, J.B. Webster. An introduction to university level work in history. This class also provides training in stiudy habits, analysis of problems, and essay writing by examining six "units of study" in turn.
The themes are announced in the Departmental Calendar Supplement For each unit there are lectures and tutorials, and students write an essay each, month in class time on each unit.
1600 Making the 20th Century World: First World, Third World: lecture/tutorial 3 hours, $M$. Turner. Concentrating on the period 1750 to the present this course investigates the origins of the present divisions
between the industrialized and non-industrialized, capitalist and socialist countries. The course introduces a variety of source materials and is structured as a writing course.
1990 Problems of Historical Study and Writing: seminar 2 hours, staft. An introduction to the problems of historical study, including the
nature of historical evidence, analysis and caustion place: instead, each student registers for a section dealing with a type of history of interest. The sections are limited to fifteen students and meet
once a week. Each student must write an essay per month. The general once a week. Each student must write an essay per month. The general
techniques of study and writing are thus acquired by consideration of particular problemsin a field of special interest to the student. Some of the sections that may be offered: (1) The Atlantic World and the Colonization of the Americas (Crowey). (H) Probserms of Historical Study lecture/discussion, cross listed with Medieval Studies 301R; (7) The Holocaust (Stokes); ( 9 ) Canada: Politics and Protest (Sutherland); ( $(10)$
Slavery in the United States (O'Brien); and (19) The Canadian Rebellion Slavery in the

## Classes offered at the 2000 level

European History
2001A/2002B Medieval Europe: (formerly 2000) lecture/discussion 2 2001A/2002B Medieval Europe: (formerly 2000 ) lecture/ discussion 2
hours, R.M. Haines. Cross listed with Medieval Studies $311 \mathrm{~A} / 312 \mathrm{AB}$. An hours, R.M. Haines. Cross listed with Medievar Studies $311 \mathrm{~A} / 312 \mathrm{~B}$. A
introduction to the thousand years between the end of the classical introduction to the thousand years beitween the end of the classical
world and the beginnings of "modern" Europe. Where possible original sources in translation will be used to illustrate the medieval world-view.
Students are introduced to a wide range of topics, political intellectual. Students are introduced to a wide range of topics, political intellectua appreciation of the richness of an age often characterized as dark and unknowable
2010A Early Modern Europe's Expansion Overseas, 1500-1800: lecture /tutorial 2 hours, J.E. Crowley. The commercial and colonial expansion of Europe by sea to the Americas and the East. Topics of
particular interest are the role of technology, the establishment of settler colonies, the use of unfree and indigenous labor, the effect of overseas communication on European culture, and the role of colonial expansion in the development of the world economy.
2011A Renaissance and Reformation Europe, 1450-1650: lecture/tutorial 2 hours, D. Wootton. An investigation of major changes in Western Europe from the late medieval depression to the crisis of centralized rule and economic growth in the seventeenth century Among the topics are the development of humanism in fifteenth-century
Italy and religious reform movements in transalpine Euro Mediterranean predominance in European commerce, the centralization of authority by national monarchies and the rebellions lodged against them, and the subjection of urban culture and commerce to court

212 B Absolutist and Revolutionary Europe, 1650-1800
ecture futuorial 2 hours, J.E. Crowley. A study of Western Europe during he rise of absolutist states as agencies shaping economic and social Enlightenment writings on social and economic reform. Topics include

2295B History of Modern Medicine, 1800-1950: lecture 2 hours, J.
Farley. Examines the state of medicine in 1800, 1850, 1900 and 1950, Farley. Examines the state of medicicie in $1800,1850,1900$ and 1950,
and the transition of American and Canadian medicine from a low status. ineffective, poorly ytrained droup of competing sects to what it is
oday. For each of these 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 a views on disease etiology, their attempts to control the size and quality of e profession and to prohibit the entry of women, and the scientific medicine in the early 20th century.
2330 The United States: A Political and Economic History: seminar 2 hours. G.D. Taylor. American history features many colourful personalities and episodes from the Boston Tea Party to Watergate Underlying these events are broad patterns of change: population
movements, religious and ethnic confict, economic development. movements, reigious and ertnic coniict, economic cevelopment, the
organization of polifical parties and interest groups, and unheralded but enduring shitts in the law and public opinion. This class examines public ife in America from the time of Benjamin Frankin to Ronald Reagan in the context of these general processes of social. economic, and cultura 3340 Social Hi
'Brien. A survey of the maior social and economic forces whic ranstormed the United States from an agrarian republic to an industria nation. Attention is drawn to the process of industrialization and such aiied fopics as urban growth, immigration, the rise of the corporation, the changing nature of work, and the role of government in fostering economic growth. We also look at the history of labour organizations. economic activity in the period from the founding of the Republic to the

Third World History
2370 Age of Imperialism 1870-1970: seminar 2 hours, M. Turner. Deals with the last hundred years of the activities of the imperial powers, ineir impact on the world, their rivalires among themselves and the resistance they provoked on every continent. Different torms of among the imperial powers is traced and the growth of national resistance movements and their ideologies investigated: The class give ost important imperia which inform resistance movements.
2380 Latin America: Underdevelopment and Revolution Latine America trom the independence wars to the present: the growth nationalism, the impact of British and American capital and the development of the anti-imperialist struggle, (a) in relation to Argentina
Brazi and Chile, and (b) in relation to Mexico. Central America and Brazil and Chile, and (b) in relation to Mexico, Central America and

2400 R Tropical Atrica: lecture Luorial 2 hours, staft. A survey of Afric trom early times to the present.

2410R Tropical Africa Before 1800: lecture/tutorial 2 hours. J. .B. Webster. A study of some of the major themes of Atrican pre-colonial history through an examination of the internal politics and developmen impact of immigration, slavery, and Islamic penetration on Arrican societies.
2421A Colonial Africa: lecture/tutorial 2 hours, J.L. Parpart. Examines European colonial rulue from the partition in 1885 to the emergence of material basis of colonials society, culture, class and social change in

2422B Independent Africa: lecture/tutorial 2.hours. J.L. Parpart A study of Atrica from the early 1960 s to the present. The course will examine neo-colonial myths and realities. class, party and state in
Atrica, economic development and underdevelopment. and the ques national stability during the current crisis.
2501 A The Middle East to the First World War: This class begins with an examination of the historical geography, linguistic divisions, and
cultures of the peoples of the Middle East. It examines the emergence of

Islam, the basic doctrines of the reigion, and its political implications,
 looking at the impact of European influences, the problem of "reform" in the Turkish empire and in Iran, the British occupation of Egypt; evolutions of the early twentieth century, the origins of Zionism, and the mpact of the First World War The class is a prerequisite to History

25028 The Middle East Since the First World War: Prerequisite History 2501 A. The class begins by examining the impact of British and French imperial designs on the Middle East after 1918, the Baltour Republic of Turkey. These developments then lead to examination of the development of the oil industry, secular reformism versus Islamic
traditionalism. Arab nationalism. the impact of the second world wa aditionalism, Arab nationalism, the impact of the second world war, the
mergence of the State of srael, the revolutions in Egyot and Iraq. the ise of OPEC, the fall of the monarchy in Iran and the nature of homeini's Islamic Revolution.
2700R History of Political Thought: lecture/tutorial 3 hours, D. Wootton. This course will study the History of Political Thought from the ancient Greeks to the mid-twentieth century. Students, will read works by a number of key political philosophers, including Plato, Aristotte, Aq
Machiavelli, Hobbes, Locke, Rousseau, Mill, Marx. Lectures and supplementary reading will relate the arguments of these authors to political and philosophical developments of their day. The approach adopted will be historicical but studentsts will be encouraged to ask themselves how and why our current assumptions about political right
and duties developed. There will be two lectures and a tutorial a week Assessment will be by a number of short essays and in-class tests.
2800R History of Modern India: seminar 2 hours, staff. This course will examine the period from the late eighteenth century and the beginnings
of British rule to the present day. Although most of the period therefore involves an India ruled by Britain, the focus will be less on imperial
history and policy and more on change within Indian society Tha history and policy and more on change within Indian society. The
principal themes will include: religion and social structure over two centuries of profound political and economic change: the modernisation of the Indian economy, the isse of nationalism and national political
organizations: and India's place in world aftairs, before and ater

## Classes offered at the $\mathbf{3 0 0 0}$ leve

European and British History
3001 A/3002B Medieval Civilization: Sources and Literature: (formerly 3000) seminar 2 hours. Cross-listed with Medieval Studi
315 A/316B. R.M. Haines. History 2001A/2002B provides the appropriate background for this class. Each year a selection of topics is made. wide enough to be used as central themes in the context of which medieval civilization can be studied; for instance monasticism,
universities, papal government, or architectural theory. Such topics are universilies, papal government, or architectural teory. Such topics are
studied in depth, where possible with the help of original documents (in (ranslation), and using periodical literature. Students master the basic work in certain areas. and are also encouraged to develop special
interests of their own Class discussions are used to unravel more difficult aspects and all students contribute in this way and in the writing of a small number of well argued and documented papers. Some

3009A/3007B England in the Later Middle Ages: (formerly 3010 seminar 2 hours. R.M. Haines. Beginning with the reign of Edward II. attention is given to political institutional. religious and social aspects of English history prior to the Tudors. This period includes the deposition
wo reigning monarchs (three if Edward $V$ is counted) the Hundred Years' War, the Black Death. Wyclififite heresy and the Lollards, the so called "Wars of the Roses" and the most widespread building activity in ine country since the Normans - despite an economic "depression." therefore one of exceptional interest. and variety. Some previou
experience of medieval history is desirable but not essential.
3011 A/B Renaissance to Enlightenment seminar 2 hours, D. Wbility in a Western European language ability in a Western European language other than English. This class
examines selected aspects of the intellectual history of early modern Europe including history of science, historiography, political and moral philosophy and economic ineory. Alongside general discussions of

He court of Louis XV. peasant revolts and urban popular protest, the seigneurial regime, and autocratic reform in Spain and central Europe.
We focus on the characteristic sources of social contict in France's Old We focus on the characteristic sources of social confict
Regime and their relation to the course of the Revolution.
2020 Modern Russia: lecture/ /utorial 3 hours, N.G.O. Pereira. A surve of the last two centuries of modern Russia. from 1762 to the present,
focussing on factors which contributed to the decline and fall of the focussing on factors which contributed and the formation of the Soviet state. Readings include representative samplings of contemporary documents as well as ine most re

2030 Germany in the 19th and 20th Centuries: lecture/tutorial 2 nours. L. Stokes. Selected topics in the history of Germany during the
past two centuries. including the growth of nationalism and liberalism past two centuries, including the growth of nationalism and liberalism,
he role of Prussia. industriaization, Bismarck and the political parties, civil-military relations and the rise, rule and destruction of Nazism. Open o all except first-year students.
2040 Modern France: From the Fall of the Bastille to the Rise of De Gaulle: lecture 3 hours, J.F. Godirey. Selected topics in French political, military, economic and cultural
end of the Second World War.

2052B Europe and World War II: lecture/tutorial 2 hours. L.D. Stokes Selected topics on the origins, course and aftermath of the Second
World War as this involved Europe, including Nazi foreign and occupation policies, national resistance movements, the Holocaust and the wartime origins of the Cold War. Open to all except first-year udent
2062A Italy from the Risorgimento to Fascism, 1830-1945: lecture/ /tutorial 2 hours. L.D. Stokes. Selected topics in the history of
19 th and 20 th 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 and rule of Fascism. Open to il except first-year students

British and British Imperial History
2101 A Medieval England: lecture /tutorial 2 hours, R.M. Haines. Cross listed with Medieval Studies 309A. This introductory class examines
some of the major political. social, and cultural themes in English history some of the major political. social, and. cultural themes in English histo
from the departure of the Roman legions to the Wars of the Roses. These may vary from year to year. At least one original source will be given detailed consideration

102 E Early Modern England: lecture/tutorial 3 hours, D. Wootton. This class surveys the history of England from 1450 to 1750. Among the Pariiament in the early 17th century, the Civil War, the commercial evolution, and the establishment of political stability under Walpole. D.

2111A Modern Britain to 1867: lecture/tutorial 2 hours, P. Frase Three themes of particular importance to the modern world: the emergence of paririamentary government, the industrial revolution, and
the nature of social classes and politics trom 1760 to 1867 , including the press and public opinion

2112B Modern Britain since 1867: lecture /tutorial 2 hours, P. Fraser The main themes are: the development of the popular press and
modern modes of publicity and agitation, questions of imperial policy nodern modes of publicity and agitation, questions of imperial policy
(including Ireland) as they reacted on governments and parties, and the experience of Britain in two worlds wars.
$2131 \mathrm{~A} / 2132$ The Rise and Fall of the British Empire: lecture/tutorial 2 hours, P. Burroughs. A survey of British expansion overseas from
Tudor times to the mid-Victorian heyday and the subsequent decline and fall of Britain as a great power. Among the themes considered are the motives and character of British imperialism, changing British attitudes and policies towards the empire, colonisation and conquests, contact with non-European peoples, the transtormation of empire into
commonweath, colonial revolts and independence movements. decolonisation and the legacy at home and abroad.
2151B Scottish History to 1820: lecture/tutorial 3 hours, D. Sutherland
1B Scottish History to 1820: lecture/tutorial 3 hours, D. Sutherlan
history from the Jacobean era to the end of the Napoleonic Wars. Atter students will proceed to a review of such topics as: Anglophiles and Anglophobes: the Jacobite rebellions: commercial development and overseas expansion: Highlanders vs. Lowlanders, the Scottish
Enightenment, radicalism and repression: entrepreneurial innovation and the pursuit of progress the Clearances and emigration to America.

2152B Scotland since 1820: lecture/tutorial 3 hours, D. Sutherland. survey of major themes in the history or Norn Bnitian from the end or in tutorial discussion include: the transition from war to peace; crisis of the crattsman: agitation for Parriamentary reform; Scottish Chartism: Walter Scott and Scottish Romanticism; Scottish cities in the Victorian era: Evangelical ferment and Disruption of 1843; agrarian protes
Gladstone's Scotland; the second Scottish Industrial Revolution: shipbuilding: Scottish socialism; Clydeside and "Red Friday"; Scotland in the Depression; the war: the ascendancy of Labour; Roy Thompson's Scotland: Scotish Nationalism; North Sea Oii; the legacy of

## North American History

22028 Canada's Industrial Revolutions, 1850-1950: lecture/tutorial hours. R. Bleasdale. A study of Canada's transition from a pre-industria
society to a leading industrial nation. Principle 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 patte
Special attention is given to the role of technology.
2211A The Social History of Canada Since 1870: Jecture/futorial hours. M.S. Cross. This evening 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 transtormation of the economy.
2212 T The Social History of Canada since 1870: lecture/tutorial 2 hours. M.S. Cross. This evening session surveys the development of 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 Winnieg gener
and the troubles of industrial Cape Breton, Note: $2211 \mathrm{~A} / 2212 \mathrm{~B}$ supersedes 2210 .
2230 Canada in the Twentieth Century: lecture/tutorial 3 hours, R Bleasdale, P.B. Waite. A survey of the roots of contemporary Canada, Canadian political developments as well as on economic and social structures, French-English relations and provincial and regional

2240 French Canada, 1837 to 1967: lecture/tutorial 3 hours, P.B Waite. Prerequisiste It is helpful to have had a general course in although French-speaking students are welcome, this class begins with the formation of French-Canadian society from 1760 to 1837. In the main deals with the development of French Canacian poilitcal and socia federal and provincial aspects as well as French-Canadian developments in the West, Ontario and the Maritimes. Note: also offered as $2241 \mathrm{~A} / \mathrm{B}$
2250A/B West by North: History of the Canadian West and North lecture 2 hours. P.B. Waite. This course will cover the geography and history of the Canadian prairies, British Columbia, and Yukon and the Northwest Territories, from the first white contacts to the 198

2270 The Atlantic Provinces: lecture/tutorial 3 hours, D.A. Sutherland, J. Fingard. A survey of Maritime and Newfoundland history from the 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 within a broader national and international context
studied in detail, amongst them Machiavelli. Montaigne and Locke. 3012A/B The Emergence of Modern European Society, 1450-1800 seminar 2 hours. J.E. Crowley. As the first civilization to industriaize.
Europe also had the most protracted transition from traditional to mod society. To study this centuries-long transition, this class examines such topics as the confrontation of peasant society with the commercialization of agriculture, the decline of magic in the face of increased nitera
growh of speciaized institutions to redress crime and insanity.

3021A/3022B The Medieval Church: seminar 2 hours, R.M. Haines.
Cross-listed with Medieval Studies $313 A / 314 \mathrm{~B}$. This course is ottered Cross-listed with Medieval Studies $313 \mathrm{~A} / 314 \mathrm{~B}$. This course is offered from time to time in response to demand. It is not intended to provide a
chronological survey of the development of the Western Church, but is an advanced seminar dealing with selected topics without strict
chronological limits, such as monasticism, heresy, education. chronological limits, such as monasticism, heresy, education, administration. lay-clericac conflict, church life at parish level, the work of 30308 Russian Intellectual History: seminar 2 hours, N.G.O. Pereira. A changing selection and examination of some leading examples of
Russian social and pootical thought, including that of Belinsky. Herzen Chernyshevsky, Tkachev, Pobedonostsev, Soloviev, Gershenzon, Trotsky, Lenin, and others

3040 French Intellectuals in the 20 th Century: seminar 2 hours, J. J. Godirey. In France, political life and intellectual life are inseparable. This class examines the intellectual careers of Block, Maritain, Bernanos, and Lévi-Strauss in the context of the political history of France in the wentieth century. Note: also offered as $3041 / 3042$
3051 A/B Fascist and National Socialist Movements in Europe, ideologies, social composition, leadership, rise to power and rue of the two principal European fascist and national socialist movements of the 20th century, those of Mussolini's traly and Hitter's Germany, as well as western Europe between the world wars. Through a comparative examination of these and other topics, the class attempts to define the nature of fascism and national socialism and to distinguish these from other contemporary European movements - in particular Soviet of "toalaitarianism."
3072A Rise of Modern Science: lecture/tutorial 3 hours, J. Farle Biology): R. Ravindra (Physics). 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 16 th and 17th centuries, its growing popularity of modern science in the 16 th and 17 th centuries, its growing popularity
in the 18 th century. and the rise of the scientific profession and sciencebased industry in the 19th and 20th centuries
30758 History of Tropical Medicine: lecture/tutorial 2 hours. J. Farley With the acceptance of the modern germ theory of disease, an Spanish-American war of 1898 , a full scale war was declared against such tropical diseases as yellow fever. malaria, sleeping sickness,
hookworm and bilharzia. This class will examine this war as conducte by the British imperial and colonial governments, the U.S. Army. business firms, the Rockerfeller Foundation and finally the W.H.O. Some background in either 20th Century British Imperial, or Atrican, or American history desirable. No medical or biological knowledge wit
assumed.

3090A Soviet Society: seminar 2 hours, N.G.O. Pereira. The basic institutions of contemporary Soviet society are considered both in t
of their own historical antecedents and useful comparisons with European counterparts. Topics may include the role of official culture. party machinery, the individual in society, relations with the West, science and technology, and the economy. Cross-listed with Russian
309A. Reading knowledge of Russian is

3092R Soviet Topics: seminar 2 hours. N.G.O. Pereira. Similiar in format o 3090A, but often with different themes reflecting the avaiability reading knowledge of Russian is required.

3104 Tudor and Stuart Britain; seminar 2 hours, D. Wootton Prerequisites. History 2100 or 2102 , or instructor's permission. This class concentrales on he pert the English Revolution. This involves a study of social and economic change, cultural values and intellectual assumptions, and political conciliation and conflict.
3106 The Victorian Age, England 1815 to 1870: seminar with. occasional lectures. 2 hours. H.S. Granter. An examination of English
society in the age of English dominance after Waterloo, before the society in the age of English dominance after Waterloo, before the
advent of rampant advent of rampant imperiaism in the of s. The seminars are planned
to portray the characteristic features of the Early and mid-Victorian to portray the characteristic features of the Early and mid-Victorian
period. Each seminar discusses a major theme illustrating the unique period. Each seminar discusses a major theme illustrating the unique
character of this period in English and world history. Contemporary papers. pamphlets and other writing, including fiction, and, where possible, recent tilms, are used

3111A Victorian England: seminar 2 hours. P. Fraser. An examinatio of aspects of.political. social and intellectual history, such as the ranstormation of parties under Gladstone, Disraeli. Joseph Chamber socialism will be considered in the context of Victorian personalitie
3112 Ed Edwardian England: seminar 2 hours. P. Fraser. In this crowded period, which. for convenience is taken to include the years 1900 -1914. period which.tor convenience is taken to include the years 1900 -
there is much action in the fields of naval, military and defence reorganisation, constitutional change, the Labour movement, women's political and social emancipation, and in the controversy over censorship and morality. Topics in political. social and intellectual history include tariff reform. the commititee of imperial defence, the monarchy.
3113 A Britain in the First World War: seminar 2 hours. P. Frase 3113 A Britain in the First World War: seminar 2 hours. P. Fraser.
Quustions of miltary command strategy, civilian control and the overall
direction of the war are considered: also matters of civilian morale, war aims. intelligence and propaganda. The great personalities are Asquith. Kitchener. Lloyd George. Balfour, Bonar Law and Henderson. The . secret cabinet policies are now accessible and will be given full value 31148 Britain in the Second World War: seminar 2 hours, P. Fraser Centres on the official histories, including air power, the naval war.
strategic factors, intelligence and cryotography and on Anglo-US strategic factors, intelligence and cryptography, and on Anglo-US
relations, lend lease, the scientific war, morale and war aims. The relationst lend ease the scientific war, moralie
dominating personality is Winston Churchill.

## North American History

3230 Canadian Working Class History 1, 1830-1914: seminar 2 hours,
R. Bleasdale . The transition to industrial Ia R. Bleasdale. The transition to industrial capitalist society in Canada and Topics include pre-industrial work, the geveral themes of this course. strikes, immigration, poverty, violence, women at work, working class
culture culture, labour in politics, and the emergence of socialism. Students
write research papers based on primary and /or secondary sources Write research papers based on primary and/or secondary sources.
There are no tormal prerequisites but History 2230 or 2270 would be nelpful.

3231 Canadian Working Class History II, The Twentieth Century Experience: seminar 2 hours, R. Bleasdale. 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. Students
write research papers based on primary and or secondry souctes write research papers based on primary and/or secondary sources.
There are no formal prerequisites but History 2230 or 2270 would be There a
helpful.
3240 Violence and Order in Canada: seminar 2 hours. R. Bleasdale This class attempts to uncover the causes of violence. .t analyze its
types and torms, and to assess the responses of authority to diferent kinds of disorder. Original documents are employed as well as more conventional sources. Useful preparatory reading is Hugh Davis Comparative Perspectives (New York, 1969). Note: also offered as Comparative $P$ e
$3241 \mathrm{~A} / 3242 \mathrm{~B}$.

3250 Canada within the Empire, 1760-1914: seminar 2 hours. P.

HISTORY
elations of Canada with Britain from conquest to nationhood, the
hanging attitudes of Canadians and Englishmen to the developing empire, and the interplay of impe al policises and cololial condititions

3255B The Age of MacDonald and Laurier: seminar 2 hours. P. B. Waite. A seminar course comprenending the society and politics of
Canada from Confederation to the First World War. Students will be expected to be able to participate in discussions of men. politics, and have at least begun reading in some Canadian literature. Background texts will be assigned, but it is essential to have had at least one survey
course in Canadian history.

3270 Nova Scotian Society, 1750-1945: seminar 2 hours, J. Fingard. D.A. Nutherland. Major themes in the social. economic and political
evolution of provincial society are explored in an effor to identify the major forces which, since the mid 18 th century, have worked to shap he Nova Scotian identity. Discussion involves both existing historical IMerature and original student research. No prerequisites exist bu

3272 "The Mysterious East: Themes in Regional History": seminar hours, J. Fingard. D.A. Sutherland. This class provides senior studenis egion through archival research based on a specific theme. The them or each session is announced in the Departmental Calendar

32818 Disreputable Pleasures: Popular Diversions and Commo Vices in Canada: seminar 2 hours. M.S. Cross. Popular diversions tell
much about the character and values of society. This class explores the significance of sports, popular music, rioting, prostitution. drinking and other pleasures. As well it considers the response of the respectable to
hese activities. Topics considered include the temperance moverent these activities. Aopics considered include: the temperance more
and industrial discipline: religious revivals, the invention of sport: and industrial discipline: reigioious revivals; the invention of sport:
changing attitudes to prositituion: and contemporary technologica diversions.
286A/B The Urban Experience in Canada: seminar 2 hours, D Sutherland. 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 on developments from the mid 19 th century to the present

3291A/B Wealth and Power in Canada: lecture/seminar 2 hours, G.D Taylor. The role of business in the development and underdevelopment Among the subjectis covered are the significance of entrepreneurship in egional and national economic growh, the impact of government on business, the rise of big business and managerial organization, and the
role of foreign investment in Canada.

3330 The United States, Canada and the World: seminar 2 hours
GD. Tayior During the past century both nations of North America G.D. Taylor. During the past century both nations of North America evolved from sparsely settled agricultural societies to complex industrial
nations with increasing influence on, and dependence upon. nations with increasing influence on, and dependence upon, of the United States in global political and economic aftairs, and reviews the role of the United States in the transformation of Canada since the early 19 th century. The class focuses on diplomatic aftiairs, military
confict and cooperation, the rise of multinational enterprise, and the mpact of technology in shaping America's relations with Canada and he world.
3333A/B Regionalism in North America: seminar 2 hours, G.D. Taylor. As Atlantic Canadians are well aware, regionalism has been an aporant element in the shaping of their nation, and the relationstin conomic development of the United States. The cultural and economic wharacteristics of difterent regions contributed to the formation of. and countries. This course reexamines the development of the nations of
North America in the context of this heritage of distinctive regional North America in the context of this heritage of distinctive regional
Cultural and economic systems, and assesses the impact of regionalism on contemporary political developments.
3341A/B Revolutionary America, 1760-1815: seminar 2 hours, J.E.
Crowley The rowley. The origins of the American revolution in colonial society and
politics and the alterations of social. economic and political life resulting
rom the crises. Themes of particular interest are the popularization o politics. the social conticts resulting in Loyalism, the development of a
national political economy and constitutional tradition. and the cultural changes associated with republican government and egalitiarian deology.
3350A/B Family and Community in North America, 1600-1900: seminar 2 hours. J.E. Crowley The family in North American history from he period when the family was a model for social relations to the time when it was seen as a private refuge from society at large. Among ti
opics considered are the role of the family in rural and urban communities: the demographic transition from high fertility and morality: the constriction of the tamily;s responsibilities in economic life and ducation: the role of ideology in shaping sex roles and childrearing: and and economic setting.

360 Enslavement and Emancipation Aro-Amencans in the U.S. south to 1900: seminar 2 hours. J.T. OBrien. This class examines Attention is given to the social. familial. and cultural life of the slaves. the ole of slavery in shaping southern nationalism/and national racial

3361A/B The American Civil War and Reconstruction: seminar 2 ours. J.T. O'Brien. The Civil War. occasioned by formation of the Southern Contederacy and the Union government's refusal to recognize he existence of a separate southern nation. was a pivotal moment in
he history of the United States. This course will examine the causes of the war. the forces behind slave emancipation. the military fortunes of he two combatanis. and the elfons underaken by the victorious sociely and poity of the defeated South.

66A/B Industry, Unionism, and Workingmen in the United States, 1873-1940: seminar 2 hours. J.T. O'Brien. America's rise to industrial
pre-eminence shot torward atter the Civil War. By 1900 she had the re-eminence shot forward atter the Civil War. By 1900 she had the world's bloodiest labor histories. The growth of unions. however. proceeded much more slowly. Indeed, unionization of mass production dustries was not achieved until late in the 1930 with the spread of the istory of American unions trom the beginning of the depression of the 1870 s to the end of the Great Depression of the 1930 s
3370 Marxism in the Third World: seminar 2 hours. M. Turner. Revolutionary movements in the twentieth century characteristically use hought and investigates uses by revolutionary movements and societie utside Europe. Case studies will be drawn from Latin America. Asia and Africa.

3380 Chattel Slaves and Wage Slaves: seminar 2 hours. M. Turner.
Plantation production in the last 300 years has depended on various lorms of labour. Slave. contract and wage. sometimes working in
coniunction. This course will investigate the interaction of economic and conjunction. This course will investigate the interaction of economic and
tenchnological change on the workers' legal status and on the forms of abour protest and the methods of control used throughout the history of he plantations. Studies will focus on the Caribbean and comparisons
will be made with adiacent areas of the Americas.

3390 The Caribbean: Underdevelopment and Revolution: seminar 2 made the istands a toces weant and Canbbean revolutions have cente the islands a tocus of imperia rivalires tor more than three
centuries. This class deals with (a) $1750-1880$ : the chattel slave societies created by mercantile capital and their destruction by the forces of economic and political revolution and (b) 1895 to the present the impact of 20th century imperiailism and the emergence of
nationalism and sociaism. Particular attention is paid to Cuba and nationalism and sociaism. Particular attention is
Grenada. Note: also offered as $3391 \mathrm{~A} / 3392 \mathrm{~B}$.

## African History

3440 African History from Oral Tradition: seminar 2 hours, J.B. Webster. For those students who have a keen interest in African history. he class concentrates upon a restricted geographic area and considers myths of origin, allegory and symbolism in oral traditions. how political feminist movements of the past have been handled by male chroniclers

HISTORY| HUMANISTIC STUDIES IN SCIENCEIINTERNATIONAL DEVELOPMENT STUDIES

In addition the class concentrates upon dating oral traditions, throw
genealogies. eclipse-reterences. famines and cross--reterencing 3450 Southern. Africa since 1800: seminar 2 hours. slat. The class examines not only political changes and race reatitions in Sounder
Africa but also the effects of mining capital on rural and urban societies The main themes considered are: the Mfecane and its effects on impact on political and social developments in the region. the imperial factor. the growth of African and Afrikaaner nationalisms and the development of apartheid. Southern Africa and the wider world.
$3461 \mathrm{~A} / \mathrm{B}$ Women and Development in Africa: seminar. J. L. Parpart.
This course examines the economic. political and social roles of African This course examines the economic. political and social roles of Africa
women from precolonial to modern times. It analyzes women not as women from precolonial to modern times. It analyzes women not
objects. but as actors who participate in the political and economic processes affecting their lives.
$3462 \mathrm{~A} / \mathrm{B}$ Distortion or Development: African Economic History. seminar. J.L. Parpart. 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 and ind
crisis.
Other classes
3610A/B Women in Capitalist Society: the North American Experience: seminar 2 hours. J. Fingard. An examination of the impact of industrialization and urbanization on woman's sphere "in society and
the emergence of various strains of feminism in the 19 th and 20 th centuries. Note: also offered as 3611 R.

3612 Women in Socialist Societies: seminar 2 hours. M. Turner Investigates the progress made towards the achievement of equal status tor women in societies dedicated in principle to equality for all.
Case studies will range from Cuba to China.

3750A/B History of Seafaring: lecture/discussion 2 hours. J. Fingard An examination of our maritime heritage, with the cooperation of the
of the Maritime Museum of the Atlantic. Within the context of these of the Maritime Museum of he Atlantic. Within the context of these
overlapping periods - the age of discovery. the age of sail. and the age overlapping periods - the age of discovery. the age of sail. and he fleets: the roles of the state. capital: and labour. and the features of
seafaring culture Special emphasis is given to the shipping industries seafaring culture. Special emphasis is
and maritime traditions of this region.
$3801 \mathrm{~A} / 3802 \mathrm{~B}$ Independent Topic: staff. For students in the qualifying Year of an MA program or who have specialized interests not met by the usual classes. Qualifying Year students register with the permission
of the Graduate Committee: undergraduates register with the permission of the Graduate Committee: undergraduates register with the permission
of the Undergraduate Committee. 3980A/5980A Canadian Historiography: seminar 2 hours. M.S. C The history of English-Canadian historical writing. Historians under
consideration include Frank Underhill. Harold Anis. Donald Creigh consideration include Frank Underhill. Harold Anis. Donald Creighton.
Arthur Lower. and W.L. Morton. Other topics include Canadian regional traditions and the development of new historical approaches. This course is primarily for MA students in Canadian history and for honours
students in North American history. Others interested should see the Students in
instructor.
3990 Great Historians: D. Wootton. This is a course in historiography (the history of the writing of history. It will begin an outline of the nature
and limits of ancient and medieval historical writing. It will then consider and limits of ancient and medieval historical writing. It wilt then consider
more closely the "modern" tradition of historical writing. beginning with the Renaissance. looking at the impact of the Reformation, and giving
attention to Enlightenment historians such as Gibbon. Hume. Voltaire attention to Enlightenment historians such as Gibbon. Hume Volta
and Turgot. The course will then turn to the revolution in historical and thinking carried out by Marx. and may end with an introduction to modern schools of historical writing. such as the Annates school. $4000 \mathrm{~A} / \mathrm{B} / \mathrm{C}$ Directed Readings: Staff. This class is open to 4 th year honours students and honours certificate students only.
4010 Palaeography: seminar 2 hours, R.M. Gaines. Prerequisite: This course is offered from time to time in response to demand. It provides an introduction to Latin palaeography with instruction and
practice in the reading of selected manuscripts. An elementary practice in the reading of selected manuscripts. An elementary
knowledge of $L$ Latin is essential

TERNATIONAL DEVELOPMENT STUDIES

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990 Honours Essay: staff. All history honours students and those in combined honours courses in which history is their principal subject
must write a substantial essay on a topic to be chosen in consultation with the Undergraduate Committee. The essay is related to one of their 3000 or 4000 level classes and is supervised by the appropriate staff member
Graduate Studies
MA and PhD programs in history are offered. For details of these

## Humanistic Studies in Science

 Attention is drawn to the following classes, offered in severaldepartments All of these classes are concerned with the humanistic
aspects of scientific thought and its development aspects of scientific thought and its development. timetable on registration to determine if these classes are offered
History of the Sciences Biology 3402A/Physics 3402A/History 3072A, Religion 3502A, The Biology $3402 A$ Physics $3402 A /$ History 3072A, Religion 3502A, The
Ref Modern Science. J. Farley (Biology and History). R. Ravindra (Physics. Comparative Religion).
-Biology 3403 A/B, A History of Biology: J. Farley
-History 2295A/B. The History of Modern Medicine: J. Farley
-History 3075A/B, History of Tropical Medicine: J. Farley. Biology 4664B, Oceanography 5331B, History of Oceanography E.L. Mills

Psychology 4580, History of Psychology: J.W. Clark
Philosophy of the Sciences
. To mk
Philosophy 2420B, Philosophy of Biology: R. Campbell.
Biology 3410B, Man in Nature: K.E. ven Maltzahn
-Religion 3531, Mystical Consciousness and Modern Science: R Ravindra.
Religion $3503 \mathrm{~A} / \mathrm{B}$, Nuclear Bombs: Survival and Morality: R Religion
Ravindra

## International Development Studies

## Professors

H. Barkow, PhD (Sociology and Social Anthropology)
J. Find, PhD (History)
Gold, PhD (Ocean Studies)

A Hansen, PhD (Resource and Environmental Studies)
K.A. Heard. PRD (Political Science)
P.B. Huber. PhD (Economics)

Kasdan, PhD (Sociology and Social Anthropology)
-.J.. Mangalam, PhD (Sociology and Social Anthropology)
E. Mann Borgese, (International Ocean Affairs)
1.R. McAlister. MA (Economics)
p. Ruderman, MBA (Health Administration)
T.M. Shaw, PhD (Political Science) (IDS Coordinator)
M. Tuner, PhD (History)

Associate Professors
R. Gamberg. MA (Educ
R. Gamberg. MA (Education)
J.M. Kirk, RD (Spanish) (IDS Coordinator)
I.
B. Lesser, PhD (Economics)

Assistant Professors
M.E. Binkley, PhD ( ( Sociology and Social Anthropology) M.E. Sinker. PhD (Sociology and Social Anthropology)
N.W. Jabbara. PhD (Sociology and Social Anthropology) (IDS
Coordinator) Coordinator)
B.M. Jameson, PhD (Economics and Public Administration D.F. Luke, PhD (Political Science)
fL. Parpart, PhD (History)
M. Welton, PhD (Education)

Changes in the international system including those in the Third World increasingly affect us all. So in association with faculty at Saint Mary's University, Dalhousie offers an interdisciplinary program in International Development Studies. This intercampus, interdisciplinary, international
degree program focuses on comparative examples of and explanations degree program focuses on comparative examples of and explanation
for change -economic, environmental, social and political - in the Third World. In its major and honours degree programs it brings together a set of established Dalhousie disciplinary offerings in this growing field and combines them with three new intercampus courses - 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.
For a listing of Saint Mary's University faculty and classes in IDS. the IDS brochure and timetable available from the academic calend coordinators. IDS core and other classes are usually available each summer through the "Halifax Summer School in International

## Degree Programs

The Regulations for the major or honours BA degree in International
(1) Completion of appropriate first-year classes (one of which must be a Writing class as per regulation 11.1 (c)) in at least two of the major participating social science or humanities disciplines (ie. Economics
$1100 / 1120$. History $1050 / 1400$. Political Science $1101 / 1103$. Sociol and Social Anthroplogy 1000 or 1100 or Spanish 1110A/B and 1100A/B).
(2) For the major, at least four and no more than eight Development Studies classes from the following approved list. (see regulation 11.1), of which:
two must be DS2000A/2001B and DS3010A/3011B students must take a minimum of one class in at least two
established disciplines within International Development Studies at least two must be at the 3000 level or above.
3) For the honours degree, at least nine and no more than eleven
international Develop International Development Studies classes from the following approved (see regulation 11.4), of which:
three must be DS2000A/2001B, 3010A/3011B and 4010 . students must take a minimum of two classes in at least two
established disciplines within International Development Studies at least five must be at the 3000 level or above
class selection must be approved by one of the program
coordinators. coordinators.
The International Development Studies degree at Dalhousie is diministered by a program committee consisting of one faculty member om each major department with a substantial teaching or research
interest in the field chaired by three coordinators drawn from the humanities (Dr. John Kirk. Spanish) and the social sciences (Dr. Timothy Social Anthropology). All students' programs will have to be approved by one of the Dalhousie coordinators. A joint Dalhousie-Saint Mary's University International Development Studies Committee organises the

## Classes Offered

Descriptions of International Development Studies Core Courses
 seminar 2 hours, T.M. Shaw and H. Veltmeyer. This class will introduce 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 and compete with each other in the explanation of changing conditions and societies in less developed countries.
DS 3010A/3011B Seminar in Development Studies: seminar 2 hours, J. Kirk and G. Schuyler. In this course students will begin to apply some of the theoretical perspectives and analytical tools of development 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 preced program.

OS 4010 Honours Essay Practicum in Development Studies:
seminar 2 hours, staff.
DS 4001A/4002B Special Topics in Development Studies: stall
Listing of International Development Studies Approved Disciplinary Courses
(See respective disciplinary sections of the calendar for class
African Studies
(DS) 2000A Pre-independence Inheritance

## Biology

Comparative Relic
2001A/B Judaism
2003A/B Islam
2011A/B Hinduism
2012A/B Chinese Religions
2013A/B Buddhism
2013A/B B Buddhism
3010 Death and Afterlife in World
3011 Religion and Culture in India
3012 Comparative
3012 Comparative Study of Christianity and Other Religions
3013 Religious Myths. Symbols, and Rites
3531 Mystical Consciousness and Modern $3500 \mathrm{~A} / 3501 \mathrm{~B}$ Rise of Science and the Modern World

## Economics

2238 A Industrial Revolution in Europe
223A
2238 Euroctrean Economy in Historical Perspective $2241 \mathrm{~A} / \mathrm{B}$ Comparative Economic Systems (DR) ${ }^{*} 2250$ Applied Development EC
(SS) 3317 B Poverty and Inequality 3300A/B International Trade (DST ${ }^{\circ}$. $3333 \mathrm{~A} / \mathrm{B}$ Theories of Economic Development
$3334 \mathrm{~A} / \mathrm{B}$ Economic 3334A/B Economic Development theories and debates
3355R Marxian Economics 3336 B Regional 33338 Regional Development
3432 Regional Economics



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[^4][^5]INTERNATIONAL DEVELOPMÉNT STUDIES/LINGUISTICSIMARINE BIOLOG
of French: Comparisons with English), English (201 The English Language, 202 History of the English Language, 253 Old English, 351
Middle Engnish), Philosophy ( 3300 Philosophy of
anguage, 4510 Topic the Philosophy of Language), Sociology and Social Anthropology he Brain, 3150 Introduction to Hearing and Speech Mechanisms, 3190 Sychology of Language). German (various classes), Russian (400 The Structure of Contemporary standard Russian). Classics (several classe
in Greek, Latin, Coptic, Syriac), Spanish ( 4040 Advanced Style and in Greek. Latin, Copicic. Syriac). Soatiss (4040 Acvances style and departmental listing. It should be noted that some of the classes listed may not be offered in the current year

## Marine Biology

Program
R.K O'Dor
The Biology Department offers an Honours Degree in Marine Biology. he program is designed to provide a fundamental background in
Biological Science while permiting concentration in marine biology. II prepares students for technical positions in marine biology and fisherie and for advanced research training in graduate school. It combines the esources 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 nables many classes to offer extensive field work. The following is a suggested selection of classes:

Year I: Principles of General Biology (Biology 1000R). General Mathematics $1000 \mathrm{~A} / 1010 \mathrm{~B}$ ). A "writing" class (several are acceptable)
Mer


Year II: General Ecology' (Biology 2046R). Marine Diversity2 (Biology 2001A). Survey of Fish Biology (Biology 3067B). Cell Biology3 ${ }^{3}$ (Biology
2020A). (Laboratory techniques for cell and molecular biology (Biology 2020A). LLaboratory techniques for cell and molecular biology (Biology 2401). Introduction to Probability and Statisticics 1 (Mattrematics 2070A/ 240). Introduction to Probability and Statistics 1. (Mathematics 2070A/B).
Introduction to Probability and Statistics II (Mathematics 2080B). Elective

Year II: Invertebrates (Biology 332tR). Ahysiology of Marine Animals Biology 3071R). (Systemaic survey of Algae (Biology 3211B) or Biology of the Algae (Biology 3212 a)). Communites and Ecosystel
Biology 3061B). Aquatic Microbiolgy ( Biology 3100 B). (Field Ecology (Biology 3614C) or Genetics (Biology 2030A/B) if not taken in second year). Electives.
Year IV: Honours Research and Thesis (Biology 4900R). Introduction Biological Oceanography ( Biologg4 46608). Limnology (Biology 4068A) Fisheries Oceanography ( Biology 4369A). Introductory Physical and Chemical Oceanography (Oceanography 4170B). Electives

Acceptable Substitutions: 'Biology 2060A. 2Biology 2602 (summer) 3Biology 2015R, or Biology 2110 B .

Suggested Electives: Resource Ecology and Economic Development (Biology 4650A). Marine Microbiology, (Biology 4100A). Icthy hology
(Biology 4379A), The Politics of the S ( Biology 4379A). The Politics of the Sea (Political Science 3590R).
Marine Geophysics (Geology 4280B). Animal Poopulation Ecology (Biology 3069A). Plant Physiology (Biology 3073B). Physiology of Marin Algae (Biology 4214B). Advanced Topics in Animal Physiology (Biology 4070 C). Animal Nutrition (Biology 4072C), Fisheries Population Biology Biology 40678), Biology of Phytoplankton (Biology 4662B). Ecosystem
Analysis (Biology 4616B). Theoretical Population Dynamics (Biology
$4617 \mathrm{~A})$.

## Marine <br> Geological Resources

Me Geology Department ofters an Honours Program w

## Mathematics, <br> Statistics and Computing Science

hairperson of Department
ofessor Emeritus
Edelstein. MSC (Jerusalem). DSC (Technion-Haita
rofessors
Borwein. MSc. DPhil (Oxtord)
G Buckley. MSc (Alta). PhD (UBC
A. Field. MSc. PhD (Northwestern) (Director of Statistics)
A. Fillmore. MSc. PhD (Minnesota). FRSC

RP. Gupta. MSc (Agra). PhD (Delhi)
K.M. Moriarty. MSc (Dal). P
R. Pare. MSc. PhD (McGiil)

J Phililiss. MA. PhD (Oregon)
H. Radiavi. MA. PhD (Minnesota)
P. Stewart. MA (Berkeley). PhD (UBC)
W. R.S. Sutherland. MSc. PDD (Brown)
S. Swamiñathan. MA. MSc. PhD (Madras)
K. Tan. PhD (UBC)

Thiebaux. MA (Oregon). PhD (Stantord)
Thompson. PhD (Newcastle upon Tyne) Thompson. MhD (Newcastle upon Tyne)

Associate Professors
B. Borwein. MSc. PhD (UBC
P. Borwein. MSC. PhD (UBC)
J. Clements. MA (UBC). PhD (Tor
KA. Dunn. MSc. PhD (Tor)

KA. Dunn. MSc. PhD (Tor)
B.W. Fawcett. MSc. PhD (McMasten)
B. W. Fawcent. MSc. PhD (McMaster
G Gabor. MSc. PhD (Eotvos)
J.B. Garner. MSC. PhD (Nottingham) (jointly with Community Health and
E.A. Grunnenfelder. PhD (ETH Zurich)
A. Grunentelder. PhD (ETH Zurica)
Hamiton: MA. PhD (Queen's)
S. Hartzman. MS (Purdue). PhD (Colorado)
C. .A. Sastri. MSc (Andhra). PhD (New York)
. Shepherd. MSc. PhD (Western)
Wood. MSc (MCM). PhD (Dal)
Assistant Professors
A. Coley. PhD (Lond.)

Dilcher. MSC. PhD IQue
Farrag. PhD (Alberaz
Farrag. PhD (Alberta)
D. Holmes. MSc (Princ
K. .
E. Manchester. MSc. PhD (Toronto)
R.J. Nowakowski. MSc.
A. Sedgwick. PhD (Tor)
D. W. Wiens. MSc. PhD (Calg.

Computing Lab Director
D. Trueman. MSc (Toronto)

Learning Centre Directo
P. Stevens. MSc (Delth)

Statistical Consultant
P.E.J. Green. MSC (MCMaster)

## Postdoctoral Fellows

R. Gentle
${ }^{\text {B. }}$ B Roy
M. Teboulle

## Degree Programs

One full credit in mathematics other than Mathematics. 1020 and 1100 is
Mathematics as an area of concentration
Sturus and and in mathematics should arrange a program in Consultation with the department.
Majors in Mathematics must obtain at least tour Mathematics credits beyond the 1000 level. Amongst these the following are required
Mathematics 2000 (or 2500) 2030 :2040 Naihematics 2000 or 2500 .
Maiors in Mathematics are strongly urged to include Computing
Science 1400. 1410 as part of their program
Students wishing to concentrate in Applied Mathematics. Pure
Mathematics or Statistics are advised to consider modelling their programs on the first three years of the Mathematics or Statistics Honours programs. atter possibly replacing 2130 R with 2030 A and
20408. 2500 R with 2000 R . and 3500 R with 3090 A and 3100 B . Tho
 students who wish to arrange inter-disciplinary programs (with such
fields as Physics. Chemistry. Biology. Engineering. Psychology and Economics) are invited to discuss their interests with the department.

## Honours in Mathematics

The following program is normally followed by students who plan to tare
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 1300 .

Year 2: Mathematics 2130 and 2500 . Mathematics 2130 may be take in Year by well-qualified sudents whe consent of the instructor, in

Year 3 and Year 4: Mathematics 3030, Mathematics 3500 and five

Students may choose programs with a concentration in Applied
Mathematics. Comping Science. Pure Maliemaics or Statistics.
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
examine the separate Calendar entry for Statistics
All honours programs must be approved by the Chairman.
Those students wishing to take an Honours degree concentrating in following:

Year 1: 1500R: 1300R: CS1400A: CS1410B: 2 elective classe
Year 2: 2500R: 2130R: 2070A: 2080B: 2270B; (Co-op Seminar) and $1-1 / 2$ elective classes

Year 3: 3500R; 3030R: 3110A: two of 3210A. 330AA 3260B, an
angustic stuady in the broad sense: French ( 3020 Linguistics, 3025
Linguistic Introduction to Acadian Dialectology, 4010 Great Linguists of
the 20it Century, 4001 \& 4002 History of the French Language, 4015
Advanced Translation into English, 4011 Lexicology, 4012 The Structure

Year 4: 4400: the remaining two ot 3210A. 3300A. 3260B. an approprate statis
elective classes.
Those students wishing to take an Honours degree concentrating in Pure Mating:
following:
Year 1: 1500R: 1300R: CS1400A: CS1410B: 2 elective classes.
Year 2: 2500R: 2130 R: another full mathematics class: 2 elective
Year 3: 3500R: 3030R: another full mathematics class: 2 elective
Year 3: 3
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 oo Honours Comprehensive Examination
The Honours Comprehensive Examination in mathematics consists of a student during the spring term. The topic is decided on in coniunction with the supervisor of the Honours seminar. The paper is also presente to the seminar. The Honours Comprehensive Examination in statistics requires successtul conletion of Statistics 888 .

Combined Honours
Students interested in taking honours in mathematics or statistics and another subject as a combined program should consult the chair
the department through whom a suitable course of study can be arranged.
A combined honours program may be appropriate for many. Students contemplating a combined honours course in. mathematics or statistic
and another subject should. however. bear in mind that the work in either subject would probably be insufficient for admission to a regular graduate program: A qualifying year would usually be necessary.
Co-operative Education Program The Co-operative education program integrates the usual honours program 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 and laboratory positions primarily in the Martime region. The work experience helps students see the applicability of their training in mathematics. statistics and computing science and helps them make inteligent career choices. Upon successtul completio the program the student receives the Honours Degree and the
University transcript indicates that the program was a coooerative It is possible to complete a Co-op degree in $41 / 3$ years, although students should expect to take 5 years. There is some freedom in ho students should be prepared to be filexible.
There are four Co-op programs available within this Department. in the areas of:

## Mathematics.

Marnematics and Computing Science combined.
Mamputing Science
Statistics
A Combined Honours Co-op degree. combining Mathematics or Computing Science or Statistics and another appropriate subject. is possible. Stucents interested in such a program should consult the
Eligibility
Students are required to demonstrate
sufficient academic potential:
a suitability for and interest in Co-op education:
successtu completion of an appropriate combination of the classes
M1000/1010 and CS1400/1410. Normally all four of the halt-
classes would have been completed

Normally. students entering their second year of study may apply for admission to one of the Co-op programs. However, interested first-yea as early as possible for advice on course selection

Work Terms
It is ultimately the responsibility of the student to arrange the work term
 employer's policies regarding permanent employees of similar train and education. At the end of each work term, each student must submit an acceptable work repo
students realize that successful completion of the Work terms are an integral part of the course of study. Indeed, the
advantages of Co-op Education derive directly from the successtu 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. Two consecutive w terms may be taken. Work terms are arranged subject to the student's academic preparation and the availability of suitable placements. Various combinations of work term/academic term sequences are permissible. subject to the approval of the Director of Co-op
Under normal circumstances. the following criteria apply

At least 4 academic terms must be completed betore the first work term is begun.
In any twetve-month period (of full-time study) at least one academic
The last semester in the program 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 Various topics of relevance to the work terms are discussed. The
purpose of the seminar is to better prepare studens 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.

## Academic Requirements

The academic requirements for Co -op students are similar, although not sonital to. the requirements for standard Honours students. There are onours Comprehensive Examination. In addition, all relevant Faculty regulations must be satisfied.

Additional Information or additional intormation, course selecition advice, and entry Department of Mathematics. Statistics and Computing Science. First-year students who are interested in a Co-op program are urged First-year students who are interested in a Co-op program are urged
to contact the Director before or during their first year for advice on course selection.

## Mathematics Classes Offered

he listed prerequisites indicate the mathematical background expected of students entering any class but may be waived with the consent of ine instructor.
Class descriptions for Computing Science can be found in the Class descriptions for Statistics can be found in the calendar unde Statistics.
Credit may not be obtained twice for the same class even if the ave been changed

0010 R Fundamentals of Mathematics: lecture 3 hours (non-credit class). May be offered in place of senior matriculation mathematics as prerequisite for first-year classes at the University. Normally. junior
matriculation mathematics as taught in Grade XI in Nova Scotia is expected as a background but mature students or others who are well motivated are able to cope with this class. Atter a review of elementary nalytic geometry are studied. In addition to preparing students for the calculus. the class is useful for those wishing to build up their knowledge the fundamentals of mathematics for other reasons.

Note: The following two classes. Mathematics 1000 and Mathematics solid foundation for study in the Sciences (Physics. Chemistry. Biology. tc.). as well as for further study in Mathematics. The class Mathematic offered in both terms
$1000 \mathrm{~A} / \mathrm{B}$ Differential and Integral Calculus: lecture 3 hours. tutorial our. Prerequisite: Nova Scotia Mathematics 441 or equivalent. Creadi
will be given for only one of Mathematics 1000 . 1100 a and 1280 . A selfcontained introduction to differential and integral calculus. The topics nclude: functions. limiss: differentiation of polynomial. trigonometric. exponential and logan. integration by substitution. A sequel to this class is Mathematics 1010 .
10108 Differential and Integral Calculus: tecture 3 hours. tutorial 1 our. Prerequisite: Mathematics 1000 . A continuation of the study of
calculus with topics including techniques of integration, elementary difterential equations and applications. Riemann sums, parametric equations and polar coordinates, sequences and series. Taylor series.
Note: Credit can be given for only one of Mathematics 1010 and 1290
1020R Mathematics for Liberal Arts Students: lecture 3 hours rerequisite: Nova Scotia Mathematics 442 or equivalent. For students
who wish to become acquained with mathematics as an art rather that as a tool for the sciences. It discusses some of the more elementary yel nteresting aspectis of the subject with an emphasis on the historical orgins of the various topics. Topics include elementary number theory, iopology, and topics trom geometry. This class may not be used to satisty the requirement that BSC students must have at least one full niversity class in mathematics
060A/B Introductory Statistics for Science and Health Sciences same as Statistics $1060 \mathrm{~A} / \mathrm{B}$ ) lecture 3 h hours. tutorial 1 hour. Prerequisite Nova S
see Statistics 1060 .

Statistatistical Techniques of Scientific Experimentation: : same Statistics 1070A/B) lecture 3 hours. tutoral 1 hour. Prerequiste.

100R Mathematics for Commerce: lecture 3 hours. Prerequiste: Nova Scotia Mathematics 442 or equivalent. A survey of mathematical
techniques useful in analyzing mathematical models in economics and nanagement. The material covered in the class is similar ta that algebra. the simplex method. maximization of functions of two variables and Lagrange multipliers. A survey class tor students who are not going take further work in mathematics. Students who are going to take han Mathematics 1100 . This class may not be used to satisfy that equirement that BSC students must have at least one full university ass in mathematics

280A/1290B Differential and Integral Calculus for the Engineering rogram: lecture 3 hours. tutorial 1 hour. Prerequisite: Nova Scotia If precaliculus mathematics. functions. limitiss. continulyy differentiation and integration of polynomials, exponential. logarithmic and trigonometric Unctions. Applications to finding areas. graphing. maximum-minimu ector algebr reated rate probbems. Mathematics 12908 includes curves. vectors. lines and planes in three dimensions. surfaces of evolution. parametric equations and polar coordinates. 1280 A is a everequisiste for 12908
300R Discrete Structures: lecture 3 hours. Prerequiste: high, standing Nova Scotia Mathematics 441 or equivalent This course is intended himarily for students who anticipate taking, an honours program in int unctions. relations. equivalence relations. order relations. elementary oogic. partitions. counting. induction, the Euclidean algorithm. primes and ogic. partitions. counting. Induction. the Eucilidean algortinm. primes
nique tactorization. the Chinese remainder theorem. prime fields. omplex numbers. and matrix algebra.
S00R Calculus: lecture 3 hours. tutorial 1 hour. Prerequiste: high
standing in Nova Scotia Mathematics 441 or equivalent. This course is intended primarily for students who anticipate taking an honours
program in the physical or mathematical sciences. The topics of Mathematics 1000/1010 are covered but in greater denth Mathematics 500 is equivalent as a credit to Mathematics $1000 / 1010$. Note: Credit
can be given for only one of Mathematics $1000 / 1010.1280 / 1290$ and can
1500.
2000R Intermediate Calculus: lecture 3 hours. Prerequisite Mathematics 1010. Topics include: continuou's functions and their fundamental properies. partial derivatives and applications. multiple integrals. geometry of Euclidean vector spaces with emphasis on three
dimensions. elementary differential equations. Credit can not be given for more than one of Mathematics 2000. 2200. 2480-2490 and 2500 .

2030A Matrix Theory and Linear Algebra I: lecture 3 hour Prerequisite Nova Scotia Mathematics 441 or equivalent. This class Matrix Theory and Linear Algebra. Topics include: vector spaces. linea ranstormations. determinants. Systems of linear equations. Students
hould note that this is a second-year class and. although it has no should note that his is a second-year class and. althougn it has no handle formal proofs at the level of a student who has completed Mathematics 1000 is expected
2040B Matrix Theory and Linear Algebra II: lecture 3 hours. Prerequisites: Mathematics 2030 and 1000 . This class is a continuation Mathematics 2030. Topics include similartity, diagonalization. inner 2030/2040 and 2130 .

2050R Problems in Geometry: lecture 3 hours. Prerequiste, stimulating geometrical probsems. A set of approximately 20 challengin 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 inal grade. These problems are chosen so that their solutions use a wide variety of geometrical ideas ifrom Combinatorial. Projective. hversive. Transtormational. Topological. Difterental and Non-Euclidea Geometry

2070A Introduction to Probability and Statistics 1 : same as staitsic 10) 10cture Prequiste: Mathematics 1000 For descrinto see Staitistics 2070.

2080B Introduction to Probability and Statistics il: lecture 3 hours. (Same as Statistics 2080B). Prerequisite. Statistics 2070 and Mathematics 1010 or Mathematics 2030. Some knowiedge of matrice assumed. For description see Statistics 2080

2130 R Linear Algebra: lecture 3 hours. Prerequisite: Mathematics 1010 or students who are masic provided by 2030 and 2040 . Topics include the material of 2030 an 2040. canonical lorms including the Rational Form and Jordan Form inner product spaces including the Spectral Theorem for normal further topics in pure and applied linear algebra. This class provides an excellent background for furner study in Mathemaics. Nor more than ne credit can be given for Mathenalcs 2030-2040 and 2130
${ }^{2270 B}$ Introduction to Numerical Linear Algebra: : same as Computing Science 22708 ) lecture 3 hours. Prerequistes. Mathematic 010. 2030 and Computing Science 1410 For description see
$2300 \mathrm{~A} / \mathrm{B}$ Introduction to Models of Applied Mathematics: lecture 3 hours. Prerequisite: Mathematics 1010 and Computing Science 1400 sciences. About six problems are analyzed by developing and solving simulation models are covered. Areas from which the problems are drawn include assignment and transportation problems. measurement heory social choice contlict resolution. nnventory management

2480A/2490B Intermediate Calculus for the Engineering Program: lecture 3 hours. Prerequisite. Mathematics 1290 or 1010 . The topics
these two half classes include functions of several variables, partial derivatives, multiple integrals. indelerminate forms. improper integrals determinants, systems of linear equations. complex numbers. elementary ordinary yifferential equations. Students who take Math

2500R Introductory Analysis: lecture 3 hours. tutorial 1 . hour Prerequisites: Good standing in Mathematics 1010 and concurren registration in Mathematics 2130 . 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 of functions of several variables, the Riemann integral line aiferentiation of tunctions of several variabies, the Riemann iniegral. line and surface integrals. Green s. Gauss and Siokes theorems. power
series. Credit can not be given for more than one of Mathematics 2000 2200. 2480-2490 and 2500
-2540A/B Basic Set Theory: lecture 3 hours: Prerequisite: Mathematics 1000 A simplified introduction into basic topics of set theory. Matters discussed include sets and relations, countable and uncountable sels
cardinality in general: partial order. maximal and minimal elements. functions and operations on them: elementary topology of the real line continuity and related topics.

- 2600 B Theory of Interest: lecture 3 hours. Prerequisite: Mathematic to10 or 110. A delailed examination of the theory of simple and theory of interest portion of Examination 4 in the Sociely of Actuaries examination series is based. Some of the topics are: nominal and
effective rates of interest and discount. force of interest. annuities. perpeluities, 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 additional information
-3010A/B Mathematical Logic: lecture 3 hours. Prerequisites students who have not had any previous experience handling so tha connectives. quantifiers and tautologies have an opportunity to pract
using them. Next propositional logic is studied This system using them. Next propositional logic is studied. This system of mathematica logic aftords the opporiunity of studying a tormal language
which is quantifier-tree and so introduces. in a relatively uncomplicated setting. the background for predicate logic. The work is carried as far as .an

3020A/B Set Theory and Foundations of Analysis: lecture 3 hour Prerequisites. Mathematics 2000 and 2130 (or 2040). This class
concerns the basic objects of mathematics and the proper way of dealing with "infinity." It is essential for a clear understanding of most modern aspects of mathematics. The topics include: operations wis
sets, countable and uncountable sets, cardinal numbers, ordered sets well-ordering, ordinal numbers, the axiom of choice and its equivalent and axiomatics in set theory. 3030 R Abstract Algetra, lecture 3 hours. Prerequisite: Mathematics
2040 or 2130 In this first class in abstract algebra the following topics
 ideals. Euclideean domains. polynomial tins. filelds, unique factorizal
irreducible polynomials, Sylow theorems, solvability of polynomial equations, Galois theory, and the Jordan canonical form.
-3040A/B Metric Spaces and Elementary Topology: lecture 3 hours. Prerequisites: Mathematics 2000 and 2130 (or 2040). 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
-3050R Differential Geometry and Tensor Analysis: lecture 3 hour consists of two parts. The first part discusses the theory of curves and surfaces in three-dimensional Euclidean spacee. Topics include: theory of
mean curvature. tormulae of keengarten and Gauss. geodesic Riemannian geometry, and. if time permits, an introduction to general ativity as an application of Riemannian geometry. Topics include: Riemannian geometry, absolute differentiation and connexions.
3070A/B Theory of Numbers: lecture 3 hours. Prerequiste: Mathematics 2040 . The following topics are discussed: congruences and residues. elementary properties of congruences. linear
congruences: theorems of Fermat. Euler and Wison : Chinese ongruences: theorems of Fermat. Euler and Wilson: Chinese remainder eorem: quadratic residues: law of quadratic reciprocityy Legendre. agebraic numbers and integers. uniqueness of factorization. definition Prerequisite: Mathematics 2000. An introduction to the basic elements a complex analysis. Topics include. complex numbers. functions.
difterentiation and integration in the complex plane. some special ditferentiation and integration in the complex plane. some special
mappoings. series in general. Taylor and Laurent Series. residues. some principles of contormal mapping theory.
090AA Advanced Calculus l: lecture 3 hours. Prerequisites athematics 2000 (or 2200) and 2030. An introduction to Fourier Series opics covered include half range expansions. expansions on other itervals. convergence theorems. difterentiation and integration Fourier Serees and the Complex form of Fourier Seres. Also an
introduction to special functions. including Gammia and Beta function not orthogonal polynomials and some of their properties is is given. dditional topics covered include some implicit:-unction theorems and n introduc
100 B Advanced Calculus II: lecture 3 hours. Prerequisite efined by integrals difterentiation under the integral signtes of function onvergence of improper integrals. improper multiple integrals and unctions defined by improper integrals. Also considered is the Fourier itegral and various other integral transtorms. a review of nuttitle
itegrals and vector field theory. Green's Stokes and the divergence heorems and related matters are also consideled. Note: Not more than ne credit can be given for Mathematics 3500. and 3090A. 3100
3110A Differential Equations: lecture 3 nours. Prerequisite: Mathematics 2000 One of the aims is to give students the ability to nalyze and solve a number of different types of difterential equation hemistry, biology. and other areas. The class is intended mainly for athematics students interested in applications and for science
udents who wish to be able to solve probiems arising in their maior reas of interest.

3120 B Differential Equations: lecture 3 hours. Prerequistie Mathematics 3110 . The topics discussed are of great importance to any dent interested in applies and Areas mols he classical partial differential equations. and some applications to physics. chemistry and engineering.

10A Introduction to Numerical Analysis: (same as Computing cience 3210 A , and previously part of 3200 R ) lecture 3 hours rerequisites: Mathematics 2270.2000 (or 2200,2500 ). Some more advanced aspects of numerical linear algebra. including the Power rocedures for iterative processes are examined. Several forms of iterpolating polynomials. Newton, Lagrange and Hermite are onsidered. Finite differences are also introduced. Numerical. Gaussian, Romberg and adaptive quadrature are ciscusssed. and erro stimates considered. Polynomial splines and some of their properties are introduced. Methods for solving nonlinear equations including the nding the roots of a polynomial. Throughout, the difticultities of mplementing the various methods are discussed, and illustrated via ssignments. Finally, some indication of the difticulties involved in utlidimensional numerical analysis is given 32208 Numerical Solutions of Ordinary Differentia! Equations,
Same as Computing Science 32208 ), lecture 3 hours. Prerequisites

Mathematics $3110,3210,3090$ (or concurrent registration in 3500 .) Initial Kulta and Predictor- Corrector are examined. The convergence and stability of the numerical methods is investigated and propagated erro bounds and estimates sought. Also considered are starting techniques, variable order and/or variable step length strategies and automatic error methods for solving Boundary Value Problems (e.g. shooting methods and collocation are also discussed). Throughout.t.the difificulties of implementing various methods are discussed and illustrated via
assignments and the use of various computer packages. A brief assignmention to the eumerical solution of Partial Ditterential Equat may also be included.
${ }^{-3230 B}$ Applied Approximation Theory: lecture 3 nours. Prerequisites: Mathematics $3210 ; 3090$ (or concurrent registration in 3500 ). A
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 introduction to Rational and Pade approximation is given and these techniques are compared with polynomial approximation techniques Throughout the difificulties of implementing the various methods is or

Prerequisite Mathens of Applied Mathematics: lecture 3 hours. Prerequisite: Mathematics 3110 . This one-term class surveys some of ine powerful techniques employed by the applied mathematician to
handle realistic problems in an analytical fashion. Asymptotic and perturbation methods form the central theme for the class, but some lime is spent on differential equation theory and also on the study of a number of successtul mathematical models that illustrate the various lechniques Topics include: superiposition, heatiliow, Fourier analysis,
Sturm-Liouville Systems, generalized harmonic analysis, dimensional analysis and scaling, regular and singular perturbation theory, asymptotic expansions.

3300A Optimization I: lecture 3 hours. Prerequisites: Mathematics 2000. 2040. 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 muttipier conditions convex programming. Ku unn- Tucker and Lagrange multiplier conditio
numerical algorithms for unconstrained and constrained problems. Some of these topics are illustrated by means of interactive computer packages
${ }^{33108}$ Optimization II: lecture 3 hours. Prerequisite: Mathematics 3300. This class continues on from the topics in 3300 . Additional topics obe covered include neiwork liow theory. graph theoretic matching models. and combinatorial optimization with emphasis on integer programming problems.
-3320A/B Applied Group Theory: lecture 3 hours. Prerequisites: Mainemaics 2000. 2030. This interdiscsiplinary hall-class is intended tor Chemistry. Mathematics and Physics. With some additional reading in Physics. it is equivalent to Physics 4480A. Topics include: review of epresentations, character. orthogonality, symmetry groups in in rystallography, role of symmetry groups in quantum physics and hemistry, normal modes and molecular vibrations
$3330 \mathrm{~A} / \mathrm{B}$ Graph Theory and Combinatorics. lecture 3 hours.
Prerequisites. Mathematics 2000,2040 . The following topics are discussed: elements of graph theory, paths and cycles, Eulerian graphs. rees. planar graphs and the Euler polyhedral formula. Hamittohian graphs: chromatic numbers. the five-colour theorems: items to be selected from the following topics to suit class: graphs and matrices.

3340 A B Regression and Analysis of Variance: (same as Statistics hathematics 2030. or an equivalent knowledge of matrices. For escription see Statistics 3340 .

360A/B Probability: (same as Statistics 3360 ) lecture 3 hours. 207012080 and Maratics 2000 For $380 A / B$ Sample Survey Methods: (same as Statistics 3380 ) lecture . 3380.

3460A/B Intermediate Statistical Theory: (same as Statistics 346 lecture 3 hours. Prerequisites:
description see Statistics 3460 .

3500 Intermediate Analysis: lecture 3 hours. Prerequisites: Mathematics 2130,2500 . Mathematics 3500 continues the analysis
sequence begun in Mathematics 2500 . Topics include number syste sequence begun in Mathematics 2500 . Topics include: number system Stone-Weierstrass theorem. Arzela-Ascoli theorem, sequences and series of functions and their properties, inverse and implicit function theorems, extrema, co-ordinate transtormations. Credit can be given for only one of Mathematics 3090A, 3100B and 3500 .

O10A/B Introduction to Measure Theory and Integration: lecture 3 hours. Prerequisite: Mathematics 3500 . A discussion of Lebesgue's the extended real number system and its basic properties; the definit of measurable sets, Lebesque measure and the existence of nonmeasurable sets: the Lebesgue integral: differentiation of monotonic
functions (e.g. the Cantor function), absolute continuity, the classical functions (e.g. the Cantor function
-4020A/B Analytic Function Theory. lecture 3 hours. Prerequisites.
Mathematics 3080 and either 3100 B or 3500 A second hall-class in Mathematics 3080 and either 3100 B or 3500 A second half-class in functions including topological properties of the plane, Mobius mapping exponential. logarithmic, trigonometric and related functions, integration and the Cauchy theorem. Cauchy's integral formula, residues, harmonic functions, analytic continuation, entire and meromorphic functions, some

4030R Advanced Abstract Algebra: lecture 3 hours. Prerequisite. Mathematics 3030 . This second class in abstract algebra deals with the structure of groups, rings, tields and modules. Topics which may
discussed include Sylow theorem, tensor products. Ext and Tor. modules over a principal ideal 'domain and Galois Theory.
-4050R Introduction to Algebraic Geometry: lecture 3 hours. Prerequisite: Mathematics 3030 . An introduction to the basic concepts of

4080A/B Statistical Analysis of Spatially Coherent Systems: lecture 3 hours. For Math majors the recommended prerequisite is Statistics
3370. For students in physical science, the natural prerequisiste is
 Statistics 4080 .
-4130A/B Analysis of Algorithms: lecture 3 hours. (same as Computing Science 4130 ). Prerequisites: CS 3690 (with a grade of C - or
$4140 \mathrm{~A} / \mathrm{B}$ Introduction to Functional Analysis: lecture 3 hours. Prerequisites: Mathematics 2130 and 3040 . An introduction to the basic dimensional vector spaces normed spaces, inner-product spaces Banach and Hilbert spaces, linear and continuous linear functionals, the Hann-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.
-4150A/B Functional Analysis: lecture 3 hours. Prerequisite: Mathematics 4140 . Topics include: topological vector spaces, locally convexity, reflexive spaces, support functionals, geometry of convex sets and other topics.
$4160 \mathrm{~A} / \mathrm{B}$ Operator Theory: lecture 3 hours. Prerequisites: Mathematics 4010 and 4140 . An introduction to the theory and applications of continuous linear operators on Hilbert spaces, spectrum: adjoint: symmetric, self-adioint, unitary, and normal operators
polar decomposition: differential and integral operators: $C^{\circ}$ algebras:
Gelfand Theorem; and the spectral theorem.
-4170A/B Introduction to General Topology: lecture 3 hours. Prerequisite: Mathematics 3040. An introduction to topological spaces
and includes the following topics: classification in terms of cardinality of bases, separation, etc. product. spaces. Tychonoff theorem,
compactress, compactifications. Tychonoft spaces, metrization. $4180 \mathrm{~A} / \mathrm{B}$ introduction to Algebraic Topology: lecture 3 hour Prerequisite: Mathematics 4170. An introduction to algebraic topology and including the following topics. homotopy type and the fundamental
group, geometry of simplicial complexes, homology theory of complexes. group, geometry of simplicial complexes, homology theory of complexes.
hain complexes, homology groups for complexes, subdivision, induced omomorphisms, axioms for algebraic topology, singular homology, the singular complex, properties of cell complexes.

4190A/B Differential Equations: lecture 3 hours. Prerequisites Mathematics 3500 ( 3090 and 3100 ) and $2030 / 2040$ or 2130 .
Mathematics 3120 is recommended. Topics covered include existence and uniqueness theorems. continuity of solutions. Floquet theory.
autonomous difterentia equations and their relation to dynamical utonomevs tileres. periodic solutions and the Poincare- Bendixso theorem.
-4200A/B Differential Equations - Qualitative Theory: lecture 3 ours. Prerequisite: Mathematics 4190 . Qualitative theory is conceined
with what can be determined about the phase-portrait and the general ehaviour of solutions of differential equations even though those solutions are not explicitly exhibited. Topics are selected from Liapunov periodic solutions, classification of plane singular points. structural stability, differential equations on manifolds and Hamittonian systems. Various equations occurring in applications are qualitatively analysed The precise topics and equations covered depend on the specific

4220ABB Introduction to Partial Differential Equations: lecture hours. Prerequisite: Mathemaics 310 . This class is the tirst half of a tw numerical aspects of partial differential equations. Topics to be covered include: review of the theory of ordinary ditferential equations. classification of partial difterential equations. solution of first order rranstorms, generalized functions. eigentunction expansions.
4230A/B Partial Differential Equations: lecture 3 hours. Prerequisite guations begun in 4220A. Topics to be covered include The Rayleigh Ritr method. Green's Functions. finite difference methods of solution. an nitroduction to the finite element metho

4270A/B Numerical Software: (same as CS 4270 ) lecture 3 hours rerequisite: CS 3210 (with a grade of C - or better). See class description for CS 4270 A/B
4300A/B Optimal Control Theory and Applications: lecture 3 hours. Prerequisite: Consent of instructor. Initilly the classical calculus of variaitions is studied and the suliciency conditions emphasized. A 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 coniro
regulator problems. Numerical methods are also presented.
$4310 \mathrm{~A} / \mathrm{B}$ Nonlinear Programming: lecture 3 hours. Prerequisite. onsent of instrucior. A complete teadment 3 ne mathematical theory 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 prerequisitit for understanding
and contributing to recent developments in mathematical programming

4400A/B Modelling in Applied Mathematics: lecture 3 hours. rerequisites: required Mathematics 3110.3120 : recommended Construction, analysis and interpretation of mathematical models in the natural sciences with an emphasis on industrial applications. It is intended that the course will draw from and expand upon the theory
developed in the prerequisites listed above. Some of the problem areas hydrodynámic models, wave propagation models and shocks as well models required for the optimal control of dynamical systems.
${ }^{4} 660 \mathrm{~A} / \mathrm{B}$ Automata and Computability. (Same as Computing -4660A/B Automata and Computability. (Same as Computing
Science 4660 ) lecture 3 hours. Prerequisites: Computer Science 1 Science 4666 ) lecture 3 hours. Prerequisistes: Computer Science
3000 level Mathematics class such as 3030 . For description see Computing Science 4660 .
8700 (non-credit) Co-op Seminar I
8701 (non-credit) Co-op Seminar II
3891 Co-op Work Term 1
8892 Co-op Work Term II
8993 Co-op Work Term II
3894 Co-op Work Term IV

## -on Workv

## 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 para of this period in isolation leads to a
conviction that such an investigation can never be satistying and that conviction that such an investigation can never be satistying 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 geegraphical area, there was one common
anguage throughout Europe and one church, and the study of these leads inevitably to a consideration of palaeography, ant, architecture and music.
The fie
The field is a very large one and could become a fascinating and ewarding area tor a cerrain type of student - the one who likes to
immerse himself in his work and who feels that university studies need not involve storing knowledge in separate pigeon holes because his anguage course has nothing in equired to take.
The regulations for the Honours degree permit a structured program To be segup in Medieval Studies which cuts across traditional departmental lines while allowing considerable freedom in choice of classe
The professors currently involved in this program are: R. Crouse
assics): R. Dawson. H. Morgan. M. Furrow. (English): H. Runte (French): R. Haines (History). A student who is interested in entering the program in Medieval Studies should speak to one of these faculty the planning of his course.

## Structure

The Honours degree in Medieval Studies must have a major field consisting of 9 classes, selected from those with Medieval Studies philosophy and Latin. Other classes will depend on the individual student miner field may be varied to suit the tes must be represented. The continue into later periods in his favourite discipline or he may wish to acquire another language to help him in his work. No class in the minor
field may be from the Medieval Studies group. The four classes not in field may be from the Medieval Studies group. The four classes not in
the maior field may be widely scattered: one or more of them may be the major field may be widely scattered: one or more of them may be
100 -level prerequisites which may be necessary for later medieval work, e.g. introductory German or Latin.

## Classes

The classes available from which a medieval grouping may be formed are given below. Some of them are on an ad hoc basis, depending on the needs of students in any given year. Statifing problems may require
the omission of certain classes from time to time: students are referred to the Medieval Studies prospectus at the time of registration. The
numbering of the classes reflecis subject and department, rather than
order of difificulty or of priority.
201 History of the English Language: (English 202 )
202 Old English: (English 253)
203 Medieval Literature: (English 218
204 Middle English: (English 351)
205 C Old Norse: (English 360 C )
210A, 213B Medieval French Literature: (French 3300A, 3300B)
211A, 214B History of the French Language: (French 4001A, 4002B
212A. 215 Courtly Novels and Poetry: (French 4300A, 4301B)
301 Medieval Life and Thought: (History 1990/5R
304 Roman History: The Cultural History of the Roman World: (Classics 2230)
325 The Roman Empire: (Classics 2210
306A/305B England in the Later Middle Ages: (History 3009 ,
309A Medieval England: (History 2101A)
310R Palaeography: (History 4010R)
302A/303B Medieval Europe: (History 2001A. 2002B)
313A/314B The Medieval Church: (History 3021A/3022B
315A/316B Medieval Civilization: (History $3001 \mathrm{~A} / 3002 \mathrm{~B}$ )
401 Medieval Philosophy: (Classics/Philosophy 3380)
202 Latin Philosophical Texts: (Latin 3840
403 Seminar on the Philosophy of the Church Fathers: (Classics 4400/5700)
404 Western Religious Experience: (Religion 2101)
405 Religious Myths, Symbols and Rites: (Religion 2030)
406 Medieval Interpreters of Aristotle: (Classics 4450

## Meteorology

A one-year diploma program in meteorology is available to qualilied details, see under Physics.

## Microbiology

Acting Head of Department
K.B. Easterbrook

Professor Emeritus
C.E. van Rooyen. DS
C.E. van Rooyen, DSC (Edin), MD. ChB. FRCP. FRCP(C). FRC Path

## Professors

R.G. Brown, PhD (Rutgers). (Maior Appointment in Biology) roorganisms. Bacterial Spines)
J.A. Embill MD (Havana). PhD (Dal), FRCP(C), FACTM. Pediatrics Community Health and Epidemiology. (Clinical Virology: Herpes. Cytomegalovirus)
G.C. Johnston. PhD
Control of Cell Division)
S.H.S. Lee. PhD (Dal). (Virology: Interferon)
D. Mahony. PhD (McG). (Bacteriology: Bacteriocins and L-Forms Clostridia)
E.S. McFarlane. PhD (Dal). (Molecular Virology)
K. Rozee. PhD (Dal). Dip. Bact. (Tor). (Viral Pathogenesis

Epidemiology) (MCM). Undergraduate Studies Coordinator, (Biology of
D.B. Stoltz. PhD (MC) Parasitic Insects: Insect Virology)
C. Stuttard. PriD (Dublin). (Microbial Genetics)
. Vining PhD (Cantab) (Maior Appointment in Biology)
Associate Professors
R.I Carr. MD (Tor).). PhD (Rockefeller). Assoc. Prof.. Medicine R. Rajaraman!. PhD (Dal). Asst. Prof.. Medicine. (Cancer Cell Biology. Fibronectin)

## Assistant Professo

W.R. Duncan. PhD (Texas). Assoc. Prot Surgery (Transplantation Immunology)

## Lecturers

G. Faulkner. PhD (Dal), (Ultrastructure)

The field of Microbiology includes the activities of viruses and cellular organisms such as bacteria. fungi. protozoa and algae. The Microbiolo microorganisms - their structure, function, diversity, and contribution 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 Me. Nicrobiology. Ocaled ine ir Charles microbiology programs in the Faculties of Medicine. Heath Protessions. Arts and Science and Graduate Studies

## Degree Programs

where is no 3 -year program leading to a Microbiology major. Student Microbiology/Biology $2100 \mathrm{~A} / \mathrm{B}$, which is a prerequisiste for most courses offered at Dalhousie in the discipline of microbiology. Students interested in an honours srogram (see below) should consuil the departer chasses.
advisor. D.B. Stoltz. preterably prior to registration for 2 nd-year clas.
BSc with Honours in Microbiology
This program 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 asked to seek advice from the undergraduate advisor.

Year 1: Biology 1000. Chem 110 . "Writing class." Math 1060A/1070B or

Year 2: Microbiology $2100 \mathrm{~A} / \mathrm{B}$ and an additional $1 / 2$ class in microbiology": Biology 2020 A and $2030 \mathrm{~A} / \mathrm{B}$. Biology 2110 B and an
additional $/ \%$ class (any subject), Chemistry 240 , and one elective. See Note 2.

Year 3: Microbiology. two classess: Biochem 34008 and one of
Biochem 3200A or 3300 B Microbiology, one hall-class Biochem 3200A or 3300B; Microbiology, one hali-class", and an

Year 4: Microbiology 4900 (Honours research and thesis): Microbiology two classes: and two elective
-To be chosen from any of the courses listed below (see note 3)
Microbiology
3033A Microbia
3114 A Virology
$3115 \mathrm{~A} / 4115 \mathrm{~B}$ Immunology

3118 B Medical Bacteriolog
$4022 A / B$ Microbial
4024A Microscopy
4026A The Mammalian Cel
4026A The Mammalian C
4027 B The Cancer Cell
40278 The Cancer Cell
40338 Advanced Microbial Genetics
4114B Topics in Basic and Medical Virology
$4301 \mathrm{~A} / 4302 \mathrm{~A}$ Advanced Immunology

## Biochemistry

4403A Structural Organization and Replication of Genes
4404 B Gene Expression

## Biology 3111 B Mi

act Activities in Nature
3117A Yeasts and Fungi
$3120 B$ Advanced General
3150 B Applied Microbiology
${ }^{33228}$ P Parasitology
4100A Marine Microbiology
4101A I Industrial Microbiology and Biochemistry
4113A Bacterial Physiology
5100A Marine Microbiology
Notes:

1. Except where a course number has been specified "microbiology"
has been used here in the sense of refering the deparment see Note 9 .
2. In year 2 , Biology 2015 and Biology $2012 \mathrm{~A} / \mathrm{B}$ can be substituted
for Biology 2020 A , 2030 A and 2110 B . The math requirement need not for Biology 2020A, 2030A and 2110 B . The math requirement need no
be satisfied in year 1 . Students are advised to take 2100 A and a 300 level B course in year 2 ( 2100 is the prerequisite for most 3000 -level courses.
3 Note
M. Note that the 9 classes required beyond the 1000 -level consist of
Microbiology $2100 \mathrm{~A} / \mathrm{B}$. Biology 2020 A .2030A Microbiology $2100 \mathrm{~A} / \mathrm{B}$. Biology $2020 \mathrm{~A}, 2030 \mathrm{~A} / \mathrm{B}$, and 2110 B , two ha
classes in Biochemistry ( 3400 B and one of 3200 A or 3300 B ), and 6 additional classes in the discipine of microbiology. Chemistry 240 is also required because it is a prerequisite for Biochemistry, see Note 5 .
4 All students are required to take at least one hall-class at the 3 4000 level in each of the following subjects: bacteriology, virology. immunology, microbial genetics, applied or industrial microbiology, and mycology (if available). Note that 2 hall-classes equal one class!
3. The minor can be taken in any subiect (except Microbiology) 5. The minor can be taken in any subject (except Microbiology).
Specifically, minors in either Biology or Chemistry are possible. While Secirically. Minors in either Biology or Chemistry are possibie. Whit
none of the Biology courses listed above can be used in a minor. Chemistry 240 can be.
4. In year 4 , the honours research thesis can be done in either the Microbiology or Biology
microbiological content
7 . Students should be aware of Calendar regulation 22.3, and note further that certain advanced courses (eg 4114B) require thal
particular grade be achieved in the prerequisite course particular grade be achieved in the prerequisite course
5. Note that Calendar regulation 11.4 requires that of taken in years $210,4,2-4$ must not be in the major field. 9. This program is iointly administered by a committee composed of members from both the Microbiology (Stoltz; 424-2590) and Biology (J)
Novitsky, 424-3665) Departments.

## BSc with Combined Honours in Microbiology and

 BiochemistryStudents in this program completee core classes oftered by both
Departments Biochemistry 2000R.2600A/B. 3200A 3300 B and Departments (Biochemistry 2000 R. 2600A/B, 3200A, 3300B, and
3400B; Microbiology $2100 \mathrm{~A} / \mathrm{B}, 3033 \mathrm{~A}$ and 4033B, 3114A, 3115A, and 3118B), together with Chemistry 240 (minimal grade: C). In lieu of
Biond Biochemistry 2000 R and $2600 \mathrm{~A} / \mathrm{B}$, students may take Biology 2110 B
$2030 \mathrm{~A} / \mathrm{B}$ and 2020 A ; this would B , however, change the minimum requirement of 4 Biochemistry classes in this program. The remaining 5 credits in Biochemistry and Microbiology must include at least one full credit each at the 4000 eveli exclusive of Biochemistry 4602 and Microbiology 4900. Thesis research may be done in either departm
Advisors: D. B. Soltz (Microbiology): D.W. Russell (Biochemistry).
BSc with Combined Honours in Microbiology and Biology
Students in this program must complete a number of core courses offered by the Microbiology Department (2100A/B, 3033A. 3114A.
3.115A and 3118 A : any course in bacteriology offered in the Biology

Department may be substituted for Microbiology 3118 B). Biology 100
hould be taken in year 1 and Microbiology 2100 in year 2 . Researc hesis work can be carried out in either Department. The majority of classes required in this program must appear as Microbiology entries on

BSc with Combined Honours in Biology and Microbiology
This program is designed for students who desire a broader exposure to Biology in general. with less specialization in the area of microbiology.
Students in this program futill normal Biology Department core course requirements, but can do thesis research in either department. The majority of classes required in this program must appear as Biology entries on the transcript. Students should consult departmental advisors

## Classes Offered

Note: Due to the combined pressures of student numbers and ávailable space. 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 course is no guarantee of late admission.

100A/B Introductory Microbiology: lecture 2 hours, lab 3 hours. D.B Stoltz (course coordinator). R.G. Brown. G.C. Johnston. J.A. Novitsky.
Stuttard. Preerequisite a grade of C- or better in Biology 1000 . An introduction to the basic concepts of microbiology through lectures. laboratory sessions. and demonstrations. Topics include the structure. cology. growth. genetics and physiology of microorganisms. as well as basic immunology. This course is a prerequiste for all the other
microbiology classes listed below, with the exception of 3020 . Fo convenience of all conce ened. no student will be registered into 2100 atter the first laboratory session. It should be noted that students wishing o acquire extra experience in microbiology could take 2100 A follow
by Biology 21108 . Biology 31111 B. Biology 31208 . or Microbiology ${ }^{3118 B}$ in the same academic year.
1108 Biochemistry and Physiology of Microorganisms: (see Biology Dept.).

3020R General Microbiology: lecture 2 hours. lab 3 hours. S.H.S. Lee. Prerequisite: Biology 1000 or permission of the instructor. Intended to provide a general knowledge of microbiology at an introductory level tor
tudents in the Heath Sciences. this class is not considered to epresent an alternative to 2100 in Arts and Science programs: students who have taken 2100 may not register tor this class. The lecture topics are divided into three sections. The first introduces the microbial world.
he 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 ost-parasite relationships. The third section is concerned with the aboratory work is designed to complement the lecture materiais and to rovide experience in the isolation, identification. cultivation and control of microorganism

333A Microbial Genetics: lecture 2 hours, lab/tutorial 3 hours. C. Stuttard and G.C. Johnston. Prerequisites: Microbiology 2100 and Biology 2030. The study of heredity in microorganisms especially chemical basis of mutation. DNA replication, recombination and repar he main emphasis is on mechanisms of gene transter in microbes. ene mapping manipulation, and the use of prokaryotic and eukaryotic icrobes as model systems for the study of general geneti

3114 A Virology: lecture 2 hours, lab/tutorial 3 hours. E.S. McFarlan ovides an introduction to Virology, and to some extent discusses al inds of viruses - animal. bacterial. insect and plant. Important concepts elating to the isolation. biophysical characterization, classification and plication of viruses are considered

115A Immunology: lecture 2 hours, lab 3 hours. L.S. Kind. erequisite: Microbiology 2100 or permission of the instructor. The structure, synthesis, regulation of production. detection and
neasurement of antibodies. Also to be discussed are topics measurement of antibodies. Also to be discussed are topics in the fields
transplantation, tolerance. hypersensitivity, tumour immunology. complement and the genetics of the immune response.

31188 Medical Bacteriology: lecture 2 hours. lab 3 hours. D.E Mahony. Prerequisite: Grade of B- or better in 2100 . 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 dentify particular species.

4022A/B Microbial Ultrastructure Project: K.B. Easterbrook. D.B. Sioirz. G.T. Faulkner. Prerequisites: 4024A or permission of an instruc
A research proiect using one or more of the skills acquired in Biology/Microbiology 4024A, selected by the student in consultation with the instructor.

4024A Microscopy. lecture 2 hours. labs 3 hours. K.B. Easterbrook
D.B. Stoltz. G.T. Fauikner and M. Willison (course coordinator). D.B. Stoltz. G.T. Faulkner and $M$. Willison (course coordinator). Prerequisite A grade of B - or better in ether 314 A , or one of Biology
3020 A or 3021 B . The class deals with some of the principal methods involved in the study of cell structure. Both light and electron microscoppy. including ancillary techniques, are considered in depth. The principles governing technical procedures is emphasized. During laboratory periods students have the opportunity to practice, or to watc

4033 Advanced Microbial Genetics: lecture 2 hours: lab/tutorial 3 hours. C. Stuttard. G.C. Johnston. Prerequisite: Microbiology/Biology 3033 A . Selected topics in microbial and molecular genetics including plasmids, gene cloning, eukaryotic gene organization, specialized gene

4026A The Mammalian Cell: lecture 2 hours. lab 3 hours. R. Rajaraman (Course Coordinator). Prerequisite: Biology 2015 or 2020A recent advances and current concepts in cellular and molecular biolo with reference to the mammalian cell cultured in vitro. Emphasis is also placed on relaied laboratory lechniques. The folowing general areas are nuclear matrices: transmembrane interactions: phosphorylation and homeostasis: growth factors: Iymphoid cell cultures: monoclonal antibodies: mutagenesis and somatic cell genetics. Laboratory exercises
and projects include techniques of cell culture. cell cycle analysis by and projects include techniques of cell culture, cell cycle analysis by extracellular and intracellular antigens by immunofluorescence.
${ }^{4027 \text { B The Cancer Cell: lecture } 2 \text { hours. R. Rajaraman (Course }}$ Cordinator) Prerequilite Microbion instructor. The class considers recent cellular and molecular biology cancer cells viewed as microorganisms in vivo. Students participate by giving seminars on recent aricles and by writing term papers on
selected topics. The following general areas are discussed types selected topics. The following general areas are discussed. types of
tumors: the transtormed phenotype: extracelluar matrix and neoplasia hormones and neoplasia: anchorage and growth control: analysis of malignancy by cell fusion: transtormation by DNA and RNA viruses, and by radiation: chemical carcinogenesis, oncogenes and the origion of
human cancers: interferon and cancer, reverse transtormation and chemoprevention of cancer: immunoresponse and cancer: cellu!ar basis of metastasis
4114B Topics in Basic and Medical Virology: lecture 2 hours, lab 3
hours. E.S. MCFarlane (Course Coordinator). D.B. Stotlz. S.H. . Lee K Easterbrook. Prerequisite: Grade of B-or better in 3114 A . 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 interaction

4115B Topics in Immunology: lecture 2 nours. L.S. Kind. Prerequisite
3115A. Students read and discuss articles from the current 3115A. Students read and discuss articles from the current inmunological literature. While all major areas of immunology are
included. the emphasis is on topics previously studied in 3115 A .
4301A/B Advanced Immunology I: Genetics of Immunoglobulins, lecture. 3 hours. R.I. Carr. W.R. Duncan. Prerequisites: prior course(s) in immunology and permission of the course coordinator (WRD). An advanced course concerning both basic and molecular genetics of immunoglobuins and cell receplors, with particular emphasis upon the
mechanisms responsible for receptor diversity. The genetics and
biochemistry of the major histocompatibility complex will also be discussed

302A/B Advanced Immunology II: Cellular Immunology and mmune Regulanion. course logisics are as given for 4301. An cells that make up the immune system, the types of interactions that cccur between them and the molecules involved in such interactions.

## 403A Structure, Organization, and Replication of Genes: (see Biochem Dept)

4404B Gene Expression: (see Biochem. Dept.)
700 Special Topics: Consult department
900 Honours Research and Thesis
Cross-Listed Courses
Microbiol. 2100 A is cross-listed with Biology 2100 A Microbiol. 2110 B is cross-listed with Biology 2110 B Microbiol. 3033A is cross-listed with Biology 3033A. Microbiol. 3114A is cross-listed with Biology 3114 A . Microbiol. 3115 A is cross-listed with Biology 3115 A .
Microbiol. 3118 B is cross-listed with Biology 3118 B . Microbiol. 4022A/B is cross-listed with Biology 4022A/B Microbiol. 4024A is cross-lisited with Biology 4024A. Microbiol. 4026A is cross-listed with Biology 4026A Microbiol. 4033 B is cross-listed with' Biology $4033 B$. Microbioi. 41148 is cross-listed with Biology 41148 . Microbiol. 4115 B is cross--listed with Biology 4115 B . Microbiol. $4301 \mathrm{~A} / \mathrm{B}$ is cross-listed with Biology 4301A/B
Microbiol. $4302 \mathrm{~A} / \mathrm{B}$ is cross-listed with Biology $4302 \mathrm{~A} / \mathrm{B}$ Microbiol. 4403 A is cross-listed with Biochemistry 4403 A Microbiol. 44048 is cross-listed with Biochemistry 4404

## Music

Chairperson of Department
C van Feggelen

## rofesso

W.H. Kemp. MusBac. MusM (Tor.), AM (Harv.). DPhil (Oxon.) (Theory and History)

## Associate Professors

R.D. Byham. BM. MM (ill. Wesleyan). (History and Keyboard Skills) P. Diokic, BMus. MMus (Juilliard). (Violin)

Gonnella-Welch. Dipl of Art (Dundee Coll. of Art), LRAM (Royal Academy Lond.). (Voice)
I. Morris. BA (DePauw). (Voice
P. Perron, BMus (McG). MMusEd (Holy Names College). (Music
D.P. Schroeder, AMUs, BA, MA (Western Ontario), PhD (Cantab.),

Theory and History)
Stodola BMus (Chic.), MMus (Juilliard), (Piano) S. Titte. BS (Kent State), MM. DMA (Wisc) (Theory and Composition)
C. van Feggelen., (Guitar and Lute), MMus (Roch.), PhD (Case W.R.), (History)

Senior Instructor
T. Zonneveld. Dipl. (Teach.). Dipl. (School Mus.). Dipl. (Performance)
Royal Conservatory. The Hague) (Piano)

Part-Time Faculty
N. Babineau (mus.ed. string studies)

Hill, (mus.ed. band studies)
Mcl Vannel (first year aural perce
D. Palmer (jazz studies)
J. Wood (mus.ed. class

Applied Skills instructors
Applied Skills in
Flute: E. Dubois
Oboe: M. Pheby
Oboe: M. Pheby
Clarinet. J. Rapson
Bassoon : I. Rothwell
Recorder P. Evans
Saxophone: D. Pa
Trumpet. J. Ster
Trombone and Tuba : I. Cowie
Cello: TBA
Cello: TBA
String Bass L. L. Turofskiy
Percussion: J. Faraday
Harpsichord: TBA
Organ: D. MacDonald
Staff Piano
Accompanist: H. Murray
Technician: F. Haines
The resources of the Music Department provide a thorough discipline to hose whose demonstrated talent and specilic pre-university training qualify them for speciailization in music studies. Certain classes and ensembles are avaiable to the non-specialist student who wishes
the Bachelor of Music Program the Departm
he prospective protessional musician: pertormer. composer, theorist historian or critic. Future teachers instructing in the elementary and
secondary school classoom are secondary school classroom are provided with methods. skills and field loday there are many vocations in which a working knowledge of various aspects of music is a desirabie part: librarianship. media
programming and production arts manage ment recreational an programming and production. arts management. recreational and or combined Honours program could furnish a basic equipment for furher studies in preparation for such professions. The truly
contemporary listener, too. must acquire style-specific tools, if there is to
Thus the University's Music Department must be
eeds within a general standard of excellence. Cratts and to skills hing many and practice must be presented in an equilibrium flexible enough to be

## Degree Programs in Music

Students wishing to enrol in a degree program offered by the
a) satisty the requirements for admission to the Faculty of Art and Sciẹnce
b) demonsstrate their proficiency as instrumental or voca pertormers in an audition-interview
(c) demonstrate knowledge of the basic rudiments of music theory (equivalent to Grade II Theory of the Royal Conservatory of Music Toronto) and aural dictation. both ass
lests as part of the audition-interview.
pplicants will be notitied in wrtting as to their acceptance into one of he programs in music. Applicants who. in the estimation of the
Auditioning Committeee. show considerable musical talent but are need of more emphasis on preparatory skills will be required to take some foundational classes. Applicants with severe background deficiencies will be ad
before reappplying.

When making application for admission to, the University. prospective music students should request the supplementary application form for he Deparment of Music.
Applications to the Department should be received by the end of Aprit
audition procedures should be conpleted by audition procedures should be completed
Students wishing to transter from another institution into the Second o
third Year of their chosen Music progat hird Year of their chosen Music program must take validation applied major instrument betore transter of credits can be considered
appropriate First or Second Yeâr clas

## Foundational Classes

These ofterings are designed for certain prospective music majors who in the opinion of the faculty, are in need of a more prolonged exposur musicianship.

## Curriculum

Music 0070 C Foundational Aural Perception (non-credi)
Music 0071 C Foundational Keyboard Skills (non-credii)
Music 0100R Foundational Applied Skills (non-credit)
Music 1000 R Man and His Music
Music 1001A Materials is
Music 1001 A Materials or Music
Music 10028 Introduction to College Music Theory
1 Music Ensemble (non-credit)
Required Writing Class (from another department)
2 other electives (from a third and a fourth department)
Special Note: Music classes 1000 R. 1001 A. and 1002 B although credit classes. may no be counted toward the BMus. Binsed. or BA degree BA, a non-Music BA. and in BSc Degree Program.
Standard for Foundational Classes
Note: The foundational music classes and the required writing class taken in the same academic ye

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Music 0070C + Music 0071C C+
Music 0100R B
Music 1000 R C
Music 1001 A C
Music 10028 C
Writing Class C
Writing Class C
Each Elective C
```

Bachelor of Music (BMus)
The BMus is a four-year program with sixteen out of twenty classes in choose to concentrate in pertormance, music history and literature, or

Common Curriculum
First Year: 1100 Applied SKills. 11350 A History of Music
(Introduction): 13518 History of Music II (Baroque): 1201 A Theory 1. first term: 12028 Theory I. second term: 1270 C Aural Perception 1: 1271 C (Writing Course Elective).
Second Year: 2100R.Applied Skills: 2350 A History of Music III (Classic): 23518 History of Music IV (Romantic): 2201C Theory II: 2460C
Conducting: 2270C Aural Perception II: 2271 C Keyboard Skills II: and an Conducting. 2270 C Aural Perception II: 221
Arts and Science Elective, one full credit:

## Concentration in Performance

Third Year: 3100R Applied Skills: 3350A History of Music $V$ (Medieval and Renaissance): 33518 History of Music VI (Contemporary Music):
3280 C Counterpoint 3280 C Counterpoint: 3282 C Orchestration: 3199 C Recital: Music
Elective. one half credit: and an Arts and Science Elective. one full Elective. one hallf credit: and an Arts and Science Elective. on
credit.
Fourth Year: 4100 R Applied Skills: 4 199C Area Graduation Requirement (Recital): 4280 C Advanced Harmony and Counterpoint:
4281 C Form and Anailysis: Music Elective, 1 : credits: and an Arts and 428icince Elective. one full credit.
Concentration in Composition
Third Year: 3100R Applied Skills: 3350A History of Music V (Medieval and Renaissance): 33518 History of Music VI (Contemporary Music): 3280 C Counterpoint: 3282 C Orchestration: 3210 R Composition: and a Ans and Science Elective. one full credit
Fourth Year: 4280 C Advanced Harmony and Counterpoint: 4281 C
Form and Analysis: 4210 R Composition: 4100 A Applied Skill (or Form and Analysis: 4210 R Composition: 4100 RApplied Skill (or
equivalent performance credit): 4299 C Area Graduation Requirement
(Composition): Music Ele
Elective. one full credit
Concentration in History and Literatur Third Year: 3100 R Applied Skills. 3350 A History of Music Vimedieval
and Renaissance): 3351 H History of Music VIC Contemporary Music) and Renaissance). 3280 C Counterpoint 3282 C Orchestration 3310 R Music in Canada: an Ats and Science Elective. one full credit.
Fourth Year: 4280 C Advanced Harmony and Counterpoint: 4281 C Form and Analysis: 4368A \& 43698 Specia studies: 4100R Applied Skill (Thesis): Music Elective. one half credit: and an Arts and Science

## Elective. one full credit.

## Standards

All students wishing to enter any third year class other than 3350A 3351B. or 3312 in the BMus. program. must successtully complet Music 2100 R .2201 C . 2270 C and 2271 C and achieve an overail
average of B - in the music classes of the first and second years including a minimum standing of C in Music 1201A. 1202 B and 2201. and a minimum of B - in Music 2100R. and B in 1270 C and 2270 C . Students wishing to enter the concentration in performance mus Iterature. an average of $\mathrm{B}+$ in Music 1350, 1351. 2350 and 2351 and demonstrate acceptable writing ability in composition. submit one or more original pieces for assessment by the composition faculty
Students in the BMus program must maintain a minimum sta Students in the BMus program must maintain a minimum standing of In eacn of he music classes of the hird and fourt years
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 Studies the Department and the prior approval of the Committee on Studies.
Students must achieve a minimum, standing of C in each of their Ars and Science electives.
Bachelor of Music Education (BMusEd)
The BMUSEA programs combine instrumental or vocal instruction:
theoretical. aural and keyboard skills: historical knowledge: and the methods and repentoires needed by the music teacher in the elementary and/or secondary school classroom. Observation and field experience Students will choose between curricula in Classroom Music and Instrumental Music.
Common Curriculum
First Year: 1100 R Applied Skills: 1350A History of Music I (Introduction) 13518 History of Music 11 (Baroque); :1201A Theory 1 .first term. 12028 B and an Arts and Science Elective, one full credit (Writing Course Elective).
Second Year: 2100 R Applied Skills: 2201 C Theory II: 2270 C Aural
Perception II: 2271C Keyboard Skills 1 I: 2350 A History of Music III (Classic): 2351 B History of Music IV (Romantic): 2460 C Conducting: and Education, equivalent of one tuil Class

Classroom Music
Third Year: 3100 R Applied Skills: 3400 R Elementary Methods: 3470 C field Experience: 3461 C Advanced Choral Technique: 3350A History Music V (Medieval and Renaissance): 33518 History of Music VI

Fourth Year: 4100 Applied Skills: 4400 C Secondary Methods: 4470 C Field Experience: 4482 C Choral Arranging: Education, equivalent of on and one-half classes; and the equivant of one full-credit elective in

Instrumental Musi
Third Year: 3100 A Applied Skills: 3350A History of Music V (Medieval and Renaissance): 3351 B History of Music VI (Contemporary Music):
Either 3480 C Band Instruments, or 3481 C String Instruments Eductit equivalent of one full class; 3400R Elementary Methods; and 3470 C Elementary Field Experience

Fourth Year: 4100 R Applied Skills; 4400 C Secondary Classroom eaching Methods: 4470 C Secondary Classroom Field Experience:
3282C Orchestration; 4480 C Band Instruments II: Either 4481C Band

Methods and Field Experience. or 4483 CString Methods and Field
Experience: one-halt credit elective in Music or Music Education: and Experience: one-hal credit elective in
Education, equivalent of one full class.

Bachelor of Music Education/Bachelor of Education 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 program includes methods and field experience classes in both Music certification by the Nova Scotia Department of Education.

## Standards

students wshing to enter any third year class other than 3350 . 3351 B . or 3312 R in either the BM USEd or $\mathrm{BMusEd} / \mathrm{BEd}$ program. mus successtully complete Music 2100 B . 2201 C . 2270 C and 2271 C and achieve an overall average of B - in the music classes of the first and second years. inclucing a minimum slanding of Cin Music 1201A. 1270 C and 2270 C .
In order to qualify for the award of a BMusEd or BMusEd/BEd degree. candidates must have obtained a minimum overall average of maintain a minimum overall average of $B$ - in their education classes. With special permission. a student in the BMusEd or BMusEd/BEd program may give a graduation recital instead of a final jury exam.

## Teacher Certification in Music

student possessing an appropriate undergraduate degree in Music Nova Scotia Department of Education. The applicant must possess a degree in Music from a recognized university.
In an audition/interview. an applicant must pass a written exam in singing and dictation) equal to the tinal examination standards in Music 2201 C (Theory III). Music 2271C (Keyboard Skills) and Music 2270 C Aural Perception III). Failure to demonstrate satistactory standards any of these areas will require the student enrol in the appropriate
class(es) in addition to the six classes listed below The applicant also demonstrate basic musicianship in his or her chosen pertormance also den
idiom.
The
The program 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 Departm
Studies
The program will normally include

## Music <br> <br> Mus

 <br> <br> Mus}3400R Elementary Music Methods
3470 C Ele
3470 C Elementary Music Field Experience
4400 C Secondary Music Mether
4470C Secondary Music Methods Elective in Music or Music Education (one half credit)

## Education

Special Education (One fulil credin)
cational Foundations (Two full credits from sociology, history. IVsophy, Educational psychology)
Since the maximum number of classes that may be taken in any Education) may be taken in summer school in May-June and/or JulAugust prior to or following the actual year of study

## Bachelor of Arts (Major in Music)

The BA (General) with a major in music is a three year course, subject to the regulations described in the section Arts and Science: General are required to complete Music 1100R, 1350A, 13518, 1201 A and 12028. 1270 C and 1271 C 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 degree. Students in the BA (General) program enrolled in Applied Skills courses are required to pass jury examinations.

Students wishing to transter from another institution into this program
may be required to enrol in an Applied Skills Class at the First-Year evel. depending upon the standard of their pertormance proficiency lemonstrated in the audition interview.
Classes for Non-Majors

$$
\begin{aligned}
& \begin{array}{l}
\text { O00R Man and His Music } \\
\text { 001A Materials of Music }
\end{array} \\
& \begin{array}{l}
\text { 1001A Materials of Music } \\
10023 \text { Introductory Music Theory }
\end{array} \\
& \text { 20028 Introductory Muitar and Lute } \\
& \text { 2008R Modern Guitar } \\
& \begin{array}{l}
\text { 2087R Electronic and Experimental Music } \\
\text { 2010R Music of Non-Western Cultues }
\end{array} \\
& 2011 \mathrm{R} \text { History of Opera } \\
& \begin{array}{l}
2012 \mathrm{R} \text { Music and Psychology } \\
2013 \mathrm{~T} \text { The Evolution of Jazz }
\end{array} \\
& \text { 2021R Music and Literature }
\end{aligned}
$$

## Classes Offered

350A History of Music $1:$ lecture 3 hours. D. Wilson. Prerequisite: A basic knowledge of musical notation and terminology equivalent to Classical and Romantic periods. Available to non-music majors with permission of the instructor.
13518 History of Music II: lecture 3 hours. D. Wilson. Prerequisite: 1350A. Normal Co-requisites: 1202B. 1270C. 1271C. A study of the history of the music of the Baroque period (c. $1600-1750$ ) with an 2350A History of Music III: lecture 3 hours. D. Schroeder. rerequisites: 12028 . 1350 A . Normal co-requisite: 2201C. A detailed 3518 History of Music IV: lecture 3 hours. D. Schroede Prerequisites: 12028.1350A. Normal co-requisite: 2201C. A detailed early 20 th centuries.

3350A History of Music V: lecture 3 hours. D. Wiison. Prerequisites
1202B, 1350 A , or permission of the Department A delailed study of the 202B, 1350A, or permission of the Department. A detailed study of periods with an emphasis on the development of style and periormance practices.
3351 B History of Music VI: lecture 3 hours. S. Tittle. Prerequisite Music 1350A. 23518. The main trends in 20th century "serious" music 3310 Music in Canada: lecture 3 hours, W.H. Kemp. Prerequisite 3310 Music in Canada: lecture 3 hours. W.H. Kemp. Prerequisite: with emphasis on the socio-economic factors essential to the successtul transplantation and growth of European musical culture in Canada. The class gives practical experience in research skills as esearch and compose reports on both historical and contemporary resears
topics.
3311 History of Opera: lecture 3 hours. W.H. Kemp. Prerequisite: permission of the Department. An historical and analytical survey of operatic compositions trom 1600 to the present day. opera as drama:

3310 Music in non-Western Cultures: lecture 3 hours. Prerequisit permission of the Department. The functions and styles of traditional musics outside the Western traditional repertoire of composed music

3312 Music and Psychology: lecture 3 hours, W.H. Kemp. Prerequisite: permission of the Department. The interrelationship of music and psychology, as it relates to and informs the listener, student. educator and professional musician. Topics include a) the perception on
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, $c$ c) the social psychology of music: d)
ineories of learning and of behaviour as aporoopriate to musical train and performance: e) the diagnostic and evaluative testing of musical
and apitude and ability, f) the function of music in therapy and in special
dicale $A$ wical notation is a $p$ ology are necessay
-3313 The Evolution of Jazz: lecture 3 hours. D. Palmer. A survey of
the historical and social background of jazz and its musicians. The. the historical and social background of jazz and its musicians. The recordings. A knowledge of musical notation is not a prerequisite to this .class
33618 History of Dance: lecture 2 hours. P. Richards. The course will Ages. through the birth of ballet. to the dances of today, and will include an introduction to dance notation. as well as the practical and theoretical aspects of historical dance

3370 C Performance Practice: 18 th and 19 th Centuries: Seminar 2 hours. D. Schroeder. Prerequisites: Music 1350A. 13518. 2350A. 2351B The principles of pertormance practice in 1 sth and 1 ith-century music
will be discussed in the context of treastises, contemporary accounts, will be discussed in the context of treastises. contemporary accounts.
manuscripts and early editions. Areas to be covered include instruments, ornamentation. dance-related music. and problems of interpreting expression markings.
4368 \& \& 4369B Special Studies: Prerequisites: $2350 \mathrm{~A}, 2351 \mathrm{~B} .3350 \mathrm{~A}$ and 33518. Individually directed research and writing under the

Studies in Music Literature
Study in depth of the history and repertoire of specific pertormance

- 3352 A Chamber Music, to 1800 : lecture 3 hours. R. Byham
-3353B Chamber Music, 19th and 20th Centuries: lecture 3 hours. R Byham.
-3354A Keyboard Music to 1750: lecture 3 hours. R. Byham.
${ }^{-} 3355 \mathrm{~B}$ Piano Literature, 19th and 20th Centuries: lecture 3 hours. R
$\cdot 4370 \mathrm{C}$ The Organ and its Literature: lecture 2 hours. TBA.
4399C Area Graduation Requirement (Thesis)
Theory and Related Skills
0070 C Foundational Aural Perception: lab 2 hours. L. McVannel. Designed tor students with no experience in sightsinging or dictation or
tor students needing extra and intensive exposure to these skills: may not be taken without co-related courses Music 0071 C . 1001 A , and 1002B. Includes scales. modes. two-part (duet) reading. elementary dictation. A non-credit clas
ootic Foundational Keyboard Skills: lab 2 hours. R. Byham Designed for students with no experience in using the keyboard as a proficiency tool. Includes work in basic harmonization. cadences. infroductory
or piano repertoive. May not be taken without Music 1001A. 10028. and or piano repentire.
0070 C A
non-credit class.
1001A Materials of Music: lecture 2 hours. D.M. Farrell. An introduction to University music studies tor prospective music majiors recommended
by audition to foundational level classes in music. A knowledge of music by audition to foundational level classes in music. A Anowledge of music
reading and rudiments is presumed. Extensive work in rudiments applied to all aspects of music learning: the phenomenon of the tonic-melodic 2 -part writing to encompass these: non-tonal formations: acoustics. Also open to non-maiors.
Note: auditioned students will be advised to take a year of private
studies it their preparedness falls below this introductory level.

1002 Introductory Music Theory: lecture 2 hours. D.M. Farrell Prerequisite Music 1001A. 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 (bari' chording; elementary diatonic harmony previewing the start of Music 1201 A: four-part writing as
immediate transition to Music 1202B Also

1201A and 12028 Music Theory i. Tecture 3 hours, S . Prerequisites: permission of the Department; plus Toronto Conservator Grade II Theory equivalent or 1001 A
1270 C . 127 C . A thorough know ledge of musical rudiments is 127esumed. The class 1201 A begins with a survey of musical presumed. The class in phenomena in seneral. 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. 1202B (prerequisite 1201A), there is a concentration upon a complete grounding in the traditional four-part writing skills. This culminates in
modulation.

1270 C Aural Perception I: lab 3 hours. L. McVannel. Prerequisite: permission of Deparment: ( 0070 C or equivalent). Normal Co-requisites 1201A and 1202B. 127C. A class designed ecorelae Sylistic factors are visualized. performed and dictated systematically. Labwork in earare visuaized. performed and dictated system per week. Each student is
training and
a member of ofisging a small working section.

1271 C Keyboard Skills I: lab 2 hours. R. Byham. Prerequisite: permission of Department: (0071C or equivalent). Normal Co-requisite 1201 A and 1202 , 210 . The development or basic skills in sigh reading. sco
2201 C Music Theory II: lecture 2 hours. D. Schroeder. Prerequisites 1201A and $1202 \mathrm{~B}, 1270 \mathrm{C} .1271 \mathrm{C}$. A continuation of theory, C
the study of complex modulation, atered chords and chromatic the study ot compiex modulation, alered chords and chromain
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.

2270C Aural Perception II: lab 2 hours. L. Stodola. Prerequisites. 1201 A and 1202 B .1270 C . 1271 C . This class provides further practice in melodic and harmonic dictation and sight-singing: it correlates with 2201C. A special component deals with solmization skills in sight

2271 C Keyboard Skills II: lab 2 hours. R. Byham. Prerequisites: 1201 A and 1202B. 1270C: 1271 C . A continuation of 1271 C

3270 C Aural Perception III: lab 2 hours. P. Perron. Prerequisites:
2201 C . 2270 C . 2271 C . Advanced sight-singing and dictation. Sing 2201 C . 2270 C . 2271 C . Advanced sigh--singing and dictation. Singing on contemporary music. Dictation of modulating excerpis in four-part chorales. Chromaticism. modality, whole-tone and contemporary music are studied along with musical examples of more ryythmic complexity Also included. singing and diclation
chords. sing and play exercises.
3280 C Counterpoint: lecture 2 hours. D. Farrell. Prerequisite: The development of skills in polyphonic architecture in two-and three-voice 16 th century contrapuntal style using canonic techniques. An introduction to 18 th-century counterpoint: inventions. canons, and fugal expositions etc.

3282 C Ornestration: lecture 2 hours, S. Tititle. Prerequisite: 2201. 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.
Fourth Year: 4280 C Advanced Harmony and Counterpoint: lecture 2 hours. W. Kemp. Prerequisites: 2201 C and 3280 C . The application of ácquired harmonic and contrapuntal technique to various instrumenta and vocal textures and forms: chorale prelude and fugue
${ }^{4281 C}$ Form and Analysis: lecture 2 hours, W. Kemp. Prerequisites: 2201 C . 2350 A .2351 B and 3280 C . Analytic study of the form and

## Composition

3210,4210 Composition I, II: S. Tittle, D.M. Farrell. Prerequisites: permission of the Department, an interview with the instructor, and the composition faculty. Particular works are analysed to serve as a
springboard tor original composition by the student. Students' works are
evaluated in small group discussions and in individual tutorial sessions. 2287 Electronic and Experimental Music: lab 3 hours, S. Tittle. Prerequisite: interview with instructor. Introduction to ne texperimenes:
Sound Studio. Recording, mixing, and tape manipulation techniques: analysis and composition of tape music; voltage control concepts. synthesizer theory and practice. Composition and live perrormance with electronics: group improvisation with both studio and personal resources. Design and execution of live performance situ
may include verbal , visual and other theatrical elements.

- 4271 C Advanced Improvisation and Keyboard Harmony. Prerequisite: permission of the Department and an interview with the
instructor. Intended for keyboard students, the class involves the development of skills in transposition, score reading, and continuo realization.
4282 C Choral Arranging: lecture 2 hours, D. Farrell. See 4482 C . Music Education.
4299C Area Graduation Requirement (Composition)


## Performance

Note: The various levels of applied study indicate the year of study in the Depantment and are not intended solely as an indication of relative
stand. Term gradings are based upon progress as well as upon the actual pertorming standard displayed in the jury examination. In addition to the one-hour lesson, and appropriate to the idiom, group instruction in technique and repertorese may be a required and 4100 .
sequences of Applied Skills classes. $1100,2100,3100$, and offered in all band and orchestral instruments. guitar and lute, piano, organ, harpsichord, recorder, voice. Normally all students receive

0100R Foundational Applied Skills By special recommendation some music maiors may be advised by the Auditioning Committee to begin
individual lessons at a level prerequisite to Music 1100 as a non-credit class.

2260C Conducting: lab 2 hours. P. Djokic. Normal Co-requisites
2201 C . 2270C. 2271C. An introduction to the fundamentals of 2201C. 2270

3261 C Advanced Choral Techniques: lab 2 hours. D. Wison. Prerequisites: Music 2201 C . 2270 C , 2271 C , 2260 C . Study of the distinctive features of conducting choral ensembles with emphasis rehearsal technique, score preparation, interpretation and group
methods of building vocal tone. Practical experience in conducting
3199 C Recital: Required of all third year Bachelor of Music students whose concentration is in Performance

4199C Area Graduation Requirement (Recital)

## Music Education

erequisites for all classes: permission of the Department and an nerview with the designated member of the Music Education faculty

## Core Classes

400 Elementary Classroom Teaching Methods: lecture 3 hours. P. Perron. An introduction to the development of a music program at the
elementary level. Emphasis is on how to teach song materials. evenentary level. Emphasis is on how to eeach song materials, In music. The educational philosophies of Kodaly and Off are examine in some detail. Solmization, hand signs, thythm names and body coordination are some of the skills to be developed.
$3470 C$ Elementary Classroom Field Experience: P. Perron. Students must spend a minimum of 100 hours in various elementary schools during the school year practice teaching ( $75 \%$ ) and observing master 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.

3480 C Band Instruments: lab 2 hours, staff. A practical introduction to The principal band instruments. Group instruction is offered in flute, oboe r bassoon, saxo this class normally is restricted to students majoring in wind. brass or percussion instruments.

3481 C String Instruments: 1 lab 2 hours. staft 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.

4400 C Secondary Classroom Teaching Methods: lecture $1 \%$ hours. Perron. An introduction to the development of a music program at the exploring the use of song materials, music theory. movement and creativity and listening skills.
4470 C Secondary Classroom Field Experience: P. Perron. Students must spend a minimum of 100 hours in various secondary school lassiooms during the school year practice teaching (75\%) and

4480 C Band Instruments II: lab 2 hours. staff: A continuation of 3480 C
4481 C Band Methods and Field Experience: lab 2 hours. T. Hill. rerequisite: 3460 A . A survey of the ititerature for band. band methods supervised band leadership practice in the school setting.
4483 C String Methods and Field Experience: lab 2 hours. N . Babineau. Prerequisites: $3460 \mathrm{~A} ; 3481 \mathrm{C}$ or permission. A survey erature and string methods for schools and purchase and the school setting

## Electives

4618 Classroom and Recreational Instruments: lab 2 hours. Wood. The purpose of this course is to provide music students with skill student learns to play the ukulele to enable him or her to teach a ukulele class or to use the instrument as part of the general music program.
He/she learns to play the string bass in a functional style suitable tor companying both choral and instrument ensembles the pedagogy is directed specifically toward class teaching of a ukulele group. which ncludes both instrumental and choral work. The philosophy and ethods are applicable to all class teaching situations.

4462A Guitar in the Classroom: lab 2 hours. C. van Feggelen itroductory guitar instruction including vocal/ choral accompanying methods. and techniques for the schoor classroom setting, tablature acompaniment and rhythmic figurations. Practical applications will be available in Music $3470 / 4470 \mathrm{C}$.
4471 C Field Projects: Under supervision, students design a project that esults in an in-depth study of the theooretical and practical aspecects of a $s$ well as working with specialists in the field.

4473 C Contemporary Music in the Classroom: lecture 2 hours. A ney. A study of certain specific 20th-century works and trends: active music making in the classsoom: survey of the literature related to
of contemporary music materials in the classroom ISchater. Self. aynter. etc.).

4474 C The Recorder in the Classroom: lab 2 hours. P. Evans echnique, methods and literature of the recorder tamily as applied e school setting

4482 C Choral Arranging: lecture 2 hours. D. Farrell. Prerequisite

## lasses Available to Non-Majors

 1000 Man and His Music: lecture 3 hours. W.H. Kemp. Designed to he interested listener who desires to acquire an informed response to nusical experiences. A knowledge of musical notation and terminology his 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 music in non-Western civilizations: music and in
related arts: the ant and psychology of listening

2007 Guitar and Lute: class 2 hours. ensemble. C. van Feggelen
Prerequisite: personal interview with instructor For students with a
ens ine classicargoliar and lue playing and for whomitis he history of fretted instruments.

2008 Modern Guitar: lab 2 hours. C. van Feggelen. Prerequisites: preparing for studuio guita playing and including iazz tolk rock and oreparnn tor studio gutar playing and including lazz. tokk, rock and
accompanying idioms. Class instruction and ensemble playing in mprovisation. score reading. chording and arranging.
2021R Music and Literature Since the Enlightenment: lecture 2 hours. D. Schroeder. An interdisciplinary class open to students not majoring in Music. There is no prerequisite. The discussion of music in his class assumes little or no musical background and literary works wi be read in translation. About twelve major works (or smaller groups of
works) will be considered. About halt of these will focus on how diftere media can converge or digress on the same subject. Most of the emaining works will be large symphonic works which owe a clear deb
he following classes. previously described. are also available
001A Materials of Music
1002 I Introductory Music Theory
087R. 2287 R Electronic and Experimental Musia
2012. 3312 Music and Psychology

## Ensembles

Paricipation in both large and small ensembes is required of all students whose major field of study is music in each of the years of the degree programs. Details of specitic participation requirements are vailable in the Department of Music
Memberstip in the various ensembles is open to the University and
Following is a list of the ensembles sponsored by the Deparment of Music

Dalhousie Chorale (W.H. Kemp):I. 0151. II. 0251. III. 0351. IV. 0451. V
Dalhousie Chamber Choir (W.H. Kemp): | 0152 .|| 0252 .|| 0352 . IV Dalhousie Chamber Choi
0452. V. 0552. Found. 0052

Dalhousie Symphonic Wind Ensemble (TBA): :1.0153. II. 0253 .
0353 IV 0453 V 0553 Found 0053
Dalhousie Chamber Orchestra (P. Djokic): I. 0154 . II. 0254 . II. 0354
Dalhousie Jazz Band (D. Palmer): 1.0155 . II 0255 V: 0555. Found. 0055 . Dalhousie Brass Ensemble (I. Cowie): 1. 0156. II. 0256. III. 0356. IV. O456. V. 0556
Found. 0056.
Dalhousie Musica Antiqua (D. Wilson): I. 0157 . II. 0257. II. 0357. IV 457. V. 0557. Found. 0057

Dalhousie Percussion Ensemble (J. Faraday): I. 0158. II. 0258. II.
alhousie Opera Workshop (J. Morris): 1. 0159 . II. 0259 . II. 0359 . IV Dalhousie Opera Worksho
0459. V. 0559. Found. 0059 .
Guitar Ensemble (C. van Feggelen): 1. 0160. II. 0260 . III. 0360 . IV Small Ensembles (staff coaches): I. 0161. II. 0261. III. 0361. IV. 0461 . 0561 . Found. 006
Accompanying: II 0162. II. 0262 . II. 0362 I IV. 0462 . V. 0562 . Found
Chebucto Orchestra (by invitation, and Department permission): . 0.

Nova Scotia Youth Orchestra (by invitation, and Department

## Oceanography

Chairperson of Department

## A.J. Bowen

Protessors ${ }^{\text {C. Beaumont. BSC (Sussex). PhD (Dal). FRSC }}$
J. Bowen. MA (Cantab).) PhD (Caifi.)
C. . Fournier. MSc (Wm \& Mary). PhD (URII)
C.J.R. Gariett. BA. PhD (Cantab).) FRSC
D. Huntley. BA (Cantab). PhD (Bristol)
L. Mills. BSC (Carl). MS. PhD (Yale). FLS

J Wangersky. ScB. (Brown). PhD (Yale)
Associate Professors
R.C. Cooke. BSC (Randoloh-Macon). PhD (Dal)
A. Louden. BA (Oberin). MEd (Temple). PhD (MIT)

LA. Mayer. BS (URII). PhD (Calif.)
R.M. Moore. BA (Oxon). PDD (Southampton)

Assistant Professors
B.D. Johnson. BAC (N. Carolina S.U.). PhD (Dal)
J. Koslow. BA (Harv) BA. Wash) PhD (Calit)
J.A. Koslow. BA (Harv.). BA' (Wash). Ph
M. Lewis. BS. MS (UMd). PDD (Dal)

Assistant Professor (NSERC Research Fellow)
Asi Thompson BSc. MSc (UManc) PhD (Liv.)
Research Associate (Research), PD (Dal). Manager Dalhouste
N.E. Balch. BA (UNB). MA (OXON). Ph (Da).
Aquaron
Honorary Research Associates
R.J. Conover. AB (Oberlin). PhD (Yale). Marine Ecology Laboratory. BI
J. Craigie. BA. MA. PhD (Qu). Allantic Regional Laboratory. NRC J.S. Craigie. BA. MA. PhD (Qu). Allantic Regional Laboratory. NRC
LM. Dickie. BSC (Acadia). MSC (Yaie). PhD (Tor). Ocean \& Aquatic L.M. Dickie. BSC (Acadia). MSC (Yaie). PhD (Tor). Ocean \& Aquaric
Sciences. BIO
F.W. Dobson. BSC. MSC (Dal). PhD (UBC). Allantic Oceanographic Laboratory. BIO
R.W. Doyle. MSc (Dal). PhD (Yale). Dept. of Biology. Dal
J.A. Elilith. BSC (1)
Laboratory. BIO

Wm. G. Harrison BS A.
Laboratory. BIO
C.E. Keen. BSC. MSC (Dal). PhD (Cantab). Atlantic Geoscience Centre
BiO
W.D. Jamieson. BSC. MSC (Dal) PhD (Cantab). Atlantic Research
Laboratory. NRC

Laboratory. NRC
S.R. Kerr. BSc (Carl). MSc (Qu). PhD (Dal). Marine Ecology Laborato
BIO Noritsky. BSC (Penn St). PhD (Ore. SU). Dept. of Biology. Da
 Laboratory. BIO
T. C. Platt. BSC (Nottingham). MA (Torr). PhD (Dal). Marine Ecology
Laboratory. BIO
M. Sinclair. BSC Hons (Qu.)., MSC (Southampton). PhD (Calif.) Fisheries
M. Sincliair. BSc Hons (Qu)). MSC (Southampton). PhD (Calif.) Fishene
\& Oceans
instit). Atlantic Oceanographic Laboratory. BIO
S.D. Smith, BEng (McG). PhD (UBC). Atlantic Oceanographic
Incer

Laboratory.BIO
R.L. Stephenson. BSc (Trent). PhD (Canterbury). Fisheries \& Oceans. St
Andrews. N.B.
F.C. Tan. BSC (Taiwan). MSc (MCG.). PhD (Penn. St). Atlantic Oceanographic Laboratory, BIO
D.G. Wright. BSC (Laurentian). PhD (UBC). Atlantic Oceanographic D.G. Wright. BSC
Laboratory. BIO

Honorary Adjunct Professors
B.T. Hargrave. BSC. MSc (Dal) PhD (UBC). Marine Ecology Laborator ${ }_{\text {S }}^{810}$ Pearre. BSC (Virginar MSC Pho (Dal
S. Pearre. BSc (Virginia). MSc. PhD (Dal)
D. JW Piper. BA. MA. PhD (Cantab). Atla
D.J. Piper. BA. MA. PhD (Cantab.). Allantic Geoscience Centre. BIO

Oceanography is an inter-discipipinary science that inciudes stucies of live in the sea. and ocean bottom sediments and underlying crustal structures. Career oceanographers are employed in Cater
universities. in various federal laboratories that are engaged in both basic research and applied problems which meet a national need. such as tisheries investigations. explorations. and in a number of private companies interested in marine environmental protection or exploration A good background in basic science is a necessary prerequisite io entering the department. Properly prepared undergraduates are permitted to take one or more graduate classes as electives. There are graduate iniroductory classes which survey yhe entire liehysical. advanced Classes in each of the major specialies - physical.
chemical. geological and biological oceanography, and fisheries biolog

## Classes Offered

1850R introduction to Oceanography: lecture 3 hours. R.O. Fournier Prerequisite: Restricted to second year. or more advanced students. A general survey of Oceanography sowng how ine oceas. wa dominant environmental force. Consideration also is given to man impact on this ecological system. Designed to give a background of teeling tor the ocean. what oceanography is. and what oceanographers be obtained for scientific lechniques which would otherwise be acquired in a laboratory class. Most of the material covered is descripive rather than basic. inasmuch as tis impossible in the time allowed and material covered to also teach the basic required sciences

4110B Introduction to Geological Oceanography: lecture 3 hours. Louden. L. Mayer. Prerequisite Permission of the instructor. Thi oceanography who have little or no knowledge of geology or geophysics. The course content is mainly descriptive. and no subject is treated in great depth.

120A Introductory Physical Oceanography: lecture 3 hours. B Auddick. Prerequisite: Permission of the instructor. This class explores some of the physical forces driving the oceans. and describes the esponses of ocean water to these torces. Scales of ocean motion ream. through tides and waves. right down to very small-scale random ovements of water known as turbulence. The class also includes a et introduction to practical aspects of physical oceanography

130 A Introductory Chemical Oceanography: lecture 3 hours, some labs. R.M. Moore. Permission of the instructor. This course considers the ceans as a chemical system. We discuss the nature and structure of water. sea water as a complex multi-ion solution, the composition of se of nutrients, organic materials, trace elements, and geoochemical cycles.
4150 A Introductory Biological Oceanography: lecture 2 hours, lab 1 Sa hours. M.R. Lewis. Prerequisite: Biology 2060 or 2046 or equivalen ceanographic processes are used to explore interactions with physica and chemical processes in various oceanic ecosystems. Ti. poussynthesis to expected response of the ocean ecosystem to global variation in carbon dioxide and climate. Laboratory emphasizes independent. original research.

160A Fisheries Oceanography: lecture 3 hours, J.A. Koslow. Prerequisite: Biology 2060A or 2046A. Familiarity with calculus and statistical concepts helpful but not required. Permission of instructor is equired. The ecology of fisheries with emphasis on the factors alfecting physiology of fish production: classic management models: larval fish ecology: the effects of fishing and changing stock size, of climate, and of

4170 Introductory Physical and Chemical Oceanography: lecture 2 hours. A. J. Bowen, R.C. Cooke. A class restricted to third and fourthyear students. Prerequisite: Permission of the instructor. The oceans a
a physical system. water properties, basic dynamical concepts, the a physical system, water properties, basic dynamical concepts, the
orces creating oceanic motion, ocean circulation, shelf and coastal processes.

42108 Time Series Analysis in Oceanography: lecture 3 hours.
Huntley. Prerequisite: Permission of the instructor. Much of the data Huntley. Prerequisite: Perrmission of the instructor. Much of the data
collected in oceanography and other earth sciences are in the form of a time series, a measurament of a variable as it changes with time or
place. Usually the simplest way of interperting a time series is to divide place. Usualy the simplest way of interpreting a time series is to divide it
up into variations occurring in different ranges of trequencies. This class outlines some of the tecchniques for analysing time series with particular emphasis on spectral analysis and filtering.
4230B Biology of Phytoplankton: lecture 3 hours, some labs. M. Lewis. Prerequisite: Permission of the instructor. The role of phytoplankton as primary producers of organic material in the sea, and as agents of biogeochemical rranstormations, explored in the contex interactions with physical and chemic
Emphasis is on the current literature.
4311A Fluid Dynamics I: lecture 3 hours. D.A. Huntley. Prerequisite
Permission of the instructor An introduction to the kinematics and Permission of the instructor. An introduction to he kinemaics and
dynamics of fluid motion. Viscous flow. vorticity. boundary layers and potential flow are discussed. and the class ends with a brief discussion of the theory of liti on aerofoils, The class emphasizes mathematical

4312 Fluid Dynamics II: lecture 3 hours. C.J.R. Garrett. Prerequisite Oceanography 4311 A or permission of the instructor. The laws of fluid motion are applied tota varied list of topics including open channel flows.
hydrodynamic stability. convection, turbulence and mixing. using a blend hydrodynamic stability convection turbulence and mixing. using a blend
of mathematical theory and physical reasoning. A previous knowledge of methods of mathematical physics is desirable.
43308 Benthic Ecology: lecture 3 hours. E.L. Mills. Prerequisite: Permission of the instructor An advanced level course concentrating on the maior problem of benthic ecology, such as how tood is supplial
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 sediments. Year-to-year the course content changes. keeping up with
current problems of research workers in this discipline.
43318 The History of Oceanography: lecture 3 hours. E.L. Mills. 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 institutional developments, and social influences affected the acquisition of knowledge about the oceans?
4280B Marine Modelling: lecture 3 hours, M. Lewis. Prerequisite: Permission of the instructor. A graduate levels survey of modedling
techniques applied to biological-physical problems in oceanography Lecture material includes. philosopphy of modelling. dimensional analysis. paramelerization of unresolved processes. numerical represen
ordinary or partial dififerential equations. model validation and fundamental limits to predictabiity. 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.
is helpful but not a prerequisite.
4410R Dynamic Meteorology: lecture 3 hours. C.J.R. Garrell Prerequisites: Physics 4310R and permission of the instructor. The basic
laws of fluid dynamics are applied to studies of atmospheric motion. including the planetary boundary layer. synoptic scale disturbances (the tamiliar highs and lows on weather maps), front and global circulation reasoning which leads to the best understanding of the dominant physical mechanisms. The class includes an introduction to numerica techniques and their use in weather forecasting models and studies of

## Philosophy

S. Sherwin

## Protessors

## D. Brayb

Science
BA (Harv.). MA. PhD (Corn). FRSC. Also in Political R.M. Campbell. BA (Harv). PhD (Corn.)
W.F. Hare. BA (Lond). MA (Leic) Ph (

MA (Leic.). PhD (Tor). (Major appointment in
F.H. Page. MA (Tor). DD (Pine Hill)
R.P. Puccetti BA (III) MA (T)
R.P. Puccetti. BA (III). MA (Tor), Docteur de IUniversite de Paris P.K. Schotch. PhD (Waterloo)

Associate Professors
N.C. Brett. BA (New Hampshire). MA. PhD (Waterloo)
S.A.M. Burns. BA (Acad.). MA (Alta). PhD (Lond.)
R.M. Martin. BA (Col.). MA. PhD (Mich.)
S. Sherwin. BA (York). PhD (Stan).
T. Torkow. BA (SFU). PhD (Cantab.)

Assistant Professor
Assistant Protessor
D. Macintosh. BA (Queen's). MA (Waterloo). PhD (Tor.)
Postdoctoral Fellow
Bachwar. BA (Poona). MA (CUNY). MA (Poona). MA. PhD (Tor.)
Adjunct Assistant Professor

## .). MA (Dal). PhD (Tor.)

## Beginning in Philosophy

There are many difterent ways of beginning in philosophy. The
Dalhousie Philosophy Department ottiers three sorts of classes to俍 3) logic, which is the study of the theory and techniques of good easoning. Students wishing to major in philosophy are encouraged to begin with Introduction to Philosophy (either 1010 or 2040 or 2050) in which a wide range of philosophical issues is discussed. But any 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 philosonhical thinking Choose the class that best a good introduction to philosophical thinking. Choose the class that best suits your interests - its not necessary to star 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 satisties the requirement of a previous philosophy Class. Classes at the 3000 -level and beyond usually have

## Degree Programs

A with major in philosophy: Students must take at least four fullyear classes in philosophy beyond the 1000 -level (two hall-year classes
may be substituted for a full-year class) including: (a) at least one logic lass (half or full-year): (b) at least one history of philosophy class (half
or full-year): at least one full-year class or two hall-year classes at the $3000-$-evel or above. All students planning to take a general degree in philosophy should first talk to an undergraduate advisor in the
department

A with honours in philosophy: Students wishing to specialize in philosophy should take an honours course, the normal preparation
graduate study in philosonhy An honours course will include graduare study in philosophy. An honours course will include the eqaist wo hall--sear classes (or the equivalent) in logicic: (bil at least two
lalt-year classes (or the equivalent) in the history of philosophy. (c) at half-year clalsses (or the equivalent) in the history of philiosophy. (c) at
least six halt-year classes (or the equivalent) at the 3000-level or above. (d) at least two hall-year classes (or the equivalent) at the 4000 -level. Note: Two hall-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 mean "one cull-year class or two hall-year classes." Al so note that only classes whose titles begin with "Logic" or "listory of Philosophy" may"
clat BA with maior or honours in philosorphy

## Class Descriptions

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 $1984-85$, wer umbered without the last digit (zero), e.g., the present class Philosorohy 2130 was previously called Philosophy 213 . TTe prerequiusite and exclusionary designations below should be interpreted accordingly
Detailed descriptions are available from the department on request.

## 1000-Level

010 Introduction to Philosophy: staff. (Exclusionary to 1000, 1020, 2000,2040 and 2050.) An introduction to a variety of philosophical problems, such as the relation of mind to body, freedom of the will, the oundation of morality, the existence of God, the nature of perso
dentity, 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 satisfies the Faculty Writing Requirement.

1030 Death and the Mind: R.P. Puccetti (Exclusionary to 2030). An enquiry into the nature of death, the possibility of survival, immortality,
and reincarnation, and the relevance of belief in an afterife to the way we live our lives. Note that this class satisfies the Faculty Writing Requirement.

1090 How to Win an Argument: T. Tomkow, half-year. (Exclusionary o 2150). This class is devoted to developing the practical skills involved evaluating reasoning and producing convincing arguments. Note this major or honours program.
1100 Legal Thinking: N. Brett, half-year. Examination of controversial legal cases leading to increased understanding
the techniques of practical moral reasoning.

111 Logic: Elementary Symbolic Logic: R.M. Martin. (Exclusionary to 10 and 2130.) An introduction to an artifical languaa (enstructed so to make the operations of reasoning more precise.

2000-Level
2030 Death and the Mind: R.P. Puccetti (exclusionary to 1030 ). See description for 1030 , above. This class will be graded diffe
030 and will not satisfy the Faculty Writing Requirement.

2040/2050 Introduction to Philosophy I and II: T. Vinci, hall-year. See descripition for 1010 above. A studen may take either or both half-year lasses, bureachiss Faculty Writing Requirement 1020, and 2000. Neither

2070 Justice, Law, and Morality: Concepts Version: D. Braybrooke An introduction to political philosophy and ethics. St. Thomas, Hobbe considered to help answer questions such as: What is justice? What its role in society? This class and 2270 are cross-listed with Political Science. Together they provide a comprehensive survey of the history of

2080 Ethics in the World of Business: D. Braybrooke. Business practices are sometimes in accord with moral principles, sometimes at
odds with them. Where in business is it easiest to be scrupulous? Where 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?

2130 Logic: Deduction: P. Schotch, half-year. (Exclusionary to 1111
and 2110 .) A systematic introduction to the operations of formal and 2110.$)$ A systematic introduction to the operations of formal quicker pace, with considerable attention devoted to the relation between artificial and natural language and to the philosophital problems that arise from the study of reasoning. No previous study of ogic is presupposed.
2140 Logic: Logical Theory I: P.Schotch, half-year. Prerequisite: 1111 or 2130 . An introduction to metalogic, with special attention to the
soundness and completeness of formal systems, and to the soundness and completeness of formal systems, and to th

160 Philosophical Issues of Feminism: S. Sherwin, hall-year. An
examination of various approaches to teminism, and of practical and heoretical issues associated with feminism, such as aborio

2175 Introduction to Philosophy of Education: W. Hare, half-year. A lecture/discussion class dealing with a broad range of philosophical
questions about education including the use of slogans, multiculturalism, questions about education including the use of slogans, multiculturalism eacher education, and the role of the teacher. No prerequisites


2180 Issues in Philosophy of Education: W. Hare, half-year introductory level, lecture/discussion class dealing with some
fundamental issues in philosophy of education, including indoctination, open-mindedness and bias-free teaching. No prerequisites. Open to tudents who have taken Philosophy 2175. Cross-listed with Educatio 222B

2190 Logic: Logic for Computing: P. Schotch, hall-year. Prerequisite One previous class in philosophy or computer science. This class introduces the concepts of elementary formal logic. Those aspect which apply to computing science, especially software design, are

2200 Philosophy of Religion: F.H. Page. An introduction to the philiosophy of religion, examining such questions as: Why is religion so


2250 Religion and Human Behaviour: F.H. Page. A study of religion as a form of human experience and behaviour. Topics include. naturalistic theories of religion, the personal deve

2260 Philosophy of Art: S.A.M. Burns, half-year. Examines questions such as: What is art? Can judgements of arristic value be rational and
objective? Can fear of fictional objects be real fear? Can music be a objective?
language?
2270 Justice, Law, and Morality: Regimes Version: R. Eden. The Tocquem of determining the best regime is considered through reading Tocqueville, Machiavelli, Hobbes, Montesquieu, Rousseau, Plato, and
Aristotle. This class and 2070 are cross-listed with Political Science. Anstotie. This class and 2070 are cross-listed with Political Science. philosophy.

2350 and 2370 History of Philosophy: Ancient Philosophy I and II: T. Vinci and S.A.M. Burns, hall-year. Prerequisite: One previous class in philosophy. The beginnings of Western philosophy are studied in the

2410 Philosophy of Psychology: R. Puccetti, hall-year. Prerequisites One previous class in philosophy or psychology. An examination

2420 Philosophy of Biology: R. Campbell, half-year. Prerequisites One previous class in philosophy or biology. An examination of hilosopichion of

2510 Philosophy of Social Science: D. Braybrooke, hall-year (Exclusionary to 351.) Prerequisite: One previous class in philosophy, pexamination 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 th

2540 Philosophy of History: D. Braybrooke, half-year. Prerequisites One previous class in philosophy or history. Can the study of history be
scientific? Are there any historical laws? Is history working toward some scientific? Are ther
discernible goal?

2550 Marxist Theory: S.A.M. Burns, half-year. Prerequisites: One previous class in philosophy or political science. Marxist theory, both as philosophy and sociar science, is staded hrough an examina

2610 History of Philosoophy: The Rationalists: D. MacIntosh, hall-yea
Prerequisites: One previous class in philosophy. The philosophy of Preequisites: One previous class in philosophy. The philosophy
Descartes, Spinoza, and Leibniz.

2620 History of Philosophy: The Empiricists: S.A.M. Burns, half-yea
Prerequisites: One previous class in philosophy. The philosophy of Prerequisites: One previous class in philosophy. The philosophy of
Locke, Berkeley, and Hume.

2660 Logic: Choice and Chance: R. Martin, hall-year. An introduction
to the principles of scientific prediction and choice between different to the principles of scientific prediction and choice between different courses of action. The class examines the workings of chance, or
probability, and the theory of games.

2700 Philosophy in Literature: R.M. Martin. A study of some hilosophical themes in modern literature. All readings will be litera .
2710 Existentialism: hall-year, (exclusionary to 2170). A general Nietzzche, Sartre, and Camus.

2800 Ethics and Medicine: S. Sherwin. Moderr 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 knowedge alone but need to be considered in the lignt 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.
3000-Level
3051 Theory of Knowledge: T. Vinci, half-year. (Exclusionary to 3050 .) Perequisites: Philosophy 2610 or 2620 or permission of the instructor.
udy of fundamental issues in the theory of knowledge. The class examines Skepticism, Rationalism, and Empiricism, and investigates th 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. 3060 Logic: Logical Theory II: P. Schotch, hallf-year. Prerequisites:
2140 or permission of instructor. Devoted primarily to the study of form semantics and its relation to symbolic language.
3100 Ethics: R. Campbell. Prerequisites: Two previous classes in philosophy, preferably classes in history of philosophy and logic. A ant, Foundation of the Metaphysics of Morals; Hume, A Treatise of Human Nature; and Rawls, A Theory of Justice
revious classes in Philosonhy or Women's Studies A study of the previous classes in Philosophy or Women's Studies. A study of the omparision concentrating manthe feminist theories in critical implications for traditional approaches to social and political thought.

3211 Philosophy of Law: N . Brett, half-year. (Exclusionary to 3210 .)
Prerequisites: One previous class in philosophy. A study of normative rerequisites: One previous class in philosophy. A study of normative Abstract legal principles and concepts are dealt with in the context specific statutes and judicial decisions, e.g., the Narcotics Control Act, he Morgentaler case
3300 Philosophy of Language: R. Martin, half-year. Prerequisites: Two previous classes in philosophy including one logic class, half- or full-
year. What does it mean to say that the elements of language have meaning?

3360 History of Philosophy: Classical and Early Christian hilosophy: W.J. Hankey, J.P. Atherton. Prerequisite: Permission of the nstructor. Special attention is given to Plato and Aristotle, and to the Greek philosophy of the first centuries A.D. and its influence on

3380 History of Philosophy: Medieval Philosophy: R. Crouse Prerequisite: Permission of the instructor. Anselm, Aquinas, Ockham, some XIII Century Augustinians and Averroists and late Medieval
mystics are studied most closely: atttention is given to related politic mystics are studied most closely; atttention is given to relat.
literary, and theological concerns. Same as Classics 3380 .

3440 Philosophy of Mind: $T$. Tomkow, half-year. (Exclusionary to dy of the mind-body problem and/or theories of personal identity

3460 Mind and Brain: R. Puccetti, half-year. Prerequisites: Two revious classes in philosophy. An interdisciplinary approach, combinin 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

3530 Freedom, Action, and Responsibility: P. Schotch, hall-year (Exclusionary to 4450 and 4530 .) Prerequisites: Two previous classes in philosophy. 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 roles of voititions, intentions, motives, and reasons in actions
responsibility for actions and the concept of free actions.
3630 History of Philosophy: Kant: T. Vinci, half-year. Prerequisistes 2610 or 2620 or permission of the instructor. Special attention will be paid to Kant's metaphysics.

3640 History of Philosophy: Twentieth Century Philosophy: D Maclintosh, hall-year. Prerequisites: One previous class in the history o philosophy or permission of the instructor. Tne Twenieen Century yas
been a period of revolutionary change in Anglophone philosophy. This class surveys the most influential figures, including Frege, Russell, Wittgenstein, and Quine.

3670 Philosophy of Science: T. Vinci, half-year. Prerequisites: At least iwo previous classes in philosophy, including one half- or full-year logic class such as 2660. Induction, probability, and explanation are studied with special attention to the nature of scientific theories. No scientific background is presupposed.

3851 Metaphysics: D. Macintosh, hall-year. (Exclusionary to 3850.) Prerequisites: Two previous philosoohy classes including at least on hall- or full-year logic class. A study of topics such as the nature of
substance and change, body and mind, cause and effect. and the substance and coxistence.
3900 Logic: Logic and Philosophical Analysis: Staff, half-year. Prerequisites: Two previous philosophy classes including one half- or full-year class in modern symbolic logic. 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, multi-valued logic, quantum logic, Arrow's theorem, nalyticity and the a priori, negative existentials.

## 4000-Level

Note: Classes at this level are intended for advanced undergraduates with a strong background in philosophy. No speciic prerequisites are
listed, but it is assumed that normally a student will have already taken relevant classes at the $3000-$ level. Classes with titles beginning "Topics in ..." have no description, since the selection of topics and instructor is determined atter the time of calendar preparation. Interiested students
should consult the department for up-to-date information.

4055 Topics in Epistemology: hall-year
4070 Topics in Philosophical Psychology: half-year
4080 Topics in Logical Theory: hall-year.
4115 Topics in Ethics: hall-yea
4120 Theory of Rational Decision: R. Campbell, hall-year. A study of foundational problems in contemporary theory of rational decision, drawing on work by philosophers, psychologists, economists an mathematicians

4190 Topics in the History of Philosophy I: half-year.
4191 Topics in the History of Philosophy II: hall-year.

4192 Topics in the History of Philosophy III: half-year.
4200 Topics in Normative Theory: hall-year.
4215 Topics in the Philosophy of Law: half-year
4220 Contemporary Philosophical Issues: staff, hall-year. Intensive study of a few topics which are currently being debated and may fall outside of or cup tacross standard classification of areas of interest.
Examples are: artifical intelligence, probability, sociobiolgy, causal Examples are: artifical intelligence, probability, sociobiolgy, causal theories, reduction.

4430 Game Theory as a Foundation for Ethics and Politics: D. Braybrooke, hall-y-year. (Seminar in Philosophy, Politics and Economics.)
The most innovative recent work in ethical theory has applied the theory 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 of games to the perennial problem of the social contract. To what extent
can any organized society to which people freely achere 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 other foundation of politica rules can be regarded simultaneously as the other foundation of politica,
organization and as elementary rules of ethics, and a study of this topic forms the basis of the class. Cross-listed with Political Science forms the basis
$4485 \mathrm{~B} / 5485 \mathrm{~B}$.
4470 Utilitarianism, Classical Liberalism, and Democracy: D. Braybrooke, hall-year. (Seminar in Philosophy, Politics, and EConomics) Braybrooke, hall-year. (Sequiste: Normally, classes in philosophy or political science or economics: consult instructor. 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. Cross-listed with economics and political science.
4480 Social Choice Theory: D. Braybrooke, half-year. (Seminar in Philosophy, Polics, theorem bring the theory of voting and wellare economics seemingly leading both (and the theory of democracy as well) to ruin. This class will nonsider row to cope with the problem. Cross-listed with
Economics and Political Science.

4510 Topics in the Philosoptly of Language: half-year.
4600 Philosophy of Religion Seminar: half-year
4680 Topics in the Philosophy of Science: hall-year
4855 Topics in Metaphysics: half-year
4940, 4960, 4980 (half-year) \& 4950, 4970,4990 (full-year) Directed Reading: staff. Prerequisite: Permission of instructor. Consult department for details. In special cases, classes to suit individual
interests can be developed jointly by a student and an instructor

## Changes and Additions

As the Calendar goes to press before plans for the next academic year are completed, there may be signific cant changes in the classes listed above. In particular, not all classes are offered in each academic year.
Students should consult the Department for names of instructors and Students sh
revisions.
Graduate Studies
The Department offers graduate classes leading to the MA and the PhD and by consulting the Department's Coordinator of Graduate

## Admissions.

## Physics

Chairperson of Department
Professor Emeritus
W.J. Archibald, MA (Dal), PhD (Virg.), DSc (UNB), DSc (Dal), FRSC
D.D. Betts, MSC (Dal), PhD (MCG), FRSC, Dean of Faculty of Arts and
M.G. Cakkin, MSc (Dal), PhD (UBC) D.J.W. Geldart, BSc (Acadia), PhD (MCM) FRSC (A.C. Fales Professor of Theoretical Physics)
M.H. Jericho, MSC (Dal), PhD (Cantab).)(George Munro Professor of M.H. Jeric
Physics
H.J. Kreuzer, MSc, DSc Mc, PhD (MCM) H.J. Kreuzer, MSc, DSc (Bonn) (Killam Research Prote
G.F.O. Langstroth, BSc (Alta.), MSc (Dal), PhD (Lond.)
R.H. March, BSc, MSc (Dal), DPhil (Dxon.)

Associate Protessors
B.L. Blackford, BSC (Acadia), MSc (MIT), PhD (Dal)
J.G. Cordes, MSC (Dal), PhD (Cantab.)
RA. Dunlap. BSc (Worcester) AM (D)
R.A. Dunlap, BSc (Worcester), AM (Dart.), PhD (Clark)
S.T. Nugent, BSC (MUN.), BE (NSTC), MASc (Tor.), PhD (UNB), PEng
B.E. Paton, BSC, MSC (Waterloo), PRD (MCG)
P.H. Reynolds, BSC (Tor) PRD (UBC
P.H. Reynolds, BSc (Tor.), PhD (UBC)
A.M. Simpson, BA (Cantab.), MSc, PhD (Dal)
G. Strounk, White, MSc (Dal)

Assistant Professór
DA. Tindall BA, PhD (Cantab.)
Assistant Professor (Research)
K. De'Bell, BSc, MSc, PhD (London)
Research Associates
A.K. Das, DPhil (Oxon)
S. Fuiki, PhD (Tokoku)
S. H. Payne, PhD (Cantab)
S.

Post Doctoral Fellows
D. Dahn, PhD (UBC)
S. Daté, PhD (Waseda)
K. Watanabe, PhD (SCience U. of Tokyo)

Adjunct Professors
HW. Jones BSC PhD
A.W. Jones, BSc, PhD (Lond.), FIlnst.P., PEng
H.W. King. BSC, PhD (Birm.), DIC (Lond.), FRSA, F.Inst.P FIM, CEng,

PEng A.D.J. O'Neill, MSC (McG), PhD (Sask.)
R. Ravindra, BSC (Kharapur), MA, PhD (Tor.) (jointly with Religion)

MacGregor Teaching Fellows
C. Purcell
G.A. Tan
D. Zhao
H. Zhou

Senior Instructor
Instructor
W. Zukauskas, BSc (Dal)

Physics is the study of the fundamental properties of energy and matte 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 divers 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 programs are arranged to do this is an orderly

## First-Year Classes

There are three first-year classes. They all give a general introduction physics, but each has its own particular approach and selection of topics. Only one first year physics class may be used for credit towards a degree.

Aysics 1000: is a survey class offering a wide range of topics in both classical and modern physics.

Physics 1100 is for students intending to make a study of engineering
or a physical science. Previous background in physics is desiable.
Physics 1300: is an introductory physics class which is oriented

## Degree Programs

## Degres Degree/Major in Physics

Sudents intending to major in physics should include Physios 1100 ar Mathematics 1000 A and 10108 in their first-year program (Physics
000 and 1300 are not normally included in a "Major"). Physics 2450 , 400, 40208 may not be included in a "Major" to satisty requirement 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 program may take nly Physics $3000 \mathrm{~A} / 3010 \mathrm{~B}$ and Physics $3340 \mathrm{~A} / 3350 \mathrm{~B}$.

## BSc Major in Physics

xample only, other possibilities exist):
Year I: 1100 (Math 1000 A \& 1010 B ), science, arts, elective
Year II: 2200A, 2210B, 2300A, 2330B (Math 2000 or 2200), science
Year III: Two $3000-$ level Physics classes; one additional Physics clas is recommended; electives. A recommended selection includes 3140 A , $3160 \mathrm{~A}, 3170 \mathrm{~B}, 3000 \mathrm{~A}$ and/or 3010 B .

BSc Major in Physics, with Diploma in Engineering The physics content of this program might be as follows:
Year I: Physics 1100
Year II: Physics 2200A, 2210B, 2300A, 2330B
Year III: Physics 3160A, 3170B, 3340A, 3350B. Other possibilities exis.
For the remainder of the program, consult the Engineering Department.
Geophysics
or those interested in Geophysics, refer to classes 2050B, 3130B $4270 \mathrm{~A}, 4280 \mathrm{~B}$, and 42908 , listed under Geology.
BSc with Honours in Physics
All students who intend to take a BSc with Honours in Physics are department and to consult with the Chairman of the Department at the beginning of the second year.
The following classes will normally be taken.

Year I: Chemistry 110; Mathematics 1000A \& 1010B; Physics 1100; arts or science elective; and an arts elective.
Year II: Science elective: two mathematics classes; and Physics 2110 and 2120

Year III: Arts or science elective; Mathematics 3110A, 3120B; and
Physics $3000 \mathrm{~A}, 3010 \mathrm{~B}, 3090 \mathrm{~B}, 3140 \mathrm{~A}, 3200 \mathrm{~A}, 3210 \mathrm{~B}$. Year IV: Arts, science or mathematics elective; and four physics classes
at the 4000 level including $4000 \mathrm{~B}, 4100 \mathrm{~A}, 4160 \mathrm{~A}, 4151 \mathrm{~A}, 4152 \mathrm{~B}, 4230 \mathrm{~B}$. A thesis and a comprehensive examination are also required.
Students with special interests pick electives carefully. The following suggestions may serve as a guide.
Applied Physics Option: Physics $3340 \mathrm{~A}, 3350 \mathrm{~B}, 3440 \mathrm{~B}, 4220 \mathrm{~A}$, A300A, 4330A, 4350B. Theoretical Physics Option: Physics 4170B, 4180A/B, 4480A
$4650 \mathrm{~A} / 4660 \mathrm{~B}$; Mathematics 3050 , 3320 A

Program in Engineering-Physics The physics department participates in, and is responsible for, teaching the physics components of the program leading to the degree of
Bachelor of Engineering in Engineering Physics, awarded jointly by Bachelor of Engineering in Engineering Physics, awarded jointly by the
Technical University of Nova Scotia and Dalhousie. For details consult the TUNS Calendar.

Combined Honour ladenis interested in both Physics and another science may wish to lake a Bes win Honours in Physics and the other subject combined.
Students contemplating such a program should in any case consull the Departments before the beginning of their second year of study.
Co-operative Education Program in Physics The co-operative program provides physics students with an integrated pattern of academic study and supervised work terms in industry, government laboratories and institutes, etc. The program enables will face in their physics careers upon leaving the University. The work 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 accuired
knowledge, and adds to their motivation for academic study.

Eligibility: Students entering their second year of an honours program in physics
admission.
he Work erms and 4 supervised work terms. The academic program and equired classes are the same as for the BSc degree with Honours in Physics. In addition, in year 2, Co-op students are required to participate in the non-credit class and lecture series "Scientific Methods."
Further information: For further information contact the Progra urther information: For further information contact the Program Coordinator, Co-operative Employment Program in Phys
Physics, Dalhousie University, Halifax, N.S. B3H 355.
Diploma in Meteorology
The one-year diploma in meteorology program consists of the following The one-year diploma in meteorology program consists of the following
ive classes: Physics $4500 \mathrm{~A} / 45100 \mathrm{~B}$, Physics $4520 \mathrm{~A} / 45308$, Physics $4540 \mathrm{~A} / 4550 \mathrm{~B}$, Oceanography 4410 OR , Oceanography 412 O A , Math 4080B (or Oceanography " ${ }^{4210 B) \text { ). Students admitted to this program are }}$ eligible for consideration for AES-NSERC Studentships in Meteorology which, for $1986-87$, are valued at $\$ 5,000$ per annum.
or admission into this program, 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 program at Dalhousie, the following classes re recommended: Physics $11100,2200 \mathrm{~A} / 2210 \mathrm{~B}, 2300 \mathrm{~A} / 2330 \mathrm{~B}$, 3160A/3170B, 4311A, 4312B; Math 1000A/1010B, 2000,
$2030 \mathrm{~A} / 2040 \mathrm{~B}, 2070 \mathrm{~A} / 2080 \mathrm{~B}, 3110 \mathrm{~A} / 3120 \mathrm{~B}$; and Computing Science
Classes marked * are not offered every year. Please consult the
metable on registration to determine if this class is offered.

## Classes Offered

1000 Survey of Physics: lecture 3 hours, lab/tutorial 1 hour, C.G. White. A survey of physics, not normally accepted as a prerequisite to science (and possibly also pre-medicine and pre-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, he atomic nucleus and nuclear reactions, astrophysics and cosmology. Mathematics is used as a language for expressing the basic ideas of and trigonometry. Problem sets are assigned on a regular basis. Help with these can be obtained at 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. Text $J . B$ 1100 Introdur tion to Physics: lecture 3 hours ( 3 sections, section 03
or engineerin , students), lab 3 hours every 2 nd week, D.F. Goble, R.H.
March, G. Stroink. Primarily for students interested in the physical March, G. Stroink. Primarily for students interested in the physical
ciences. Students beginning this class should be familiar with alge graphs and trigonometry, should be taking Calculus (Math 1000/1010) concurrently, and should have a background in Physics equivalent to he Nova Scotia XII level. This class concentrates on three main areas ar 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. Text: Serway,

300 Physics In and Around You: lecture 3 hours, lab/tutorial 3 hours, medicine, pre-dentistry and allied health sciences, not normally introducing basic concepts in physics, every opportunity is used to apply hese concepts by using realistic biological examples, e.g., forces and orques are arechy to hearing. Students beginning this class should be familiar with trigonometry and algebraic equations. Text: Kane and Sternheim Physics, 2nd ed., Wiley:
110/2120: These two classes are intended to be complementary, and or second-year honours students. Unless the circumstances are unusual, they should be taken together. The classes have a common laboratory, i.e., work done in the laboratory periods is included in the grade for both classes. Prerequisites are also common. Phys that a student with less than a "B" grade in Physics 1100 can be expected to have difificulty with 2110 and 2120 :)
2110 Mechanics and Waves: lecture 3 hours, lab 3 hours, D.A. Tindall The first part deals with basic vector mathematics, Newton's laws of notion, motion in unaccelerated reference frames, the two principles of special relativity and their use in describing space and time
unaccelerated reference frames, conservation of energy and momentum from both the classical and relativisicic view point, and mechanics, electromagnetism, quantum theory. Fourier analysis of wave packets and pulses is included. Text: Berkeley Physics Course, Vol. 1 Mechanics, MCGraw-Hill, 1973; Berk

2120 Electricity: lecture 3 hours, lab 3 hours, C.G. White. The class begins by studying electrostatics, including the concepts of electric field in conducting materials is discussed, leading to the solution of circuit problems involving capacitance and inductance. By considering the electric field of a moving charge in the light of the theory of relativity, the nature of the magnetic ield is infroduced and its properies discussed. work is designed to illustrate the physical principles discussed in the lectures and simultaneously to introduce students to the use of electronic apparatus and to the design of some simple circuits. Text: Berkeley Physics Co
McGraw-Hill, 1984.
2200A/2210B: Applied Physics is designed to acquaint you with the wide range of physical principles at play in the world around us. Thes principles are discussed in class but the major emphasis is on the practical aspects of physics. In the lab, you learn to apply principles of
physics and modern measuring techniques in the solution of practical physics and modern measuring techniques in techeology.
problems found in the world of science and technol
2200A Waves and Vibrations: lecture 3 hours, lab 3 hours, A.M. Simpson. Prerequisite: a first--year class in physics. Subject material:
theory of measurements, mechanical vibrations, synthesis of waves, acoustics, resonance, interference. Text: A.P. French, Vibration and Waves, Norton.
2210B Electromagnetic Waves: lecture 3 hours, lab 3 hours, A.M. Simpson. Prerequisite: 2200A. Subject material: electromagnetic spectrum, geometric optics, interferencee, diffraction, matter waves, theory of solids, semiconductar
Physics, Part 2 , Wiley, 1978 .

2220A* Radiation Physics: lecture 3 hours, G.F.O. Langstroth. Offered in alternate years beginning in $1986 / 87$. Prerequisite: first year physics or approval of instructor. Topics include the nature and origin of adiation, radioactive decay, the interaction
detection and measurement of radiation. of radiation.
2230B* Radiation Physics, Applications: lecture 3 hours, G.F.
angstroth. Offered in alternate years beginning in $1986 / 87$
 given to students who have taken Physics 2220 A . Emphasis is on applications in biology, physiology and medicine, and the discussion wil
ocus on methods and devices employed in the investigation and eatment of living organisms, with particular attention to imaging chniaues for the examination of internal organs.

300A/2330B: For second year science and engineering students who wish to take a second class in physics, in addition to Physics 2200, , may take third-year physics if they have taken this class and Physics 2200,2210 .
2300A Mechanics: lecture 3 hours, M.G. Calkin. Prerequisites: Physics
1100, Mathematics 1000 A and 1010 B . The basic laws of classical mechanics. It covers similar material to the of Physics 1100 but with mechanics. It covers similar material to that of Physics 1100 but with a
more advanced mathematical treatment which allows for more detailed application of the basic laws to specific physical examples, e.g., Komamples involving rotation and planetary orbits. Text. Kleppner and
Kolenkow, An Introduction to Mechanics, McGraw-Hill, 1973 .
2330 Electricity and Magnetism: lecture 3 hours, B.L. Blackford. Prerequisite: Physics 2300 A . The basic laws of classical electricity and magnetism and the application of these laws to the analysis of electric and magnetic fields in solids. The discussion of fields in solids leads to some reference to quantum elfed.
electrical circuits is also included.

2450 Astronomy: lecture 3 hours, P.H. Reynolds. Prerequisite: One first year science class. An introduction to Astronomy for science students. The origin and evolution of stars (including white dwarfs, pulsars, quasars, black holes), the structure of galaxies, and cosmology. Tex Kaufmann, Universe, Freeman, 1985.

2500* Astronomy and Introductory Astrophysics: lecture 3 hours,
staft. Prerequisite: Physics 1100 or permission of instructor This is staff. Prerequisite: Physics 1100 or permission of instructor. This is a
basic class designed primarily for students who may wish to pursue more advanced studies in astronomy or in astrophysics. It is appropriate for a physics major or an honours physics student. Mathematics and the laws of physics are applied to show how quantiative information oflow rom observas and

3000A/3010B Experimental Physics: lab 6 hours, lecture 3 hours, R.A Dunlap. Prerequisites: For honours students, Physics 2110,2120 . For
maior students, Physics $2300 \mathrm{~A}, 23308,2200 \mathrm{~A}, 2210 \mathrm{~B}$. Exceptions have ben made Desioned to give students a chance to do non-sel experiments and thereby encounter and solve on their own the problems of experimentation. As the number of experiments is small (four to si), students should acieve 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 $\mathrm{c}, \mathrm{G}$ or e is required. Other than this the student is free to choose the field of experimental study.
${ }^{3005 A / 3015 B}$ Experimental Physics: lab 6 hours, as for $3000 \mathrm{~A} / 3010 \mathrm{~B}$, but without the lectures. Available only to Engineering Physics students from TUNS

30908 Advanced Classical Mechanics: lecture 3 hourrs, M. G. Calkin. Topics include the principle of least action, Lagrange's equation,
Hamiton's equation, motion of a rigidid body, small oscillations. Text: Goldstein, Classical Mechanics, 2nd ed

3140A Introduction to Quantum Physics: lecture 3 hours, ..G. Cordes. Prerequisite: Mathematics 2000 or its equivalent. This introduction to quantum physics first analyses difificulties of classical atomic spectra). The experimental basis of the wave-particle duality of light is discussed and the existence of diffraction patterns for particles used to motivate the construction of wave equations for particles. The illustrated by simple examples. The three dimensional Schrodinger equation is discussed, with special emphasis on the hydrogen atom equation is discussed, with special emphasis on the hydrogen atom.
The concept of electron spin is also introduced. Text: French and Taylo

160A Topics in Physics: lecture 3 hours, R.H. March. Preer least one second-year level physics class. An introduction to arm ind fluid mechanics.

3170B Topics in Physics: lecture 3 hours, M.G. Calkin. Prerequisite: A east one second-year level physics class. This is complementary to 3200A Thermodynamics: lecture 3 hours, H.J. Kreuzer. Prerequisite: some knowledge of partial derivatives; Mathematics 2000, or it quivalent, which may be taken concurrently with the clas thermodynamics. Topics include equations of state, heat engines, thermodynamic functions, and phase equilibriums. Text: Zemansky and
Dittman Heat and Thermodynamics, 6 th ed.

3210 B Statistical Mechanics: lecture $\mathbf{3}$ hours, D.D. Betts. Prerequisite, hysics 3200A, or its equivalent, Mathematics 2000, or its equivalent. In this class the tools are developed to link the physical laws of the hermodynamics are explored. Text: Kittel and Kroemer, Thermal Physics, 2nd Ed. Freeman.
3340A Electronics: lecture 3 hours, staff. Prerequisites: Physics 2120 or include: carrier transport in semiconductors, properties of diodes and rransistors, amplifiers, oscillators, modulation, demodulation and rectification, operational amplifiers, linear and nonlinear analog systems
Text: Seidman and Weintraub. Electronics

3350B Networks, Lines and Filters: lecture 3 hours, staff. Prerequisite Physics 2120 or $2300 \mathrm{~A} / 2330 \mathrm{~B}$, Mathematics 2200 or 2000 or
$2480 \mathrm{~A} / 2490 \mathrm{~B}$. Topics include: network reduction, the 4 -terminal etwork and solution by matrix methods, properties of distributed onstant transmission lines, active and passive fiters. Text. Papoulis, lircuils and Systems
3402A The Rise of Modern Science: lecture/seminar 2 hours, R. Ravindra (Physics), J. Farley (Biology). (Same as Biology 3402A, History
3072 A and Religion 3502 A . Class description to be found under Biolog 3402A.)
$3440 \mathrm{~A} / \mathrm{B}$ Optics: lecture 3 hours, B.E.Paton. Prerequisite: Physics 2200. Topics are selected from areas such as the radiation from accelerated charges, the statistical properties of the fields from assemblies of radiators, interference, diftraction, and the application of Fourier transtorms to the structure of images, the resolving power of be familiar with vector analysis, Maxwell's equations and the use of complex exponential functions. In any one year, only one of 3440 A and 3440B will be given

3810 B Micro-Computers and the Real World: lecture 3 hours, computer programming 1 hour, B.E. Paton. Prerequisite: Physics modern sensors: microcomputer architecture: simple chip computers modern sensors: microcomputer architecture; simple chip computers;
software simulation of digital electronic circuits; machine language programming; assembly language programming; interfacing techniques:
development of "intelligent" instruments. Text: Newell, Introduction to development of "intelligent" instruments. T
Microcomputing, 1982 , Harper and Rowe

000B Advanced Lab: lab 6 hours, B.L. Blackford. Prerequisite: Fourthyear standing in physics or engineering-physics or permission from the which students in props 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.

4020B* Special Topics in the History and Philosophy of Science:
seminar 3 hours, R. Ravindra.
4100A Electrodynamics: lecture 3 hours, S.T. Nugent. Topics include he wave equation and solutions, waves and metalic boundaries, the scattering and dispersion. Text: Panotsky and Phovilips, Chassica Electricity and Magnetism..

4151A Quantum Mechanics: lecture 3 hours, D. Kiang. Prerequisite. Physics 3140A.

23 Quantum Mechanics: lecture 3 hours, D. Klang. Prerequistie.
 entral force problem and approximation methods. Text: Liboff, Introductory Quantum Mechanics.
4160A Mathematical Methods of Physics: lecture 3 hours, J.G. ordes. Prerequisiste: Mathematics $3110 \mathrm{~A} / 3120 \mathrm{~B}$ or permission of the nd Laplace transform techniques: special functions, partial differential quations. Text: Arken, Mathematical Methods for Physicists, 3rd Ed., ademic Press. 1985

170B Topics in Mathematical Physics: lecture 3 hours, J.G. Cordes, erequisite: Physics 4160A or permission of the instructor. This class continuation of Physics 4160 A and deals with special topics in echnique for solving ordinary and partial differential equations, cattering theory and phase shift analysis, diffraction theory, group eory, tensor analysis and general relativivit. Text: Arfken, Mathematica ethods of Physicists, 3rd Ed, Academic Press, 1985

4180A/B* Nuclear Physics: lecture 3 hours, D. Kiang. Prerequisite: Physics 3140A. This is an introductory class. Topics discussed includ ucleon-nucleon interactions, nuclear structure, gamma iranstions, one of 4180 A and 4180 B is given.
4220A Microcomputer Based Instrumentation: lecture 2 hours, lab ours, B.E. Paton. Prerequisite: Physics $3810 B$. Subject materia nstrument design; analog to digitala and digital to analog techniques;
custom interfacing to sensors; algorithms; parallel and serial output da links; software testing and ddebugging: hardware testing and debugging:
research project. Text: Zaks: Microcomputer Interfacing.
indalB Introduction to Solid State Physics: lecture 3 hours, D.A. Thdrodil. Prerequion to the basic: Physics 3140 or permission of the instructor. An introduction to the basic concepts of solid state physics which are rystal structure, $X$-ray diffraction, phonons and lattice vibrations, the free solid State Physics, 6th Ed., Wiley.
4300 A Àpplied Acoustics: lecture 3 hours, staff. Prerequisite: At least ne class in Physics, beyond first-year level. This course deals with the basic physical principles of acoustics. It deals with the topics of transmission and reflection, including' matching layers. The transmissio of sound in ducts and waveguides is described. The radiation from flat
pistons and the related diffraction effects is dealt with. Absorption and pelated non-linear effects are described. Piezoelectric transducers are discussed in some detail. A topic such as architectural acoustics, nderwater acoustics or applications of ultrasonics is treated if time permits. Students taking this course for support of their graduate work
Oceanography and other areas will be assigned topics relating to their Oceanography and other areas will be assigned topics
work. Text: Kinsler and Frey, Fundamentals of Acoustics.
$4311 \mathrm{~A} / 4312 \mathrm{~F}$ Fluid Mechanics I/II: This class is a cross-listing for

330A Crystallography and Physical Properties: lecture 3 hours, H.W. King. Prerequisite: Physics 3140A or permission of the instructor systematically. The symmetry of space groups is analysed and then applied to physical properties using tensor notation. The concept of space groups is developed and applied to crystal structure analysis by diffraction processes. The effect of defect crystal structures is properties. Text: Nye, Physical Properties of Crystals, Oxford University | prosen. |
| :--- |
| pres. |

4350 B Energy, Sources and Conversion: lecture 3 hours, H.W. King rerequisites: Physics 3140A, Engineering 340A. Topics discussed nclude: extent and use of world energy supplies, thermodynamics heat engines, thermojunction generators and refrigerators, solar chemical primary and secondary cells, magnetohydrodynamics, nuclear fission processes, and breeder reactors. Text: Angrist, Direct Energy
Conversion.

4460A/B* Optics: lecture 3 hours. Prerequisite: Physics $3440 \mathrm{~A} / \mathrm{B}$ Registration requires prior Departmential consent. A continuation of matter, the electromagnetic properties of matter, including crystals, reflection, refraction and double refraction. In any given year, only one of 460 A and 4460 B will be offered

4480A Applied Group Theory: lecture 3 hours. Offered in alternate years beginning in $1985-86$. This is cross-listed with Mathematics
3320A, but for students in Physics 4480A, additional reading will be equired.
4500A Atmospheric Physics I: lecture 3 hours, D.F. Goble. Prerequisite: At least one third-year level physics class. Main topics covered in this class are atmospheric thermodynamics and atmospheric adiation. Reference: J.V. Iribarne and W.L. Godson, Atmospheric Thermodynamics, Reidel: G.J. Haltinev and F.L. Martin, Dynamic and

4510 Atmospheric Physics II: lecture 3 hours, D.F. Goble. Prerequisite: Physics 4500A. The major topic covered in this class is
cloud physsics. Other topics include atmospheric optics, atmospheric acoustics, lightning, and radar techniques. Reference: R.R. Rogers, A Short Course in Cloud Physics, Pergamon; J. Battan, Radar Observation of the Atmosphere, U. of Chicago Press; Atmospheric Physics. Aedings from Scientific American Freeman

4520A General Meteorology I: lecture 3 hours, R. Shaw. Prerequisite At least one third-year level physics class. This class provides studenis with an understanding of the origin and composition of he atmosphery weather generating physical processes and their consequences. Tex J.W. Wallace and P.V. Hobbs, Atmospheric Science (An Introductory Survey), Academic Press.

4530 B General Meteorology II: lecture 3 hours, R. Shaw. Prerequisite: Physics 4520A. This class expands on knowledge acquired in 4520A. Topics studied include hydrostatic stability and instability micro-scale phenomena. local wind systems, controls on weather and climate.
Students are exposed to applications of meteorological knowledge a theory of problems in air pollution control, hydrology, agriculture and other fields. Text: J.W. Wallace and P.V. Hobos, Atmospheric Science An Introductory Survey), Academic Pres

4540A Synoptic Meteorology I: lecture 2 hours, tutorial and laboratory 3 hours, staff. Prerequisite: At least one third-year level physics class. This class introduces principles and techniques of meteorological analysis, diagnosis of weather systems and prognosis of system motion instrumentation, observational procedures, codes and analysis lechniques, essential to the study of the main subject matter. The class includes a weekly three-hour tutorial-laboratory period during which graphical and computer

4550 Synoptic Meteorology II: lecture 2 hours, tutorial and laboratory hours, staff: Preereques analysis and diagnosis of atmospheric dynamics and weather
processes introduced in Physics 4540A. Modern statistical and computer methods and satellite techniques are discussed. The class includes a weekly three-hour tutorial-laboratory period during which

4650A/4660B Relativity and Cosmology: lecture and tutorials hours, staff. Offered in alternate years, beginning in 1984-85. Prerequisites: Physics 2110 and 2120 , Mathematics 3110 A and 3120 B , or the consent of the instructor. An introduction to both the theoretical
and observational basis of modern physical cosmology. The first half is devoted to the development of the physector formalism for the the Special and the General theories of Relativity. Einstein's field equations are equations, are discussed. The emphasis is on intuitive and physical insight rather than mathematical rigour. The second half is devoted to understanding available observational data in cosmology in the light of previously developed theory. In addition to solving regularly assigned
problems, each student makes a departmental presentation towards the end of the year concerning the latest developments in a topic of choice, such as "black holes," "age of the universe," or "primordial radiation."

## Graduate Studies

The Department of Physics provides courses of study leading to the advanced degrees of MSC and PhD. Areas of research undertaken at nuclear physics, Iow temperature, theoretical physics, and ceanography. Further details are' given in the Calendar of the Faculty of

## Political Science

Chairperson
Professors Emeritus
J.H. Aitchison, BA, BEd (Sask), BSc (Lond.), PhD (Tor.)
G. Grant, BA (Queen's), DPhil (Oxon), LID (Trent), DLit (MtA), LLD (Dal) LD (Tor.); FRSC
Professors
P. Boacioin, BA (SMU), MA (Dal), PhD (Queen's) R. Boardm
Studies)
EM.
E.M. Borgese (Professor of International Ocean Affairs)
D. Braybrooke, BA (Harv.), MA, Ph, (Corn.). FRSC
D.M. Cameron, BA (Queen's). MA, PhilM PhD (Tor)
 rofessor of Government and Political Science)
KA. Heard, BA MA (Natal)
K.A. Heard, BA, MA, PhD (Natal)
T.M. Shaw, BA (Sussex), MA (East Africa, Prin.), PhD (Prin.) Director, Centre for Atrican Studies, Director, Pearson Institute
D.W. Stairs, BA (Dal), MA ( Oxon.), PhD (Tor.), FRSC
G. . Wham BA (Bowdoin).
G.R. Winham, BA (Bowdoin), Dip. in Int. Laws (Manc.), PhD (N.Car) Associate Protessors
H. Bakvis, BA (Hons) (Queen's), MA, PhD (UBC)
R. Eden, BA (U. Calif. Berkeley). PhD (Harv.)
D. W. Middlemiss, BA, MA, PhD (Tor.)
DH. Poel. BA (Calvin), MA (West Michigan), PhD (lowa)

Assistant Professors
J. Smith, BA (McM), MA, PhD (Dal)

Assistant Professor (Research)
D.Jones, BA, (Dal), MA (Duke), PhD (Dal)
Adjunct Professor
"Politics: Who Gets What, When, How, Why" is a definition which captures what is commonly regarded as the essence of politits, and with varying interests and methods. In pursuit of answers to fundamenta questions, political scientists investigate a variety of political problems, whether in one country or compared amongst several. The variety. of political science questions is endless.
Attenion can be focused more narrowly on the "policy machine," on international politics where the origins and conduct of the foreign policies of particular states are examined, or on the exercise of powe
within the nation state. within the nation state.
The emphasis in these various political science pursuits is on the
study of politics as actually practised in the world around us But mit study of politics as actually practised in the world around us. But many
politital scientists wwould agree that this is only a first step, and that we should also address ousselves to questions having to do with how politics ought to be. Issues of this sort have been debated by reflective sorts of questions is the principal task of political philosophy, which lies
t the core of political studies, and of political life
Students interested in these various fields of inquiry within the
discipline of Political Science can find all of them represented in the class offerings and programs outtined below. Some specialize, other pursue interests in a number of different areas. In either case, the members of the Department are happy to offer whatever advice and ssistance they can in the devel

## Degree Program

Students concentrating in Political Science may take a major program or onours program. The specific classes to be taken in each individual program are chosen in consultation with a faculy adviser from the Undergraduate programs may emphasize one of the sub-fields of oilitical Science or may consist of a general selection of classes from he Department's offerings.

Requirements - Major Program
order to meet the requirements of a major program, a student must ake at least four, but no more than eight, classes in political science in addition to an introductory class. All major students should lake at least
wo full classes from among the second-year level offerings and these classes should be selected from at least two sub-fields. A minimum of wo additional classes should be taken from third-year level offerings, and will be chosen in consultation with the facuity. Professor J. Smith is students in planning programs in Political Science.
Honours Program
than nor cience. Although nine to eleven classes represents the range allowed Under the general university regulations, the Department recommends ast the first-year class including the honours essay The intent of this ecommendation is to encourage our honours students to take upporting class work in related disciplines.
For the purpose of the honours program the Department has
designated six second-year classes as honours core classes esignated six second-year classes as honours core classes. Five Canadian politics, comparative politics, political philosophy (two classes) and international politics and the fifth represents the methodological asis for each of the sub-fields. The six core classes by area are as follows

## Canadian politics: PS 2200 Canadian Government and Politics Comparative politics: PS 2300R Comparative Politics

 Political philosophy. PS 2400 Justice, Law and Morality: Regimes Political philosophy PS 2401 Justice, Law and Morality: Concepts Political phVersion
Internation nternational philosophy. PS 2500 World Politics Methodology. PS 2494 Introduction to Political Inquiry
$n$ honours program in political science includes (i) at least three core classes, of which one must be PS 2494 Introduction to Political Inquiry. and another must be either PS 2400 or PS 2401 ; (ii) at least four
duvanced 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 program, (2) to provide all honours students with a grounding in
the normative questions of the discipiline as well as the toundations of he normative questions of the discipline as well as the foundations of
mpirical inquiry and (3) to expose prospective honours students to the various sub-fields that may be chosen for emphasis in individual programs. Overall, these requirements leave a minimum of two optional
credits, which may be taken at the second, third or fouth-year levels credits, which may be taken at the second, third or fourth-year levels.
In the exceptional case of students who have delayed their decision enroll in an honours program until late in their third year, or who have decided at the end of their general program 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 sub-fields within the discipline as is specified by the core-class requirement, 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 indergraduate careers as possible.
The honours essay is counted as one credit. It is prepared during the
ee student's ability to developopta systematic argument with reference to appropriate. The credit number for the honours essay is PS 4600 . formal arrangements are usually made for honours students in the las ear to meet with some regularity to discuss and ulimately present the essay is available from the Department Office.

## Combined Honours

everal of the more common honours programs are: Political Science conomics; Political Science and Sociology; and Political Science an International Development Studies. Students interested in taking any of hese combined honours programs or in discussing other possible programs should consult with the Chairman of the Department or his

Graduate Studies
The Department offers MA and PhD programs in Political Science, details of which are given in the Calendar of the Faculty of Graduate

Undergraduate Advisory System
The advisory system in the Department of Political Science is intended their interests and the requirements of the Department. Professor w $J$. Smith is the over-all Coordinator of Major Programs and is assisted by other Departmental members acting as general advisers.
Selection: A student wishing to have a member of the Political
Science Department as undergraduate adviser must be either: (a) Science Department as undergraduate adviser must be either: (a)
enrolled in a first-year level class and contemplating a Program in Political Science (in which cass the adviser is normally the instructor of
that class) or (b) registered for a program in Political Science Upon that class) or (b) registered for a program in Poilical Science. Upo
entering the program a student may indicate a choice of adviser Normally the adviser is a faculty member teaching in the student's subfields of concentration (if any). The student's choice will be respected unless the member chosen is unable to serve in this capacity. Students assigned to them, should consult with Professor Smith.
The advisory relationship may be ended by the student at any time and for any reason. One faculty member may continue to advise the same student throughout his program.
Role of the Adviser. To be available to
as a consultant on broad academic matters Thient throughout the year with regard to specific classes. Students should consulit their advisers with regard to the general structure of their programs and any proposed

## Classes Offered

Numbering System for Classes

> Introductory Canadian Government and Politics Comparative Government and Politics Political Theory and Methodology

The first digit of each class number thus indicates year, or level, of clas Except for 1000 -level classes, the second digit denotes the sub-field third-year level and graduate students, in the sub-field Internationa Politics and Foreign Policy offered during the second term of the cademic yea
No student may take more than one first-year level class but some econd-year level classes require no prerequisite. The prerequisites sted with each class are intended to show the sort of preparation the instructor anticipates. If no prerequisite is stated for a class, none is discretion of the instructor who retains the right to judge the suitability of ach prospective student's qualifications for the successful completion
of the class and his contributions to it:
ntroductory
1100 Section 1, Introduction to Political Science: lecture 3 hours, D.F. Luke. "Why obey the law?". "Are governments subject to moral
formal introduction to political philosophy. As a bridge between the sudy of political philosophy and the study of political institutions, the British political experience and a more detailed examination of the constitutions, governments and politics of Canada and the United State cupy the remainder (about hat) of the session.

100 Section 2, Introduction to Political Science: lecture Braybooke. This class works through two outstanding recent
contributions to political science. Size and Democray, by R.A. Dahl and R. Tute, and Politcs and Markers, by C.E. Lindblom. These book servitics, including the opposition of capitalism to socialism, but also to everal branches of political science, and the methods used in them.
1101 Section 1, Introduction to International Politics and Foreign Policy: lecture and intended discussion 3 hours, J. Eayrs. To provide a
amework for analysis and understanding of contemporary internationa events, this class deals with the variety of "actors" in world politics principaly heir second year.

103 Section 1, Introduction to Political Science: lecture 3 hours, R 3oardman. A guide to politics and government in Canada, the United
States and Britain. Aspects of British, Soviet and other countries' political systems are introduced, and the class begins with a look at some of the perennial issues of political life and democracy.
Canadian Government and Politics
200 Canadian Government and Politics: lecture 3 hours, J. Smith. Prerequisite: An introductory political science class or instructor's permission. The class begins by examining the Confederation debate,
$1864-67$, and then turns to the constitution of the new federation, the srish North America Act Its development via constitutional amendment nd the practice of judicial review is studied. A review of the Canada Act. 1982, completes this section of the course. The second section deals with governmental institutions, the Crown, cabinet government
Pariament. The third and final section covers elections, the electoral Parliament. The third and final section covers elections, the electoral 2228 B Government-Busin
2228 B Government-Business Relations in Canada: lecture and
discussion 2 hours; H. Bakvis. Prerequisite: An introductory politica discussion 2 hours: $H$. Bakvis. Prerequisite: An introductory political
science class, or instructor's permission. 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 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 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 heir practical importance.
3205B/5205B Canadian Political Thought: seminar 2 hours, J. Smith rerequisites: Class in Canadian Politics or permission of the instructo The class examines enduring controversies in Canadian politics. party government; parliamentary versus repubbican institutions; religio and politics. We examine these controversies as they have been public life.
3208/5208 Canadian Provincial Politics: lecture and seminar 2 hours, D.H. Poel.* Prerequisite: PS 2200. An emphasis on cross provincial mpirical research is combined with an interest in the value context of rovincial policy

212B/5212B The Politics and Government of Nova Scotia: seminar 2 hours, P.C. Aucoin.* Prerequisite: Political Science 2200R or governing of Nova Scota from the perspective of the provincial overning of Nova Scota from the perspective of the provincial system
he topics considered encompass: the political environment; political parties and elections; executive organization and administrative processes; executiviv-lecisilative releationsi, provincial-municicivar relations
intergovernmental relations in the Martimes; provincial-federal relations tergovernmental relations in the Maritimes; provincial-federal relations nd provincial public policy. As a research seminar students not only

## onduct primary research for most if not all topics in addition to readin

 econdary materials.3216A/5216A Local and Regional Government: lecture and discussion 2 hours, D.M. Cameron." Prerequisite: PS 2200 or its he history of local government in Nova Scotia and Canada, various organizational forms, finances and intergovernmental relations. Special
attention will be paid to local government reform and to metropolitan attention will
overnment.

3220A/5220A Intergovernmental Relations in Canada: seminar 2 hours, H. Bakvis. Prerequisite: PS 2200 or permission of the instructor he terimed bial mpact on policy outcomes.
$32218 / 52218$ Case Studies in Intergovernmental Relations: semin hours, D.M. Cameron.* Prerequisite: PS 3220A/5220A or PS 3204. explore in depth several published case studies involving relations etween governments in Canada in specific policy areas. Students wil sest and deten one or more seminar papers.
$224 \mathrm{~A} / 5224 \mathrm{~A}$ Canadian Political Parties: lecture and discussion 3 ours, H Bakvis." Prerequisite: PS 2200 or instructor's permission. The Canadian party system, viewed as an integral part of the entire politic

228B/5228B Interest Groups: Function and Management: A.P ross, 2 hours. This class will attempt a systematic examination of the untent other western countries It will begin by considering the function ch groups perform for their supporters on the one hand and, on the iher, the role they play in (1) maintaining political systems; (2) securing and modifying public policy, and ( 3 ) implementing programs. It will
explore the ways in which their structures and behaviour patterns according to the resources of the groups themselves, the nature of the concerns and the demands of the political/bureaucratic systems in which they operate. An important feature of the course will be a iscussion of the internal management of groups. This discussion will roup resources are obtained and applied; the role of professional stat in developing group positions and in interacting between the interest group and government officials. In conclusion the course will examine role of interest groups in policy processes and the relationshi 3250R/5250R Canadian Public Administration: $P$. Aucoin, seminar,
ours. Prerequisite: PS 22200 or permission of the instructor. This course examines organization and management for pubic . wo major parts. In the first term the organization of the Canadian government is examined with respect to the principal structures an ocesses of the execl and ministers crown corporations and reental oards, royal commissions and task forces. This part concludes with a onsideration of the structures and processes of the legislature in elation to the administration of public' afflairs. In the second term, the major management functions of government are considered: planning, and auditing. This part concludes with a consideration of administration aw and responsibility. This is a seminar course in which students prepare pape

204/5204 Advanced Seminar in Canadian Government and Politics: D. Cameron, seminar, 2 hours. Prerequisite: Open to graduate and fourth-year Honours students in Political Science only. This class principal characteristics of Canadian government and politics. The class will be both extensive and intensive: extensive in the range of topics that will be examined; intensive in the depth with which the topics will be examined.
each term.

240/5240 Sections 1 and 2, Policy
others with instructor's permission. A comprehensive examination of the Three critical questions in the study of policy formulation in Canada: 1 . policies in these areas; and 3 . The means by which governments
authoritatively develos policies. The discussion links these variables 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

Comparative Government and Politics
300 Comparative Politics: lecture 2 hours, D.F. Luke. * Prerequisite, methodology and scope of comparative politics, including a comparative nalysis of culture, behaviour, and institutions. Topics are approached hrough studies of a variety of Western liberal democratic, communist and third world countries. 2306A West European Politics: R. Boardman, lecture 2 hour.
Prerequisite: Introductory poolitical science class or instructor's permission. An introduction to politics in selected countries of Western urope. These will usually iol aspects of political systems
2307 B Politics in Eastern Europe: R. Boardman, lecture 2 hour rerequisite: Introductory political science class or instructor's
permission. A look at the Soviet political system and its role in structuring olitical systems in other east European states. The class focuses on he nature of communist parties in these countries, the role of ideolog and the workings of the policy process
2321B Political Behaviour: lecture and discussion 2 hours, D.H. Poel. Prerequisite: An introductory political science class or instructor's
permission. How individuals gather information about permission. How individuals gather information about, form general
orientations toward, and learn to participate (or not to participate) in polity. Research methods used in analyzing political behaviour form an mportant secondary consideiation
3330 Politics Through Literature: lecture and discussion 2 hours, staft." (not restricted to Political Science majors) What is sugge
Through is a notion that literature is a "medium" for political understanding or explanation and political learning. During the first term we use a variety of fictional works to dissect key political concepts. In he second term we isolate
complex political situations.

2370 U.S. Government and Politics: lecture and discussion 3 hours, D.H. Poel. Prerequisite: An introductory political science class, or
instructor's permission. 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 he interplay of private interest groups and the role of political parties. American politics or public policy.
$301 \mathrm{~B} / 5301 \mathrm{~B}$ Comparative Development Administration: seminar hours, D.F. Luke. * Prerequisite: Political Science 2300 or equivalent or some epistemological (eg. ideology) and methodological (eg. level, of analysis) issues as a background to the study of some persistent hemes in the policy/administration interface (eg. state econom
management, planning, the capacity and responsiveness of aragagement, planning, the capacity and responsiveness of
administrative institutions) in the Third World with some comparisons Western and Communist experience.
$3303 \mathrm{~B} / 5303 \mathrm{~B}$ Human Rights and Politics: lecture and discussion 2 2300, PS 2305; PS 2400 or PS 2401; or with the permission of the instructor. Issues arising from the claim to rights and from alleged infractions of rights which continue to arouse a great deal of public
controversy 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.
$304 \mathrm{~B} / 5304 \mathrm{~B}$ Comparative Feceralism: seminar 2 hours. H. Bakvis ${ }^{*}$ A seminar class which examines the theory and practice of federalism
within a comparative framework. The actual federations discussed both establish .

3315B/5315B African Politics: seminar 2 hours, T.M. Shaw. (Intended or students in African Studies, Political Science and International Development Studies, and can be matched with Political Science 3540 A on the Foreign Policies of African States.) The political economies of several black African states are analysed focussing on the elusiveness
of independence and development, examining the variety of responses of independence and development, examining the variety of response concentration is on the countries of east and west Africa, its investigation of several characteristic African phenomena constitutes a
$3331 \mathrm{~A} / 5331 \mathrm{~A}$ Political Problems in Imaginative Literature: seminar hours, stafft. The imaginative literature of politics, in contrast to the empirical approach, has highlighted the tragic element of political life. to allocate values across cultural systems. This term the class explores the phenomenon of inter-cultural politics in a variety of settings, both
historical and contemporary. Political Science 2330, though not a historical and contemporary. Poolitical Scienc
prerequisite, would be desirable background

3340A/5340A Problems of Development - The Politics of New States: discussion and seminar 2 hours, T. Shaw.* A survey of theories of and policies about dependence, underdevelopment and peripheral modes of analysis, and on orthodox and radical strategies of development. Topics treated include social contradictions (e.g., class,
race and ethnicity); industrialisation; selt-reliance; Basic Human Needs; race and elinilithat selit-reliance, Basic Human Need deology, militiarism; technology; gender, anarchy; authoritarianism; and

3345A/5345A South Africa - The Dynamics of Political Groups and Group Domination: seminar 2 hours, K.A. Heard. Prerequisites: An introductory political science class or instructor's permission. The class
begins with a preliminary discussion of what constitutes a political group, and how and why some groups seek to dominate others. It then examines the modes of White domination in South Africa, the causes of its persistence and the reactions of the subordinate Black peoples of

4301A/5301A Comparative Theory: staff, seminar 2 hour Prerequisite: This course is a core offering for MA and PhD candidates, and will be open to 4th year (with permission from the instruct
where direct application to Honours thesis research can be demonstrated. This course will initially look into the history and epistemological foundations of "Comparativism" as an approach and xplanatory utility of various "theories: of comparative analysis development-modernization, systems, structural-functionalism, elite and class theories, etc. Students will survey a common set of readings and participate in weekly seminars. A final critical essay will cover all of the key topics of the term and identify pitfalls and opportunities each cuture research.
Political Theory and Methodology
f Regimes in Law and Morality, Regimes Version - The Problem f Regimes in Political Philosophy: lecture 2 hours, R. Eden, (same as Phil. 2270). This introduction to political philosophy explores the problem discover the probiem of the tyranny of the maiority. Tocqueville argued discover the problem of the tyranny of the majority. Tocquevilie argued
hat democracy would become a a subtle form of Hobbesist tyranny if individualism were not checked. We will trace the origins of this problem 1o Machiavelli, Hobbes, and Montesquieu and ask why Tocqueville ejected Rousseau's alternative to bourgeois civil society. Finally we N.B: This class is complementary to the other version of Justice, Law and Morality. It may be taken for credit before, atter, or concurrently with he other class (except that students who took Philosophy 2070 or olitical Science 2400 before the academic year 1983 -84 must satisfy Either class satisfies the minimum requirement in political philososophy for an honours degree in Political Science.

2401 Justice, Law and Morality, Concepts Version - Concepts and Arguments in Poilitical Philosophy: lecture 2 hours, D. Braybro
(same as Phil. 2070). An introduction to the history of political philosophy, and also to philosophical ethics. In the first term, the natura law view of justice expressed by St. Thomas confronts the savage realism of Hobbes's Leviathan. The concept of justice has had a mixed narrowly tied to the defense of property. Sometimes, as with 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
hawls to restore justice to the central place in ethics His theory is Ronsidered at length at the end of the second term. atter examining Fuller's equally contemporary account of the extent to which law must be moral to be genuine
2402 Representative Government in Theory and Practice: lecture and discussion 2 hours, . Eden.* Hamitton pointed out that the science
of representative government is a modern discovery trom which many of our institutions, and indeed our modern forms of government in general. are derived. In this class we try to recover this science, reconsidering

2455A/5455A Marxist Theory and Its Upshot in the Modern World: seminar 2 hours, S.A.M. Burns. Prerequisite: A class in Philosophy or a class in Political Science. Marxist theory, both as philosophy and as
social science, is examined with special emphasis on major writings of Kociar Mcience, is examined with special emphasis on major writings of
Kar

2494 Introduction to Political Inquiry: lecture and discussion 3 hours,
staff.* $A$ variety of methods employed in contemporary political analysis staff.* 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. Casual 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 heory.
 . 3435A/5435A Machiavellian Politics: seminar 2 hours, R. Eden.*This seminar explores
political science.
$3438 \mathrm{~B} / 5438 \mathrm{~B}$ Rousseau and the Founding of Modern Democrac seminar 2 hours, R. Eden.* The origins of modern democracy are
explored through a study of Rousseau's political philosonyy Attention given to Rousseau's defense of democracy against earlier critics, and to his understanding of the founding of a democratic society. Seminar
participation constitutes part of the grade.
3451A/5451A The Critique of Democracy in Modern Political Philosophy: lecture and seminar 2 hours, R. Eden.* An introduction for overnment, on liberal democracy, and on the kind of commercial republic in which we live in North America, using the works of Montesquieu (who defended the commercial republic) and Nietzsche
(who attacked it).

4997A/5497A Research Methods and Data Analysis: seminar 2 hours, staff. Prerequisite: Political Science 2494 or equivalent undergraduate introduction to quantititivive analysis/statistics. The seminar will produce the assumptions, procedures, and problems of
empirical investigation in political science. Topics in design,
measurement, and analysis will be considered through readings and measurement, and analysis will be considered through reat

4479B/5479B Classical Liberalism, and Democracy: (seminar in Philosophy, Politics and Economics) 2 hours, second term, D.
Braybrooke. (Same as Phil. $44708 / 5470$ and Econ. $446 \mathrm{~B} / 547 \mathrm{~B}$.)
 Prerequisites: Previous classes in all three subjects or an advanced
undergraduate level in at least one of them. Students taking the class for a credit in philosophy should have had a class in logic (2000 or 2010 or 2020 ) and one in ethics ( 3100 ); students taking the class for a cred
political science should have had at least one $3000-$-evel class in political science; students taking the class for credit in economics should have had at least one 330 -level class in that subject. The impad
n political philosophy of two leading beliefs characteristic of classica iberalism is covered: first, the belief that good government is strictly
imited government; and second, the beliet that there is no standard of personal welfare, or of the common good, beyond personal preferences and points on which the preferences of different persons agree 4480A/5480A Social Choice Theory: (seminar in Philosophy, Politic and Economics) 2 hours, first term, D. Braybrooke* (Same as Phil. PS 4479B/5479B. Kenneth Arrow's Nobel Prize winning theorem, to the effect that no device of social choice meets an apparently minimal set of weak standards, has seemed to lead two traditions of thought to ruin. ne is the theory of voting. The other is welfare economics. After tracing he two traditions that converge in Arrow's theorem, we study the
theorem itself and then consider the continuing disarray into which ormal social choice theory (and hence the basic theory of democracy has been thrown by the theorem.
$4485 \mathrm{~B} / 5485 \mathrm{~B}$ The Theory of Games as an Approach to the Foundations of Ethics and Politics: (seminar in Philosophy Politics and Economics) 2 hours, spring term, D. Braybrooke.* The most innovative recent work in ethical theory has applied the theory of games the perennial problem of the social contract. To what extent can ant constituted by rules arrived at by rational agents trying each to arrive he best bargain about rules with the other agents present? These rules can be regarded simultaneously as the foundation of political rganization and as elementary rules of ethics, and a study of this topic $4490 \mathrm{~B} / 5490 \mathrm{~B}$ The Logic of Questions, Policy Analysis and Issue spring term, D. Braybrooke.* (Same as Econ. $449 \mathrm{~B} / 549 \mathrm{~B}$ and Phil. spring term, D. Br
$44908 / 5400 B$.)
$4496 \mathrm{~B} / 5496 \mathrm{~B}$ Philosophy of Social Science: seminar 2 hours, D philosoonhy both are desirable This class will lidentity three active side of social science - naturalistic, interpretative, critical. It will consider how, in methods and sorts of questions, inquiries on the critical side educe to a mixture of activities on the other two. It will then explore inquires. (Same as Philosophy 2510B.)

International Politics and Foreign Policy
or World Polits. Tecture and discussion 2 hours, J.G. Eayrs. A surveys the "assaults" upon order, justice and well-being of which the actors of world politics are capable, and explores the available "constraints" upon such actions aftiorded by international systems and
methods. 2500 is recommended for students who theif first year.

510 Canadian External Relations: lecture and discussion 3 hours, .W. Stairs. Prerequisitie. An iniroductory class in poilitical science or defence policies and of the processes by which these policies are made. Some of the persistent pressures and constraints which ake hio are examined
M. Shan A The United Nations in World Politics: seminar 2 ho Instructor's permission. The evolution of the United Nations from its ea oncentration 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 eviewed. The more distant future, and the continuing relevance of the United Nations in world politics, and how its role and objectives should
$3535 \mathrm{~B} / 5535 \mathrm{~B}$ Towards a New World Order: seminar 2 hours, E.M. Borgese. A practical examination of the economic relations between the background of thisevamis coun wils in international politics. The ackground of this examination will be the "New International Economic
Order." a program launched in the United Nations General Assembly in May 1974 intended to promote economic development in the Third World, and to bring the developing countries into $\$$ " "active, full and equa
participation" in the international community eadings, class discussions, term paper and final paper.

3540A/5540A Foreign Policies of African States: discussion and
seminar 2 hours, T.M. Shaw. An overview of modes and levels of seminar 2 hours, T.M. Shaw. An overview of modes and levels of
analysis for Africa and of salient cases from that continent; a survey of iSsues (egg., intervention, integration, con and of examples (e, Botswana, Nigeria, Senegal, Tanzania, Zaire and Zimbabwe). Students concentrating on international relation development studies, or African politics find that this class fits their programs.
$3544 \mathrm{~B} / 5544 \mathrm{~B}$ Conflict and Cooperation in Southern Africa: lecture and seminar 2 hours, T.M. Shaw.* An introduction to the international relations of Southern Africa, which provides a study of regional political locus is on regional conflict and integration, especially on the liberation movements and regional coalitions.
3570/5570 Canadian Foreign Policy: seminar 2 hours, D.W. Midalemiss. Prerequisite. A clearstory, or with the instructor's permission. 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 contemporary themes, issues, and problems. 3. A broad analytical overview of factors which help "explain" the form and content of Canadian policy.
$3571 / 5571$ Strategy and Canadian Defence Policy: seminar 2 hours instructor's permission. This seminar examines post-World War II Canadian defence policy in three parts: 1) An analysis of important cases of policy development. 2) An investigation of certain persistent funding: weapons procurement the role of women in the forces: civilmilitary relations, etc.). 3. An assessment of the major determinants of policy and prescriptions for the future.
3572/5572 American Foreign Policy: seminar 2 hours, G. Winham. Prerequisite: A class in American politics, American history, or rational politics, or the instructor's permission. Why Americans relevant methodologies for examiner do and the decision process and udents develop an ability to explain foreign policy decisions of the United States. The class is a seminar with regular readings, discussions, nd class reports of ancillary readings. One research paper for the year and a final exam.

5575B/5575B Nuclear Weapons and Arms Control in World olitics: seminar 2 hours, D.W. Middlemiss. Prerequisite: A class in seminar ar examines the technological, doctrinal, and political aspects of he nuclear weapons "problem" and the arms control "solution." It also assesses the fate of contemporary nuclear arms control efforts.
3590/5590 The Politics of the Sea: seminar 3 hours, E.M. Borgese. The major issues involved in the Law of the Sea, the differing interests different countries, the developing legal framework, and the political process of the on-going negotiations are covered. There is a great deal
of ground to be covered so preference is given to graduates although of ground to be covered so preference is given to graduates a
mature students from other relevant disciplines are welcome.

3596A/5596A Theories of War and Peace: seminar 2 hours, D.W.Midoliemiss.' Prerequisites. A course in international relations, or the of theories regarding the causes, persistence, and termination of organized, collective, international violence. Explanatory factor's an evidence will be drawn from the disciplines of anthropology, biology,

4520/5520 Theories of International Relations: lecture and discussion 2 hours, G . Winham. A brief survey of the discipline of international relations is presented. Three problems of international relations: conflict
and war the nature of economic disparities and imperialism and the organization and interaction of nation-states are focussed upon. The class is a study in politics, but course readings are multidisciplinary. Students read the works of historians, economists, social psychologists seminars and write a series of essays during the year

3601/5601 Readings in Political Science: staff. A full-year reading ass, taught only by special

602A/5602A Readings in Political Science: staff. A first-erm reading ass, taught only by som and individual instructors.
$3603 \mathrm{~B} / 5603 \mathrm{~B}$ Readings in Political Science: staff. A second-term reading class, taught only by special arrangement between individual students and individual instructors.

## 4600 Honours Essay

## Psychology

Chairperson of Department
V.M. Lolordo

## Professors

1.S. Cynader, BSC (MCG), PhD (MIT) Killam Research Professor
P.J. Dunham, $\mathrm{MA}, \mathrm{PhD}$ (Missouri)
C. Fentress, BA (Amherst)
W. Fentress, BA (Amherst), PhD (Cantab.)
R.M. Klein, BA (SUNY), MA, PhD (Oregon) - Graduate Studies

Coordinator
V.M. LoLordo, AB (Brown). PhD (Penn)
J.A. McNulty, MA, PhD (Tor.)
J.A. Meinertzhagen, BSC (Aberdeen), PhD (St. Andrews)
D.E. Mitchell, BSc MA. AB.
I.A. Meinetzinagen, BSA (Aberdeen), PhD (St. Andrews
D.E. Mitchell, BBc, M.App.Sc. (Melt.). PhD (Berkeley)
S. Nakaïma, BA (Chiba). MA (
S. Nakaima, BA (Chiba), MA (Wash).) PhD (Mc.)
K.E. Renner, BS (Penn.), MA, PhD (Northwest.)
R.S. Rodger, MA (Odin.).) PhD (Beef.)
B. Rusak, BA (Tor.), PhD (Berkeley)
M.G. Mon, BS (Seoul), PhD (Berkeley)

## Associate Professors

. Barresi, BSC (Brown), MA (S. Calif), PhD (Wisconsin)
K. Bloom, BSC (Loyola), MA, PhD (N .Car.).
R.E. Brown, Sc (Victoria), MA, PhD (Dal)
R.E. Brown, BSC (Victoria), MA, PhD (Dial) - Undergraduate Coordinator
J.W. Clark, MA (MG), PhD (Qu.)
B. Earhart, BA, MA; PhD (Tor.)
B.R. Moore, AB (Emory). PhD (Stan.)
M. Ozier, MA, PhD (Tor)
S.R. Shaw, BS (Lond.), PhD (St. Andrews)

Assistant Professors
J.F. Connolly, AB (Holy Cross), MA (Saskatchewan), PhD (London)
J.T. Troll, BSC (Tuts), PhD (MCG) BA (Winnipeg), MA, PhD (Princeton)
D.P.Phillips, BSc, PhD (Monash)
M.L. Speech, BA, MA, PhD (UB $)$
D. Tret, BA, MA, PhD (UBC)

Adjunct Assistant Professors
J. Fisk, BSc, MA, PhD (UWO)
N.V Swindle, Sc (Sussex), PhD (Cantab)

Senior Instructor
R.S. Hoffman, BS (Col. Coll.), MA (Dar)

Instructor
G.A. Eskes, BA, PhD (Berkeley)
Postdoctoral Fellows
M. Harrington, BS (Penn. State), MA (Tor), PhD (Deal)
S. Kurumiya, PhD (Osaka)
R.R. O'Shea, BSc, PhD (Gland)
C. Shaw, PhD (Hebrew Univ, Jerusalem)
. van Huizen, Doctoral (Free University, Amsterdam), PhD (Univ. of Amsterdam).

## Pgratolog

A. Frơhlich, Diplom, PhD (Free Universität Berlin) (Mt. St. Vincent)

Psychology is an experimental science; its purpose is to discover the 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 tut also scieninicaly rigorous people; better suited old 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, he bound or even cellular biota zoology, physiology, or even cellular biology has begun to bines and
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

## valuated in relation to the others.

## Degree Programs

BA or BSa
Students enrol
students enrolled in the bachelor's (ie., three-year) program must take level in their area of concentration. Required classes for students who intend to major in Psychology are listed below. Although there is considerable freedom of choice, it is important for the prospective major
to plan ahead carefully. If you need advice planning your program. see plan ahead carefully. If you need advice planning your program, se

## Requirements for a bachelor's degree

1. A grade of $C$ or better in Psychology 1000 or Psychology 1010 2. Psychology 2000 A
2. At least three more 2000 -level classes (either full or half credits) 4. At least two more full credits in Psychology from 3000 -level
classes, one of which is a laboratory class

BA or BSA with Honours in Psychology (Major Program) Students enrolled in the major honours program must take at least nine heir area of concentration Requirements for the Honours Degree in psychology are listed below.
It is recommended that students in this program take 2000A and 25008 and as many classes from the core program (see requirement 3 complete Psychos 3500 prior to the fourth year 4000 -level seminars may be taken in the third and fourth years. 2000 or 3000 level classes my be taken at any time provided that the student meets the necessary prerequisites.
Although there is considerable flexibility for the student, it is important
plan carefully (this Work in Psychology). If you would like to be admitted to the honours program or if you need advice in planning your program, see Dr. B. Ens, or Dr. R. Rudolph

Requirements for an Honours Degree in Psychology

1. A grade of $C$ or better in Psychology 1000 or Psychology 1010
2. A grade of C or better in Psychology 2000A; Psychology 2500 B 3. At least four more 2000 -level classes (either full or half 'credits).
3. Psychology 3500
4. At least two full credit classes at the 3000 -level, one of which is a laboratory class.
5. Psychology 4500 (Honours Thesis)
6. At least one full credit of $4000-$-level seminars
7. At least one more full credit of Psychology at or beyond the

Combined Honour
It is possible for students to take an honours degree combining psychology with a related arts or science subject. In such a combined 1000 -level in two areas of specialization, with not more than seven full credits in either area. The student in the combined honours program 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 departments to arrange program details.

## Other Programs

A variety of other programs is available in cooperation with other departments. These programs are designed to meet the needs of
students whose specific interests may lie in areas other than those covered by the major and honours programs offered by the department. interested students should contact Dr. R. Rudolph, Dr. J. Ans, or Dr. B. Rusak for further information.

## Financial Aids

teaching Assistantships, Research Assistantships, and NSERC Summer Student Fellowships are available, during both the academic term and psychology. Details of these assistantships and of the stipends may be obtained from Dr. G. Eskes or Dr. R. Brown.
Classes marked * are not offered every year. Please consult the current timetable on registration to determine if this class is offered. Classes 1000 Introduction to Psychology: lecture 3 hours, staff: Students 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 in man, how they operate, and how they are affected by disorders of the brain; of the way in which hereditary and behaviour which distinguish one species from another; of the way in of 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 the pres is bed intervals throughout the year
1010 Introduction to Psychology: tutorials 3 hours, R. Rudolph. The content of Psychology 1010 is similar to that of Psychology 1000 but the ace for covering the diffs. In Psychology 1010 there is neither a fixed lectures. Instead, students work through the readings at their own pace and, when they think that they have mastered a unit of the readings,
attend an individual tutorial. The tutorial consists of a brief test on the readings followed by a review of the test and a discussion with the tutor If the tutor judges the student's understanding of the unit to be
inadequate, the student returns for another tutorial on the unit after understanding is achieved and demonstrated. The grade for the class is based on the number of units passed by the end of the year.
2000A Methods in Experimental Psychology: lecture 2 hours, lab 2 hours, P. Dunham and other members of the department. Prerequisite:
grade of C or better in Psychology 1000 or 1010 . An introduction to the methodological tools which have been developed by research discussion of the general probe of applying the scientific method to the study of behaviour to more specific procedures used by
psychologists in studying various aspects of animal and human
meh
behaviour. The laboratory work consists of a series of projects illustrating
some of the more important techniques discussed.
2020 A or B Psychological Aspects of Social Issues. lecture 3 hours K.E. Renner. Prerequisite: Psychology 1000 or 1010 . Most of the adjustment, for the forms of our social institutions, and for the relationships between people and between people and their institutions opics vary accurang to current issues. Selected topics are examine n greater detail to provide a context for formulating general of the analysis for prescriptions for the future are pursued. (a) of the a

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2030 Psychological Measurement: lecture 3 hours, R.S. Rodger.
Prerequisite: Psychology 1000 or 1010 . After some of the abstract properties of measurement systems are described, aspects of psychological measurement are discussed: Further elaboration of
measurement procedures in Psychology requires a knowledge of statistical theory. The required amount of this theory is given and used in the context of signal detection theory and the analysis of data from paired comparison experiments. The class ends with consideration of
mental test technology. Exercises are scheduled regularly for students to mental test technology. Exercises are scheduled regularly tor students to
do out of class. A knowledge of higher mathematics is not required: high school arithmetic and algebra are generally sufficient.
2070 Introduction to Neuroscience: lecture 3 hours, I.A. Meinertzanagen. Prerequisite: Psychology 1000 or 1010 or consent of
instructor. For those not having Psychology 1000 or 1010 . Biology 1000 instructor. For those not having Psychology 1000 or 1010 , Biology 1000 interdisciplinary field which aims to integrate findings in many diverse
areas of brain research into a single systematic framework. This class areas of brain research into a single systematic framework. This class are precise at the neuronal level. A general introduction is provided by are precise at the neuronal level. A general introduction is provided by
the vertebrate visual system, followed by analysis of the structure and function of neurons, including the ionic basis of their electrical activity and the neurochemistry of synaptic transmission between neurons.
aspects of drug action, the control of activity in the motor nervous aspects of drug action, the control of activity in the motor nervous
system and examples of the integration and development of nerve cells. *2080 A or B Social Psychology: lecture 3 hours, J.W. Clark. Prerequisite: Psychology 1000 or 1010 . Some major issues in social psychology are introduced through a critical analysis of theories and
research in which the behaviour of the individual is seen as a product of research in which the behaviour of the individual is seen as a product of
the social context. The student reads papers on such topics as helping, obeying, oppressing, liking and hating. Questions on those papers are to obeying, oppressing, likened out of class and submitted at intervals throughout the term The lectures are intended to promote a close and sceptical evaluation of the readings.

2090 A or B Developmental Psychology: lecture 3 hours, J. Ans. Prerequisite: Psychology 1000 or 1010 . The origins of human
behavioural development from a biological and psychological behavioural development from a biological and psychological
perspective 2120 A or B Clinical Psychology: lecture 3 hours, J. Connolly.
Prerequisite: Psychology 1000 or 01010 . Restriction: This class may not be taken concurrently with Psychology 3120 . An introduction to the use
of psychological principles to define, assess and treat abnormal human of psychological principles to define, assess and teat abnormal hum ma
behaviour. Topics covered include: the nature and history of clinical psychology, training in clinical psychology; research methods;
psychological functions and dysfunctions; assessment methods; psychological functions and dysfunctions; assessment methods; and,
intervention techniques. The functions of clinical psychologists in various 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 per
Assessment of personality as well as intellectual and
Assessment of personality as well as intellectual and
neuropsychological functioning is discussed. Intervention techniques neuropsychoological unction ing is discussed. Intervention techniques emphasis of the course is on the experimental psychology foundations
upon which clinical psychology rests; experimentally verified 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 imierent theoretical orientations to abnormal behaviour (e.g. the
model and the behavioural/ $\mathrm{psychological} \mathrm{model)} \mathrm{are} \mathrm{examined}$.
2130 A or B introduction to Cognitive Psychology: lecture 3 hours, 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 character of the internal representations used in thinking and remembering.
2140 A or B Learning: lecture 3 hours, V. LoLordo. Prerequisite: Psychology 1000 or 1010 . 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 the basis of the outcomes of that experimentation. Some important concepts discussed are: association, attention, biological constraints of learning, classical conditioning, discrimination, expectancies, law of
effect, learning-performance distinction, operant conditioning, S -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 given the goals and the historical co ing
number of facts about animal learning

2150 A or B Perceptual Processes: lecture 3 hours. J. MCNulty. Prerequisite. Psychology 1000 or 1010 or Biology 1000 . Perception deals with the wo ut in sensory experiences are coded, how they are interpreted by the nervous system, and how experience moories perception

## 2160 A or B Animal Behaviour: lecture 3 hours, B.R. Moore.

 Prerequisite: Psychology 1000 or 1010 or Biology 1000. An examination of the natural and, to a lesser extent, the laboratory behaviour of several intensivively-studied groups of animals. Foraging and communication, predation and dod chimpanzees and various birds.2170 A or B Hormones and Behaviour: lecture 3 hours, R.E. Brown. Prerequisite: Psychology 1000 or 1010 or Biology 1000 . 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:
differences in the brain; the pineal gland; neuro-transmitter: differences in the brain; the pineal gland;
pheromones; crowding and social stress.
2190 A or B Language and the Brain: lecture 3 hours, M. Yoon. Prerequisite: : psychology 1000 or 1010 . This class is an introduction to
the study of languages that are considered human brain. The main topics are the origin and diversity of languages: common properties and organizing principles of languages; the acquisition of languages by children; the brain structures involved in
2270 A or B Human Neuropsychology: lecture 3 hours, S.R. Shaw Prerequisite: Psychology 1000 or 1010 . This class explores the explain the complexity of both normal and abnormal function, as revealed by the consequences of accidents, defects, and surgical intervention, as well as animal models. Emphasis throughout is placed on trying to understand the mechanisms underlying phenomena.
Aphasia, epilepsy, the involvement of certain brain chemicals in behaviour, cerebral asymmetry, the potential for neural prostheses, the dispute over localization of function in the brain are examples of topics
*2280 A or B Personality: lecture 3 hours, J. Barresi. Prerequisite: Psychology 1000 or 1010 . In this class a person is treated as a unified whole. Personality deals
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?

2370 A or B Drugs and Behaviour: lecture 3 hours. D. Treit. Prerequisite: Psychology 1000 or 1010. An introduction to behavioural pharmacology. Topics to be covered include drug classification, mechanisms of action, and behavioural and physiological effects of
drugs. Students will be expected to learn the fundamentals of drugs. Students will be expected to learn the fundamentals of understand the effects of drugs on the brain. Particular emphasis will be placed on the following drug groups: alcohol, opiates, amphetamines neuroleptics, and benzodiazepines. Conditioned tolerance to drugs, disorders including depression, anxiety, and schizophrenia.
2460 A or B Adaptive Behaviour: lecture 3 hours, J. Fentress. organisms and their environments is a common theme that can be used organisms and their environments is a common theme that can be used
to link research in the behavioural and biological sciences. In this course
three basic issues are addressed: (1) How do we evaluate the balance
among internal and external events that deft adaptive behaviour? (2) How do we separate individual properties of adaptive control systems while also deter sing 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 differ different specific adaptations, different lect
time frames of operation are compared.
2500 B Contemporary Research Problems in Psychology: lecture 2 hours, lab 2 hours, D. Tret, R. Hoffman, G. Esker and staff. Prerequisite
2000 A, with grade of B or better. For perspective honours students as 2000A, with grade of B or better. For perspective honours students as a
continuation of Psychology 2000 A , this class introduces students to the design, execution and analysis of independent research. Each student
works with a supervisor an a one to one basis preparing a research. works with a supervisor on a one to one basis preparing a research.
project which the student then conducts, while the lecture periods are devoted to an introduction to the statistical analysis of research data. In he lab meetings, the student will give oral reports on the proposed research, and 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 or research is submitted at the end of he term. Students of her it han
honours students may only take the class with permission of the instructor.
3000 Independent Research in Modern Psychology: lab 4 hours. staff. Prerequisites: Psychology 2000A and previous or concurrent enrollment in two other 3000 -level classes; and the prior consent understanding of psychological research. A student in the class chooses member of staff who serves as his class adviser throughout the academic ye
3010 Advanced General Psychology: lecture 2 hours, tutorials 3 hours, R. Rudolph. Prerequisite: The consent of the instructor. For the
advanced student, a review of general psychology with the aim of consolidating the student's knowledge. The method is unconventional. assigned to Psychology in e instructor, the student prepares the material assigned to Psychology 1010 a a level which enables him or her to
instruct introductory students in individual tutorials. Ideally, prospective
students should consult with students should consult with Dr. R. Rudolph in the spring

3020 Community Psychology: lecture 1 hour, lab 2 hours, K.E. Renner Prerequisites: Psychology 2000A, and 2020. 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 and techniques.
3040 Learning and Motivation: lecture 2 hours, lab 2 hours, B.R. Moore. Prerequisite: Psychology 2000A and 2140. An examination detain of a few selected topics within the field of learning and
conditioning. The emphasis is on identification and clarification
fundamental processes, their boundaries, biological signifiticance vosortionary history. Coriventional wisdom is accepted only as a last secondary work from original papers and monographs rather than guided original research dutiable preparation, students move toward discussion. The first half of the course, approximately is a seminar the remainder is research.

3050 Perception: lecture 2 hours, lab 3 hours. D.E. Mitchell.
Prerequisite: Psychology 2000A and 2150 . This class consid prerequisite: Psychology 2000A and 2150 . This class considers the way
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 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 tor its importance pathways. The experimental work has been selected for its importance general introduction to the apparatus and methods used in perceptual search.

3070 Physiological Psychology: lecture 2 hours, lab 3 hours, S. Nakaima. Prerequisite: Psychology 2000A. Permission of the instructor is required to take this class for lab credit. 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. Students taking this class not for

3080 Experimental Social Psychology: lecture 3 hours, lab 1 hour, J. arrest. Prerequisite: Psychology 2000A. This class involves the study of individual behaviour as a function of social stimuli with emphasis on 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.

3091 A or B Methods in Developmental Psychology: lecture 3 hours, J.T. Ens. Prerequisite: Psychology 2000A. How are questions concerning human development formulated and answered? In this course, special attention is paid to laboratory and field procedures
studying changes in behaviour over time. These procedures are examined in the context of biological, social, perceptual, and cognitive

120 Issues in Clinical Psychology: lecture 2 hours, seminars 2 hours S. Bryson. Prerequisite: Psychology 2120 or permission of instructor. As with most areas of any science, sacred cows roam at large in the field of clinical psychology. The purpose of this class is to sit on the horns of the dilemmas and slaughter the beasts. A second goal is to learn how to pics as altered states of consciousness, concepts of intelligence, approaches to psychological testing, theories of schizophrenia, theories -

130 Cognitive Psychology: lecture 2 hours, lab 2 hours, R. Klein prerequisites: Psychology 2000A, and either 2130, 2150, 2270 or consent of instructor. Cognitive psychology deals with how we gain 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 n what is known about human cognition, but also on techniques

150A or B Introduction to Hearing Speech Mechanisms: lecture 3 hours, D. Phillips. Prerequisites. Psychology 2150 or 3050 ; sychology communication. This lecture course 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 course intended for those students anticipating more advanced training in neural mechanisms of hearing, speech science, human communication disorders and/or audiology. The course emphasizes normal hearing and pathological subjects is pertinent to understanding normal function Course 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; sequence of events between linguistic intent and lin licit contribution to speech perception porch

3160 Ethology: lecture 2 hours, lab 2 hours, J. Fentress. Prerequisites 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 nd in the laboratory. There are several group research projects (firs
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* 3190 Psychology of Language: lecture 3 hours, staff. Prerequisite: Sy. Rology 2000A. Psychology $2130,2140,2150$ or 2270 are suggested Enrolment is limited to 3rd and 4th year students or by special permission or the instructor. The abiity tortanslate complex ideas into a
string of words which can then be understood by a listener is quite an accomplishment. Yet, nearly every numan acquires this ability within the first few years of ife. The psychology of language explores questions on this topic through a combination of lectures, demonstrations, and studen 3260 A or B Biological Rhythms: lecture 3 hours, B. Rusak. Prerequisite: Psychology 1000 or 1010 or Biology 1000 . The tempor structure of animal and human physiology is governed by both.
homeostatic mechanisms and by a system of biological clocks. homeostatic mechanisms and by a system of biologicac clocks. These
internal clocks generate rhyythms with various periods in virtually every physiological and behavioural system. Daily (circadian) clocks are the most prominent: they generate rhythms in sleep, reproduction,
intellectual pertormance and many other functions. This course examines the nature of these biological clocks and their physiologica examines the nature of these biological clocks and their physiological
substrates, with an emphasis on the neural mechanisms involved in thythm generation and synchronization in a variety, of species. It als explores the hypothesized role of circadian mechanisms in sleep disorders, jet lag and depression.

3270 A or B Developmental Neuroscience: lecture 3 hours, M. Yoon. Prerequisite: Psychology 2070 or consent of instructor. For those
interestes in the develo 2 年 interested in the development of the structures and functions of Embryonic development of the nervous system; primary morphogenetic movements of cells, bith of neurones and neuroglial cells, and migration of neurones to specific places in the nervous systems. (2) Formation of functional interconnections among neural elements; synaptogenesis,
topographic patterns of neural connections, synaptic organizations of various parts of the nervous systems. (3) Specificity and plasticity in regeneration or reorganization of the neural connections follow 3360 A or B Human Sociobiology: lecture 3 hours, staff. Prerequisite
Psychology 1000 or 1010 and 2000A. Some differences in behaviour Psychology 1000 or 1010 and 2000 A . Some difierences in behaviour true, these behavioural differences are subject to both natural and sexual selection. Sociobiology aims to understand how the behaviour of animals and men has evolved in response to these selective pressures

3370 A or B Neuroscience Laboratory: lab 3 hours, S.R. Shaw Prerequisite: Psychology 2000A and 2070 or 3270 A . An introduction to several techniques used in contemporary neuroscience. Regularly
scheduled labs with students working in pairs under supervision are supplemented by occasional lectures. The program aims at familiarizing students with electrical stimulating and recording methods and related techniques, and currently uses both sensory and motor nerve way of Golgi neuroanatomy, and electronmicroscopy of visual system or way of Golgi neuroanatomy, and electronmicroscopy of visual system
CNS.

3371 A or B Advanced Neuroscience Laboratory: lab 3 hours, R. Croll. Prerequisites: Psychology $3370 \mathrm{~A} / \mathrm{B}$ and consent of instructor. This
course is a second-term continuation of Psych. 3370 A (Neuroscience course is a second--erm continuation of Psych 33 the first termscience course will offer training in numerous sophisticated techniques employed in modern neuroscience. These include intracellular and
single unit extracelluar electrophysiological recording, dye tracing single unit extracellular electrophysiological recording, dye tracing
techniques and immunocytochemistry. Students will be encouraged to undertake original research projects within the general framework of the aboratory exercises.

3500 Statistical Methods in Psychology: lecture 2 hours, practicum 2 hours, K. Bloom. Prerequisite: Psychology 2000A and 2500B. This class is primarily intended for honours students, but other students are admitted with the consent of the instructor. This class is designed to procedures and their descriptive and inferential application to behavioural research. In addition, students learn to execute computer programs for data organization and analysis. Course work includes

3590 A or B Perceptual Development: lecture 3 hours, D. Mitchell.
of visual and auditory capacities in human infants and in a variety of anim underie 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

Psychology 3760 A or B Neuroethology: lecture 3 hours, R. Croll. Prerequisites: Psychology 2000A or 2160 or 2070 or Biology 2020 or
consent of the instructor. Neuroethology is the study of the neural bas of animal behaviour. The course will emphasize cellular approaches toward understanding the integrative mechanisms of the nervou system which underlie complex behaviours. Feature detectors, command sysems and motor program generators wiil be examined in depth using examples trom vertebrate preparations. Cellular bases of
higher order functions such as motivation, learning and choice will be explored if time permits.
4000 Level Seminars
These seminars ( $4000-4580$ ) are intended for 3rd and 4 th year honours students. Others may enrol in these classes only with special permissio of the instructor. The topics covered in these classes vary from ye

4000 A or B Senior Seminar: 2 hours, staf
4001 A or B Contemporary Issues in Psychology: 2 hours, staff. For course descriotion see instructo
$* 4040$ A or B Applications of Conditioning and Learning: 2 hours,
V.M. LoLordo. Topics may include: (1) Clinical and social applications of learning principles; (2) Pain, fear, and stress.

* 4050 A or B Topics in Perception: 2 hours, M. Cynader. This class is primarily a discussion of cortical organization in perception
-4070 A or B Neuroscience Seminar: 2 hours, M.G. Yoon. Prerequisites: Psychology 2070 and 3270 , or consent of the instructor.
*4080 A or B Topics in Social Psychology and Personality: 2 hours $J$. Barresi.

4090 A or B Development of Social Behaviour: 2 hours, K. Bloom. $* 4120 \mathrm{~A}$ or B Topics in Clinical Psychology: 2 hours, K. Connolly 4130 A or B Topics in Human Information Processing: 2 hours, M.
*4140 A or B Animal Learning Topics: 2 hours, M. Spetch. This is seminar in which selected topics in animal learning are reviewed in some detail. The emphasis is on cognitive aspects of learning.
is a directed study, and may involve participation in research.
*4160 A or B Topics in Behavioural Biology: 2 hours, B. Rusak.
4230 A or B Human Performance Topics: 2 hours, J. McNulty 4440 A or B Topics in Cognitive Development: 2 hours, staff

4500 Honours Thesis: members of the department. Prerequisites: Restricted to honours students in their graduating year. The purpose is to acquaint the student with current experimental problems and research procedures in expermental psychology. Each student work Win a slafl member who advises the student about research in the
maior 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 submited report. 4580 History of Psychology: seminar 2 hours, J.W. Clark. Prerequisites
Restricted to honours students. Preparatory reading: It would be advantageous to rear E.G. Boring's History of Experimental Psychology
before the class starts. This class discusses the evolution of thought about some psychological issues that have been of central concern throughout man's intelectual history. The understanding of such issues

位 meir development is examined in the work of psychologists in the early ears of this century.

## Religion

Note: See under Comparative Religion. The name of the department has been changed to the Department of Comparative

## Russian

Y.Y. Glazov, PhD (Oriental Inst.), F. (Moscow)

Assistann Profestead. BA (
A. Barnstead, BA (Oakland). AM (Harv.), (Chair)

Vitins, BA (Mich.), PhD (Calif.),
The Russian Department offers classes in Russian 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, backgrounds can prove advantageous in many areas of study. Students in the sciences and mathematics find Russian especially usefull, as it can give them a lead of six months to a year over those who must wait journals to be translated
thorough grasp of Russian grammar and an extensive speaking, reading, and writing vocabulary.
One of the richest areas of Russian life is its literature. Dostoevsky, Tolstoy, Chekhov, Pasternak, Solzhenitsyn and many other
Russian writers have made significant contributions to world culture Classes in Russian literature are generally offered in English and in Russian in order to give as many students as possible the opportunity to
become acquainted with its masterpieces. become acquainted with its masterpieces.
diasses in Russian culture and civilization are intended to infroduce studenis to art, archilecture, music, religion, and other areas of literature. Films, quest speeksers and evenings the language and scheduled periodically.

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

Degree Programs
Classes in the Russian Department are open to students either (1) as lasses in the Russian Department are open to students either (1) as
electives in any degree program; or (2) as constituents of a major or honours degree in Russian; or (3) with classes in another foreign
language forming parts of a combined honours degree

## Classes Offered

## 1. Classes in Language

1000 Elementary Russian: lecture 4 hours, no prerequisites. For students who have little or no previous knowledge of the Russian skills with a. sound grammatical basis. 1050 Reading Russian: lecture 3 hours, no prerequisites. This class
provides a knowledge of Russian grammar sufficient to read technica materials with the aid of a dictionary and covers rudiments of
pronunciation. In the second semester the student is introduce pronunciation. In the second semester the student is introduced to the
specialized vocabulary of his particular field. This class does not qualify students to take Russian 2000. (Not offered in 1987-88.)
2000 Intermediate Russian: lecture 4 hours. Prerequisite: Russian 100 and a further knowledge of grammar are developed through the study of Russian texts

3000 Advanced Russian: lecture and discussion 4 hours. Prerequisite: Russian 2000 or equivalent. Conducted in Russian. Following a thoroug review, this class concentrates on expanding all aspects of the students intensively. Discussion and compositions are based on the assigned

3010B Grammar: (See listing under Russian Studies Program)
3030B Conversation: (See listing under Russian Studies Program.)
3050 V Vocabulary Building: (See listing under Russian Studies Program.

3080B Phonetics: (See listing under Russian Studies Program.)
3100A Intensive Russian Grammar: (See listing under Russian Studie Program.)

4000 The Structure of Contemporary Standard Russian: lecture and discussion. Prerequisite: Russian 3000 or permission of the instructo
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 indivdiual needs of the student, with emphasis on practical applications of linguistic insight

4800A Old Church Slavonic: lecture 2 hours. Prerequisite: Russian 3000. A Survey of Old Church Slavon
intensive study of its canonical texts.

4820B Historical Phonology and Morphology of Russian: lecture hours. Prerequisite 4800A. An outine of the evolution of the sound pattern and grammatical structure of Russian from their roots in
Common Slavic to the present. Representative readings from Old and Common Slavic to the present. Representative readings from Old an
il. Clast in Lita
II. Classes in Literature and Culture 2020A/B Russian Literature and Culture: lecture and discussion 2 hours, no prerequisites. Conducted in English. The class traces developments in classical Russian literature, as well as in the Russian arts: painting, scuiplure, hearre, and music. Religious and secular ideas
$2100 \mathrm{~A} / \mathrm{B}$ Pushkin and His Age: Conducted in English. A close study of the poetry and prose of Russia's greatest poet, and other writers of the Gaidat Age of Russian Poerry. Works tio be read will include the major
narrative poems, Eugene Onegin, the "Little Tradegies," Boris Godunov, The Belkin Tales, as well as the poetry of Baratynsky, Batyushkov, Lermontov, Yazykov. No knowledge of Russian is required.
2050 Survey of Russian Literature: lecture 2 hours, no prerequisites majurs and honours candidaction in Russian for majors. Required for on the outstanding writers of the nineteenth century, including Pushkin. Gogol, Dostoevsky. Turgenev, and Tolstoy. The second half of the class post-revolutionary writers and poets: Mayakovsky, Sholokhov, Pasternak and Solzhenitsyn.

2070A/B Russian Literature and Culture after Stalin's Death: lecture and discussion 2 hours, no prerequistes. Conducted in English. The 1953. Among the maior issues considered are the sianiificance of Stalin's death, the "Thaw" and de-Stalinization, Pasternak, Solzhenitsy eligious trenandelstam and Sakharov. Revival of the intellige ind religious trends.
official culture.
2240A/B Theories of Literature: lecture and discussion 2 hours no prerequisites. Conducted in English. This class surveys Russian though about literature from mediaeval times to the end of the nineteenth century, then concentrates on a more detailed study of twentieth century theories. Emphasis sis on the complex interrelationships of modern
Russian theoories of literature with their Western counterparts, e.g. Formalism and American "New Criticism." Topics treated include ormalism, early Marxist criticism, Socialist Realism, post-Stalin Marxis
discussions and papers apply the principles of a given school to and weaknesses of each theory

2340A/B Russian Modernism:
prerequisites. Conducted in English. A study of trends in literrat, no the arts at the turn of the century. Known as "The Silver Age," this is one
of the most innovative and dyna 2500A/B Tolstoy: lecture and discussion 3 hours, no prerequisite, 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 the epic War Writing on world hiterature and thought. Reacing includes the epic War
and Peace, Anna Karenina, and the controversial Kreutzer Sonata.
2520A/B Chekhov and Turgenev: lecture and discussion 3 hours, no prerequisites. Conducted in English. Close analysis and discussion of
the major works of Turgenev, sensitive portrayer of socio- political and 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
$2600 \mathrm{~A} / \mathrm{B}$ Russian Satire and Humour: lecture and discussion 2 hours, no prerequisites. Conducted in English. Russian satirical and humourous 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 humourous stories of Chekhov. For the period atter the 1917 Revolution stories by Soviet satirists, including Zoshchenko and Bulgakov, are discussed as well
$2750 \mathrm{~A} / \mathrm{B}$ Dostoevsky and the Russian Idea: lecture and discussion 2 hours, no prerequisites. Conducted in English. Dostoevsky's novels are of the hignest imponince insids of other great Russian authors and thinkers. Crime and 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 Toistoy are discussed together with the
and N . Berdyaev.

2760A/B Dostoevsky and Western Literature: lecture and discussion 2 hours, no prerequisites. Conducted in English. With all his love for 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 some influence of Western ideas on Dostoevsky, and his influence on some
Western thinkers, like Nietzsche and Freyd.

3090A Soviet Society Today: (See listing under Russian Studies Program.)

3120A Intensive Russian Prose and Poetry: (See listing under
Russian Studies Program)
$3250 \mathrm{~A} / \mathrm{B}$ Literature of Revolution - The 1920's in Russian in English. A study of experiment and sours, no prerequisistes. Conducted exciting, diverse, and frustrating periods in Russian letters. "Socialis realism" was not yet official docitrine; 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, Pilinyak, Zoshchenko, and Bulgakov.
3270A/B The Russian "Heroine": lecture and discussion 2 hours, no prerequisites. Conducted in English. The strong spiritual and moral force which Russian women have exerted on their society is richly reflected in and discusses their impact un both the literary imagination and society. Their number includes Pushkin's Tatyana, Dostoevsky's Sonya Marmeladova and Nastasya Filippovna, To
Gorky's Mother and Bulgakov's Margarita

3330A/B The Russian Short Story: lecture and discussion 2 hours, no prerequisites. Conducted in English. On the basis of ten to twelve Russian masterpiecoes in the short story genre, students have a chance
to trace the development in this field from Pushkin and Gogol,
throughout Turgenev, Toistoy, Do bky to the best short stories of post-revolutio
A. Platonov.
3500A/B Gogol and his Tradition: lecture 3 hours, no prerequisites. Author of "Overcoat," "Nose," Taras Bulba, Dead Souls, Gogol has been proclaimed "a pathological liar and honest anatomist of the stoul, iefune
iokester 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 Buigakov.

4300 Russian Poetry: lecture and discussion. Prerequisite: Permission of the instructor. Conducted in Russian. Required for honours candidates. A combination of an introduction to the theory of poetry with close analysis of masterpieces of nineteeent and wenier century

4950A/B, 4960A/B, 4990 Russian Special Topics: staff. Prerequisite: Permission of the Department. Conducied in Russian. Offers the student an opportunity to work with an advisor in researching subjects which are
not regularly taught in the Department. Students who wish to register for a specific program should consult the chairman of the Department.

## Russian Studies Program

Participating Faculty
Yuri Glazov (Professor
Yuri Glazov (Protessor of Russian)
Norman Pereira (Professor of Histor)
leva Vitins. (Assistant Professor of Russian) (Coordinator)
John A. Barnstead (Assistant Professor of Russian)
The Russian Studies Program, the only one of its kind in Canada, is special inter-disciplinary course of instruction which allows Dalhousie students (as well as students trom 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 years of university classes (at Dalhousie these are Russian 100 and Russian 200) with a mark of "B" or better. The duration of the program one academic year, the first half of which is at Dalhousie, University of
Alberta, or some other Canadian university, the second half of which is at the Pushkin Institute in Moscow, Moscow Pedagogical Institue or at Leningrad State University. Enquiries and applications should be
addressed to the Administrator of the Program.

Classes at Dalhousie, September to December 3100 A Intensive Russian Grammar: lecture 10 hours. Soviet language specialist. Conducted in Russian. Approximately one-half of class time sevoted 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 six-credit-hour course.
3120A Russian Prose and Poetry: lecture and discussion 5 hours. interpret a number of the best shor stories of such great Russian authors as Pushkin, Tolstoy, and Chekhov, and poems by Lermontov, Mayakovsky, Mandelstam, and Pasternak. Original texts are supplied with vocabularies and grammatical notes. This is a six-credit-hour

3150A Russian Society, Literature and Arts: lecture and discussion hours, staff. Conducted in Russian. The course, read in Russian by various faculty members, aims to provide students with necessay
knowiedge of Russian literature, history, fine ants, religious and philosophical ideas.
Classes at the Pushkin Institute, Moscow or Leningrad State University, February to June
3010B Grammar: Intensive study of the finer points of Russian

3030B Conversation: Systematic development of conversational ability on everyday themes: transport, city services, theatre, sport, shopping, the government, etc. Three credit hours.
3050B Vocabulary Building: Extensive and systematic study of the Russian lexicon: differentiation of synonyms; stylistic differences. Three

3080B Phonetics: Comprenensive study of Russian pronunciation
anguage laboratory training and techniques of correcting pronunciation thee credit hours.
3090A Soviety Society Today: N.G.O. Pereira. Conducted in Russian

## Sociology and Social Anthropology

Chairperson of
Professors
.H. Barkow, AB (Brooklyn), AM, PhD (Chi)
R.C. Kaill, BA (Dal), BD, MA (Tor), PhD (McG)
R.

Kasdan, MA, PhD (Chi)
J. Mangalam, PhD (Corn)
W.N. Stephens, AB (Colo), MA (Bost), EdD (Harv)

Associate Professors
R. Apostle, BA (SSimon Fraser), MA, PhD (U Calif)
D.H. Elliort, BA (Yale), PhD (Pitt)
Pit
J.L. Elliott, BA (Wells), MA (Kan.), PhD (Pitt)
.V. Gamberg, BA (Brandeis), A.M., PhD (Prin
N.W. Jabbra, BA (U Calif at Santa Barbara), MA (Ind), PhD (Catholic) V.P. Miller, BA (U California at Berkeley), MA, PhD (U Calif at Davis)
.G. Morgan, BA (Nott), MA (MCM), DPhil (Oxon), Undergraduate G. Morg
dvisor

Stolzman, BA (Ore), MS (Fla), PhD (Ore)
V. Thiessen, Ba (Man), MA PhD (Wis)
Assistant Protesso
Assistant Professors
M.E: Binkley, BA, MA, PhD (Tor)
.G. Clark, BA, MA (MCM), PhD (UBC
B.J. Given, BA, MA (Carleton)
S. Pollock, BN (Man), BA, PhD (Warwick)

Lecturer (part-time)
C.J. Manderson, BA (Notre Dame, B.C) MA (Dal)

Adjunct Professor
C. Pooley, Teach Cert (Bede Coll), Dip PE (Carnegie Sch PE), MS PD (Wis)

Adjunct Associate Professors
B. Keddy, BSCN (MSVU), MA (Dal), PhD (Dal), RN L. MCMullan, BA, MA (Sir George Wiliams), PhD (L.S.E.)
B. Raymond, MA (U California at Berkeley) PhD (Chi)

Adjunct Assistant Professors
A. Benoit, BA, MA (Guelph), PhD (Hopkins)
A.F. Davis, BA (St Marry's) MA (Man) Ph)

Shaw, BPE (Dal), MSc (Dal), PhD (Carleton)

Killam Postdoctoral Fellow

## Sociology and Social Anthropology

## in the relate

 disciplines of sociology and social anthropology.
## 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 dequate. As a result, a wide range of explanatory models and
Sociology provides a context within which students learn to think ocial forces on their lives and the int, become aware of the impact of nalysis useful in understanding and lives of others; and develop skills of any students find a sociology maior helpoful in prepring for social work, nursing, personnel management, and other occupations dealing

## Social Anthropology

Anhropology is a diverse discipline whose branches study the human space and time. It consists of four sub-disciplines: Archaeology, Linguistics, Physical Anthropology, and Social or Cultural Anthropolog, As a joint department of Sociology and Social Anthropology this convergence between the two discipines. The major focus therefore upon classes in Social Anthropology, although classes in other areas may be offered.
Social Anthropology shares many theoretical and substantive interests with the complete range of human societies and cultures in all historical and geographic settings. Its primary emphasis is upon preindustrial societies and the non-industrial sectors of more complex societies. Its lamily, through the band, the chiefdom, and the state. It aims at generalization by comparing structures and processes in major Institutions within societies (kinship, political; economic, and religious), as
well as between societies. A well-trained social anthropologist will ell as between societies. A weli-rrained social anthropologist will be sociologist will be acquainted with Social Anthropology.

## Career Options

Career possibilities in sociology and social anthropology include esearch and other positions in government, industry, or university, and

## Degree Programs and Course

## Offerings

Degree Programs
The department offers a major in Sociology and Social Anthropology eading to the BA degree. It offers honours BA degrees in Sociology and

## 3A Degree

Audents enrolled in the BA (i.e., three-year) degree program must take evel 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

1. Introductory Level Either SSA 1000,1100 , or 1200 .
2. Research Methods SSA 2010A is required. SSA 2011B is
3. Third Year Seminar One class (either 2 half-classes or a full-year class) must be a third year seminar
Suggested Class Structure

Economics, Political Science, Psychology, History or Biology, and three
other classes chosen from fields other than Sociology and Social other classes
Anthropology.
N.B. One class must satisfy the writing requirement (Arts and Science regulations 11.1.a).
Year II: SSA 2010A
Year II: SSA $2010 \mathrm{~A}, 2011 \mathrm{~B}$, and 2240 A or B or $2250 \mathrm{~A} / \mathrm{B} ; 1 / 2-2$
other classes in Sociology and Social Anthropology; and two electives
Year III: At least one third year seminar in Sociology and Social
Anthropology, two other classes in Sociology and Social Anthropology; Anthropology, two other classes in Sociology and Social Anthropology:
and two electives Honours BA Programs
Students may choose from two honours programs: Anthropology or Sociology. An honours degree is a recommended and frequently
required preparation for advanced study in both Sociology and Socia required preparation for advanced study in both Sociology and Social
Anthropology. Honours programs normally consist of not less than nine nor more than eleven classes in Sociology and Social Anthropology beyond the introductory level. Each program consists of several required Classes (see A and B below), other classes selected according to the regulations, 11.4).
Students interested in honours programs should consult the Department's Undergraduate Advisor, Dr. J.G. Morgan
Required Classes for Honours Degrees A. Anthropology Program: 2010A Introduction to Social Research 2011 B Research Design, 2250 B Introduction to So Social Anthropological Theory, a geographical area class (2370 or 2380 Peoples and Cultures
of the World, 2355 Native Peoples of North America, or 239 S A Issues in Social Research, 4000 Seminar in Social Anthropology, and 4590 Honours Seminar in Social Anthropology.
B. Sociology Program: 2010 A Introduction to Social Research, 2011 B Research Design, 2240A or 2240 B Introduction to Sociological Theory,
$3115 \mathrm{~A} / \mathrm{B}$ Research Methods, $3415 \mathrm{~A} / \mathrm{B}$ Social Statistics, 3401 A History of Sociological TTought, 3 , 405 B Contemporary Sociological Theory, and
4500 Honours Seminar in Sociology.

The Seminar paper produced in 4500 or 4590 is examined as an honours thesis. This futfills the university requirement that a
comprehensive examination covering a student's honours work be passed in order to receive an honours degree.
86 , the required core classes described in the $1984-85$ calendar will apply.
Combined and Unconcentrated Honours
Combined honours programs can be arranged between Sociology and Anthropology, or between Sociology or Anthropology and some other Antropology, or between Sociology or Aninropology and some other
appropriate discipline such as, for example, Political Science. Students
wishing to arrange combined or unconcentrated honours programs are wishing to arrange combined or unconcentrated honours programs are
advised to seek the counsel of the departments involved as early as advised to
possible.
African Studies Program
The Department is cooperating with several other departments in the African
Barkow.
Canadian Studies Program
offering a Canadian Studies Program. Interested students should contac offering a Canadian
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
Develoryent Studies. Interested students should contact Professor N.W. Jabbra.

## Women's Studies Program

The department is cooperating with several other departiments in the The department is cooperating with several other departments in the
Women's studies Program. Interested students should contact Professor
N.W. Jabbra.

## Sociology and Social Anthropology

## Classes Offered

llease Note:
All students (whether Sociology and Social Anthropology majors or not
must have SSA 1000, 1100 or 1200 as a prerequisite for any class on the 2000 or higher levels, or obtain permission from each instructor student may receive credit for more than one introductory level clas ( 1000,1100 ; or 1200 ) in Sociology and Social Anthropology.
Some classes listed may not be offered in a given academic year. Some classes listed may not
Consult the timetable for details.

1000 Culture and Society: An introduction to the comparative study human society from the parallel perspectives of Sociology and Social variety of societies ranging from simple hiunting and' othering societies variety of societies ranging from simple hiunting and gathering societies
to highly complex industrial societies.
1100 introduction to Anthropology: This class introduces students to all subfields of anthropology while emphasizing the socio-cultural. Topic
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 arctaeeology, and the study of languages around the world as they relate

1200 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 course
contents include the study of culture, socialization, deviance, social contenis itciude the study of cillure, sociailization, deviance, social
organizations, institutions, social roles, and demography. Emphasis is on the study of modern industrial societies with special attention given to
Canadian society.

2000 Archaeology: An Introduction: This class covers the following
topics: archaeology and its relationship to history and prehistory, the Copics: 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.
SSA 2010 A 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 cla 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 thirc
module stresses the evaluation of research and providesthe student with both the skills and opportunity to assess and critically and professionaly the work of empirical anthropologists and sociologists.

SSA 2011B Research Design: Prerequisite: SSA 2010A or consent or instructor. The class is organized around four 3 -week modules, representing a survey of the major research designs employed anthropology and sociology. Module I deals with the design of
experiments and simulations; Module || examines historical and comparative research designs; Module III treats survivey-based designs

2020 Comparative Sociology/Social Anthropology: The starting poin is the vision of the founders of sociology that the discipline was to be a comprehensive and comparative science of society. Modern sociologists view comparative studies primarily in large scale cross intellectual descendants of the founding fathers) tend to be more interested, in addition to a comparative approach, in the natural history of smaller societies, and in applying the methods learned in these to more complex societies. The first part is devoted to a treatment of
several topics from the social anthropological perspective. The second part treats the major figures and ideas in social anthropology and sociology from a historical perspective. Student field projects are an important part of the learning process in addition to the more usual kind

2030 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 processe
by which groups make rules and the reasoris why these rules are by which groups make rules and the reasonis why these rules are
violated. Specifici issues such as crime, delinquency, narcotic addiction alcoholism, prostitution, suicide, and minority group relations are. discussed in this context.

2040 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 powe and weath 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 centry and problems of the mobility of individuals and groups through the stratification systems are enalyzed. Theoretical discussions in the class are largely concerned with the ideas of Karl Marx and Max Weber, attention is als.
stratification.

2050 Sociology of Religion: The relations between religious beliefs 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 considerations of religious beha

2060 Social Gerontology: (Same as Nursing 4900A) A general
introduction to social gerontology, in which emphasis will be place introduction to social gerontology, in which emphasis will be placed in Canada, theories of aging, current social and economic programs 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 as a consequence of aging in Canadian society and provides an
understanding of the socio-economic factors relevant to these problems.

2070 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 instituions such as the family, the churches, and the schools. These, however, require support from the larger social milieu. Our own rapidly changing sociely appears to be at a point of crisis in this regard. Recent social changes
have undermined traditional means by which chidren acquir a sense of allegiance to their elders, and take to themselves the society's maior values. This change is described, along with the situation of modern parents, who must train their chidren in the absence of certain traational supporis. The class moves through four units: responsibility
training, lifetime human development and life-histories; personal change and adjustment of university students; and outside-the-classroom youth programs. For each of these the student writes a paper
2080 Communities: An examination of a wide variety of territorially based residential groups such as the large metropolitan centre, the rural of the modern city , urbal community. Major themes include: evolution neighbourhood social networks, behaviour in public places, minority subcommunities, and urban planning

2090 Youth Organizations: Based on a comprehensive survey of those organized activities for teenagers in North America which attempt to give substantial socialization experiences to the youth who participate.
Organizations which offer leadership training, high school clubs and extra-curricular activities, youth programs by the churches, programs volunteer work and paid employment, junior auxiliaries of political parties and military reserve units, hobby groups, cities' recreation departments, environmentalist groups are reviewed, along with such organizations as the $Y$, the Scouts, $4-H$, and Junior Achievement. Cities' information offices, voluntary action centres, learning exchanges, and other systems or disseminating information about youth programs are also reviewed.
Ceitain towns and cities are compared with respect to their offerings for teenagers. Persons who have had experience in youth work, or as teachers or parents, are especially invited to enroll.

2100 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 tocus is on how cutural
choices are influenced and constrained by the reat ecology, technology, and how people are making a living. Examples of hunter-gatherer, horticulturalist, rancher and farmer cultures are used as illustrations. Classes are a combination of lecture and seminar sessions. 2110 Canadian Society: An analysis of selected aspects of Canadian
society employing theoretical perspectives and empirical materials to sociellop a composite view of the sociaty 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 t the
future of Canada are discussed in terms of these Characteristics.
2120 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.

2130 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, structuralfunctionalist, and management-science approaches to organizations.
The class entails a systematic survey of the sociological literature on The class entails a systemalicentrital on organizational structure,
this subject, with special concentration strategy and decision-making.
2140 Industrial Sociology: The social relations of industry at both the micro- and macrosociological levels of analysis. The class deals micro- and macrosociouocical eevels of analysis. The class deals
primarily with the productive system and attendant industrial institutions of advanced capitalist society. Major topics for investigation include the industrialization process, the social structure of industry, the

2150 Mass Society. The origin of modern, post-industrial mass society. Problems associated with industrialization, cybernation, leisure, technology, and arious attempts at solution of these problems are analyzed. The rise the expert and of counter-cultural movements are given particular attention. Theoretical and methodological innovations for future aterenion. heoreitcal and
forecasting are introduced.

2160 Sociology of Occupations: Sociological views of the occupational structure, and of the constraints and influences that bear upon persons in various occupations. During one half of the class,

2170A Political Sociology: Introduces students to the maior 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.
2180 Criminology: Crime as a form of social deviance. The significance of ofricial crime rates is analyzed, and the various forms of class deals primarily with societal response to offenders, tracing the
judicial and correctional processes in Canada.

2190 Sex Roles in Cross-Cultural Perspective: Taking a broad comparative framework, we examine sex-roles in the contexts of daily 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 a
invited to take this class.

2200 Sociology of the Family: Family in one form or another is a 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 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 socieities evolved from a traditional to an
urban-industrial social organization.

2220 Social Psychology: Groups influence individuals and individuals eact (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 th 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.

2230 Psychological Anthropology: Prerequisite: Either SSA 1000,
1100 , or 1200 or Psychology 1000 . The overlap between psychology 10, or 1200, or Psychology 1000 . The overlap between psychology and anthropology. Topics include: culture and personality, culture and earning, and the evolution of human psychological characteristics. A paper is required
2240 A \& B Introduction to Sociological Theory: An introduction to ome of the major approaches taken by sociologists to understand the with emphasis on the eme foundations of social thought are surve ve nineteenth century. The congributions of of prominent theorists Durkheim, Marx, Mead, Spencer, and Weber - are stressed. The most
mportant sources of virtually all the varieties of sociological theories of important sources of virually arl he varieties of sociological heories of approaches to be considered include functionalism, conftict theory
social action theory (including symbolic interactionism and social action theory (including symbolic interactionism and -
2250 B Introduction to Social Anthropological Theory: The oundations and development of social anthropology. The growth of theory in social anthropology is stressed, with special attention paid do
maior schools of thought and the work of prominent individuals within those schools, including Cultural Evolution and Morgan; The American School and Boas: Functionalism and Malinowski and Radclifte-Brow Culture and Personality: Ethnoscience: and the directions in whic contemporary social anthropology points. Special efforts are made to
expose students to the original writings of prominent anthropologists.
2260 Culture and Political Behaviour: Political systems examined comparatively. The relation between political and other social institutions
and analysis of the organization of conflict in non-Western societies. The elation of tribal and peasant politics to national politics in developing countries seen in a comparative framework.
2290A Belief Systems: The study of non-Western belief systems. Emphasis is on the religion of small-scale societies, treated from the perspective of reiligion as a system of symbols giving meaning to the
universe and on's place in it Topics include religion as a biological phenomenon, hee cature or stual, religion and heating, reigion and culture change.
2355 Native Peoples of North America: A survey class of the cultures came to this continent. Following a review of prehistory, the class us an ecological perspective to examine the geographic culture areas and representative tribes in them. The class then considers native thnohistory of North America and concludes with a consideration of院
2370 Peoples and Cultures of the World I: Each year, the Peoples class surveys the peoples of a speciific geographic area. The class, ncludes background material on geography, climate, and history. Its 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.

2380 Peoples and Cultures of the World II: See class description
2390 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 his
and newspaper are real people with their own modes of social
rganization, values ways of thinking and making a living and lued resources if Westernmations including Canada as to deal ectively with in increasingly important region, their people must con to und
East.
In this class we touch upon some of the common trends and iversities which characterize the region from Iran and Afgananistan to
Morocco: geography and population: ethnic groups and languages: Morocco: geography and population; ethnic groups and languages;
eligion; social organization; modes of subsistence; values; and the
mpact of the West.

2400 Medicine and Health Across Cultures: Every culture has its own oncepts 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: nativ
theories of the etiology of illhess, transcultural vs. culture-specific disease syndromes, pregnancy and childbirth in other cultures and o wn; senescence and death viewed cross-culturally, the conflict etween traditional medical systems and the Western physician and ospita, patients expectations and the medical subculture, the Special attention is paid to Canada's native and immigrant peoples.
2500 Sociology of Health and Illness: An introduction to sociologic analyses of health, illness, and health care. Class topics include the
experience of illess, socioeconomic and cultural variationsin patterns ilness, social behaviour and its effects on health, the social production of health and illness, occupational hazards, the relationship between enial and physical health, the organization of heath care, hospital and commu
2600 Food and Nutrition Across Cultures: Our bodies determine ar our cultures decide what is to be considered "food." This class joins the anthropology of food with the cross-cultural study of nutrition. Topics nclude definitions of the edible, nutrition and modernization, ecology and
ood, food taboos, age and gender differences in food prescritions and proscriptions, dieting and obesity, food and religion, cannibalism, the symbolic meaning of eating and food, and food shortages.
2700A Sociology of Mediation: Mediation is a process where a neutral hird 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, movement, as an organizational form and as a small group proces Although this class does not teach the student how to be a mediator, it does complement non-credit programs providing mediation training.

3010A Sociology of Work Roles: Examination of structure and dynamics of management-employee relationships from a sociological
perspective. There will also be consideration of horizonal relationships among workers at various status levels. Organizations to be studied nclude both small and large-scale work structures. Consideration of the implicatio.
3020B Comparative Economic Organizations: Critical examination of the nature of economic organizations. Emphasis is on how economic particular focus on devel various cultures, from primitive to modern, wo alternative and futuristic models

3030 Social Problems and Social Policy: This class focuses on the nature of social problems and social policy in advanced industria societies. It adopts a social movement perspective, exploring the pocial conditions leads to changes in social policy Amont the areas treated in depth are crime prevention, the quality of work life, race relations, deviance, and poverty and inequality
3060B Modernization and Development: Change, modernization, and development as distinct but related notions. Beyond examining the meanings and implications of these terms, an attempt is made to
some of the complex processes involved in planning for national
development of traational societies. For purposes of concrete illustration ine class will focus on the problems of South Asia and appropriate area f Canada.

3070 Human Nature and Anthropology: Prerequisite: Either SSA 1000,1100 or 1200 or an introductory class in psychology or biology.
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 theories explaining why we have fingerprints and flat nails explain our
behavioural traits? This class reviews the fossil record of human evolution and recent developments in the theories which deal with it, in order to examine criicaly biological explanalions of human sex difierences, cutiure infant bes.

3080 Linguistics and Anthropology: A seminar which examine aspects of linguistics relating to anthropology. The history of
anthropological linguistics is reviewed, with attention paid to North American workers in the field, including Boas, Sapir, Kroeber, and other Students learn to transcribe utterances phonetically, then to apply this knowledge as they study the relation of language and culture in both estern and non-western societies. Each student prepares an oral

3090A/B Population and Society: An analysis of the interrelationships of population and social structure. The class examines changes in size. demographic factors: fertility, mortality, and migration, with emphasis on their social, economic, and political causes and consequences.
3095A/B Demographic Techniques: Prerequisite: SSA 2010 or techniques used to describe the dynamics of population structure. Various demographic sources ranging from census to church records
will be examined. Basic techniques for will be examined. Basic techniques for determining rates and measures of tertility, mortality, morbidity and growth as well as more advanced
methods using computer programs 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.
3110 Sociology of Leisure: (same as Leisure Studies 3491B) 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,
3115A/B Research Methods: Prerequisite: SSA 2010A and SSA 2011 3115A/B Research Methods: Prerequisite: SSA 2010A and SSA 2011
or consent of the instructor. 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 is proved through a class project.
$3116 \mathrm{~A} / \mathrm{B}$ Issues in Social Research: Prerequisite: SSA 2010A and SS 2011 B or consent of instructor. This class focuses on various measurement theory. The specific class content in a given year is available through the Departmen.
3120 Social Conflict: Introduces students to the various anâlytical perspectives sociologists have employed to understand the patterning perspecilves sociologists have employed to undersentiand
and consequences of confict in society. In this regard particular attention is devoted to the functional, coercion, and Marxian theories of society, with special reference to patterns of conflict and change in Canada.
$3135 \mathrm{~A} / \mathrm{B}$ The Social Organization of Health Care: The social
organizaiton of medicine and the politics of health are examined organizaiton of medicine and the politics of health are examined.
Particular attention is paid to environmental and and occupational healt Parricular attention is paid to environmental and and occupational health
issues in light of technological and social change. Epidemiological issues in ight of technological and social change. Epidemiologic
patterns of morbidity and mortality are assessed. Students are patterns of morbidity and mortality are assessed. Students
responsible for seminar presentations in areas of interest.
3140 Sociology of Mental Disorders: Mental disorders as both a
Social and sociological problem Social tactar disorders as both
incidence, etiology, and reatment of mental disorders are examinec. Societal views toward and responses to so-calied mental illess are include the social role of the mental patient and the development of mental heath policy in Canada. The class adopts a seminar format and evaluation is based primarily on essays or a term paper
3145 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 bith control menstruation, menopause, reproductive technology, childcare and child both paid and unpaid. Topics include sexual inequality in health care, health policy, family relationships and health care responsibilities.
3150 Sociology of Education: The nature of human learning within its 3150 Sociorext Analysis of social learning mechanisms and processes
cultural context. receives major considideration.
3160 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 trom other forms of society differentiate civilizations from other forms of society. Different explanations for the rise and decline of early civilizations are tested
against the archaeological record.
3170 Sociology of Sport and Recreation: (same as Phys. Ed.
4490 / $/$ B) A survey class which views the interrelt sport, recreation, culture, and society from a socialogical perspective 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 contempor regulation of sport and specified recreational elements in contemporary
society.

3180 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 and Anthropology. Since the specific topic or research problem whic
receives special treatment will differ from year to year, students are advised to consult the department prior to registration.
3185 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, Prerequisite
3190 Social Movements: The general topic of unstructured group activity encompasses phenomena traditionally classified as collective movements. Although there is considerable overlap, the collective behaviour literature tends to tocus on relatively brief and spontaneous activities, such as panics, disasters, and crazese, while work on social movements examines reiatively more organized and enduring group
activities which still fall outside the realm of normal institutions. This class investigates probiems emerging from both areas of concern. Emphasis is given to relevant Canadian materials.

3200B Comparative Social Organization: The ways in which human beings organize themselves in common purpose. Examples of such ways include kinship structures, voluntary associations, role structures,
class and caste systems, and networks. We emphasize pre-industrial class and caste systems, and networks. We emphasize pre-industrial societies and non-industrial sectors of industrial societies, placing them

3205 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
probiems of race and ethnic relations. Both Canadian and comparative data, particularly from developing countries, are included.
3210 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 othe is comp
areas.
3220 Coastal Communities: (same as Environmental Studies 5180B) 32208 Coastal Communities: (same as Environmental Studies 5 poapulations, and social structures (territorial, economic, occupationa 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 pontribution they may make to understanding the dynamics of these communities. Major (though not exclusive) emphasis is on North Atlantic communities
3250 Sociology of Science and Ideas: In the attempt to understand he reciprocal interaction between science and society we stress a and different historical periods. Various modern scientificic disciplines are countries, with differing economic and political organizations. The social organization of science is investigated through the application of microsociological analysis (e.g. small groups and organizational sociology
theory). In particular, we focus upon tensions and conflicts within the heory). In particular, we focus upon tensions and contilicts within the We examine innovation and change within the scientific community, including the processes by which new fields emerge and new ideas are evaluated

3260A The Development of Sociology as a Discipline: The Sociology of Sociology. Main concern is the manner in which sociology came to be a distinct fifld of enquiry in the late nineteenth century, and why it
took the forms it did. Special attention is given to the divergent paths of took the forms it did. Special attention is given to the divergent paths of
Sociology in the United States, Great Britain, Germany, and France in order to analyze the relationship between the sociological enterprise and its social context. Prior classes in the history of sociological thought and in the sociology of knowledge are advantageous

3270 Sociology of Careers: Careers in the humanitarian, social service, working-with-people area receive special emphasis, as do
sociological studies of the unemployed. This is a seminar for graduate sociological studies of the unemployed. This is a seminar for graduate
students and advanced undergraduates, with individualized research projects.

3280 Youth Crime: Prerequisite: SSA 2030 or 2180 . This Class deals with criminal offiences committed by young persons. Etiologies drawn rom various discipipines are examined and evaluated. A secondary offenders.
3285 Sociology of Criminal Law: Prerequisite SSA 2030 or 2180 . This class includes an examination of the philosophy and origins of criminal
aw, 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.

3290 Corrections: Prerequisite: SSA 2030, 2180. 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 methods is assessed in terms of their aims and objectives. Pro
the evaluation of current practice receive maior consideration. Examination of conventional and innovative programs in communitybased treatment is included.
3300 Cross-Cultural Study of Socialization In this class the student 1) is introduced to the cross-cultural research method, and (2) becomes expert on the etthnographic literature on one of the world's major culture areas as it treats a problem. The student writes at least
one major paper, and participates in one or more (probably two) crossone major paper, and
cultural investigations.

3310 Time and Society: The organization and utilization of time in human societies. We examine several attempts by social scientists to examination of patterns and correlates of time use in different societies and cultures. We study both preliterate and developed societies and utilize both anthropological (e.g. ethnographies) and sociological data e.g. surveys). The class is conducted as a seminar with discussion of assigned readings and class reports dealing with anciliary readings. presentations of their research papers. One or two short research papers are required in the first half year, with a major paper due in the spring. Topics for these papers are developed in consultation with the Seminar presentations and discussion ( $25 \%$ ), short paper(s) 25\%, and major paper ( $50 \%$ ).
3401 A History of Sociological Thought: Selected theorists in the history of sociological thought. Students make one oral presentation and end of the term
3405B Contemporary Sociological Theory: A number of recen theoretical developments in sociology are critically examined.
choice of specific theoretical topics is lett up to the instructor.
$3415 \mathrm{~A} / \mathrm{B}$ Social Statistics: Prerequisite: SSA 2010A and 2011B or consent of instructor. There are three main components to this class: ( 1 aboratories, in which computer programs such as SPSS are utilized; and (3) analysis of sociological data. Students are required to interpret the esults of the analysis in two drafts of the same paper. An appreciation of the interpay ang is is assumd
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4000 Seminar in Social Anthropology: Offered sporadically, this seminar is designed to allow small groups of students to pursue a offered. The topic and requirements for the class are jointly decided by the students and the professor involved.
4500 Honours Seminar in Sociology: Consult the Department's Undergraduate Advisor for details of this class

4590 Honours Seminar in Anthropology: This class carries two credits. The student writes an honours thesis under the supervision of his/her principal adviser.

4510A Readings in Sociology: Prerequisite: Written permission of instructor. In a reading class the student is assigned to a member of taff for regular meetings to discuss readings in a selected area. Papers 4520B Readings in Sociology: Prerequisite: Written permission of

## Spanish

Chairperson of the Department
J.E. Hollow

Professors
S.F. Jones, BA (Benn.), MA (Calif. Berkeley) PhD (Harv)
A. Ruiz Salvador, BA (Brandeis), AM, PhD (Harv.)

## Associate Professor

J.E. Holloway, BA (No. Colo.), MA (Wyoming), PhD (Duke)
J.M. Kirk, BA (Sheft.), MA (Queen's) PhD (UBC)

Atter Chinese and English, Spanish is the most widely spoken language in the world. It is te 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, sociologyanthropology, literature, history, and other academic disciplines feel departments are welcome to take our classes on Spanish and Latin
merican culture, civilization, history, and politics. These classes ars erequisites. seeking careers as members of the foreign service, business, iterpreters, translators, teachers, professors, criics, editors, journalists, nd many others. Our beginning lang
mphasizes conversational Spanish.
It is a widely recognized fact that some of the best novels and poetry re coming out of Latin America today, providing stimulating and hallenging material for many of our literature classes American studies, you should consider the possibility of taking Spanish $s$ an area of concentration in a General Bachelor's degree course, a Bachelor's degree with Honours in Spanish, or with Honours in Spanis and another subject combined. An undergraduate concentration in ead to a variety of possible careers in the Spanish-speaking world in international business and public service.
The Salamanca Program at the Colegio de Espana The Salamanca Program is a special inter-disciplinary course of
instruction designed to allow Dalhousie students to undertake both an instruction designed to allow Dalhousie students to undertake both an
intensive study of the Spanish language and courses in Hispanic culture order to participat, standing of ' $B$.' The program takes place during 2010 B with at least a standing of 'B.' The program takes place during
the fall, lasts for one term, and is offered at the Colegio de Espana in Salamanca, Spain. Dalhousie University will grant $2-1 / 2$ credits to those students who successfully complete their courses in Spain. Enquir and applic
Program.
Spanish Studies to be taken at the Colegio de Espana Spanish 3100A Advanced Grammar: (1 credit)
Spanish 3120A Spanish Art: (1/2 credif)
Spanish 3140A Spanish Literature: ( $1 / 2$ credit)

## Spanish Degree Programs

Course should consist of at least four full-credit -upper level classes aken in the second and third year, four of which must be conducted in Spanish. Any student who wishes to deviate from these bas

Bachelor of Arts with Honours in Spanish
Course should include
Year I: Spánish 1020; Spanish 1100, 1110; and three elëctives,
Year II: Spanish 2000, 2010, 2500,2510 , plus two other 2000 level
ear III: Spanish 3020, 3030, plus two other 3000 level classes; a clas the minor subject, and an elective in a subject other than that of the revious year
ear IV: Three Spanish classes to be chosen from the upper-level addition, students are required to write an Honours essay, in Spanish, addition, students are required to write an.

Bachelor of Arts with Combined Honours in Spanish and Another Subject
rograms may be arranged by consultation (as early as possible) with

1) The "other" classes chosen as electives in the programs outlined bove must satisfy general degree requirements.
above must satisfy general degree requirements.
(2) Combinations of classes other than those set fort above may b chosen after consultation with the Department Chairman. (3) A student may, with the permission of the Department, be
admitted to a Spanish course at an advanced point because of priar dmitted to a Spanish course at an advanced point because of prior knowledge of the language. Such a student, however (except as he may granted ransier credits in the usual way), must normally take the

## lasses Offered

lasses marked are not offerd every year. Please consult tit
1020R Beginning Spanish: staff, discussion and conversation 3 hours, anguage lab as needed. For students with no knowledge or only a sligh nowledge of Spanish. For studenis wishing to achieve prificiency by members of the Department, avoids the usual chalk-and-blackboard dialogues often used in the classroom. Instead, it deals with the kinds of lopics and controversial subjects that people in Spanish-speaking ountries are likely to discuss: the pros and cons of going to university, pulation and pollution crises, and other items of human and social interest.
1100A/B Spanish Civilization: Ruiz Salvador, lecture and discussion 2 ours, conducted in English, no prerequisites. Open to students in al ands. No knowledge of Spanish necessary. Although it may sound self-evident to Canadian students, this class deals with Spain and be that clear-cut for Spaniards themselves. This class is a search for pain throughout her history (Roman, Arab, Jewish, and Christian Spain) er art, literature, four main languages, and customs. The goal is a earer pictur eivilization

10A/B Latin American Civilization: Kirk, lecture and discussion hours, conducted in English, no prerequisites. Open to students in all departments. No knowledge of Spanish necessary. The aim of this clas 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 Latin America has shaped a continental cultura ide Le of the most dynamic, "readable" world literatures.

2000A Intermediate Spanish: staff, discussion and conversation 3 ours, language lab as needed. This class continues the work done in as necessary

2010 B Reading and Conversation: staff, discussion and conversation hours. Emphasis is on perfecting conversationa material is discussed in class.
2070A/B Area Studies on Mexico and Central America: Kir epartments. No knowledge of Spanish necessary. Following an examination of the Indian heritage, and the colonial legacy of the onquistadores, the class deals principally with the contemporary perio Somoza dynasty, Nicaragua under the Sandinistas, the US, role in he region, the human rights situation in Central America, the current EI Salvador crisis, and probable developments in the region. The class is esigned to provide an understanding of he conte priar seality of this atin America as a whole.

2080A/B The History of Modern Spain: Ruiz Salvador, lecture and students in all departments. No knowledge of Spanish necessary. This course focusses on four main historical periods: the Republic of 1931, he Civil War (1936-1939), General Franco's Spain (1939-1975), and the

090A/B Women in Latin America: Jones, lecture and discussion 2 hours, conducted in English, no prerequisites. Open to students in
departments. This class has four main objectives: (1) to examine ssumptions about women held by the maior academic disciplines; (2) individual experience; (3) to study traditional and changing sex roles in Latin America, with particular emphasis on Cuba; (4) to explore new alternatives for men and women in our society

2110A/B The Cuban Cultural Revolution: Kirk, lecture and discussion 2 hours, conducted in English, no prerequisites. Open to
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 focusses on the problem race relations, and athletics. The class focuusses on the problems and
achievements of the Revolution, the peculiarities of Communism in a Caribbean society, and its effect on literature and the arts.
${ }^{*} 2120 \mathrm{~A} / \mathrm{B}$ The Spanish Inquisition and its Challengers: Jones, ecture and discussion 2 hours, conducted in English, no prerequisite necessary. During the time of the Reformation, many Spanish thinkers came to believe that the Church had long since failed to interpret correctly and teach effectively Christ's message. The Church had is authority. It responded by persecuting the dissenters and organizing a movement later known as the Counter Reformation. This class attempts oxamine the process by which ideas eventually may become distorted when they are institutionalized, and the methods by whic progress and change can come abo
establishment to repress' dissension. 2130A/B Latin American Dictators in the Novel: Kirk, lecture and
discussion 2 hours, conducted in English, no prerequisites. Open to students in all departments. No knowiedge of Spanish necesssary. The history of Latin America since Independence has been characterized by
the rise to power of countless dictators. Some of the best Latin he rise to power of countless dictators. Some of the best Latin wield absolute power in many countries. The class examines the terature and history of this phenomenon with particular attention to the wentieth century, and attempts to discover its roots in militarism, nderdevelopment and imperialism.
$2210 \mathrm{~A} / \mathrm{B}$ The Novel of the Mexican Revolution: Kirk, lecture and iscussion 2 hours, conducted in English, no prerequisistes. Open to students in all departments. No knowledge of Spanish necessary. The mentieth 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 -

220A/B Masterpieces of Spanish Theatre: Jones, lecture and scussion 2 hours, conducted in English.
*2230A/B Contemporary Latin American Prose: Holloway, lecture students in all departments. No knowledge of Spanish necessary. This class samples short stories and novels of contemporary prosists from hroughout Latin America. Included are works by such outstanding. Carpentier, Garcia Márquez and José Donoso - authors whose vigorous narrative, technical innovation and synthesis of surrealism, myth, and magical realism evidence not only a "new consciousness" atin America, but perhaps a rejuvenation in prose art of global onsequenc
224AA/B Contemporary Latin American Prose, Part II: Holloway, his class is a continuation of Spanish $2230 \mathrm{~A} / \mathrm{B}$, but may be taken independently of it.
$00 \mathrm{~A} / \mathrm{B}$ Introduction to Spanish Literature: Ruiz Salvador, lecture and discussion 2 hours, conducted in Spanish. Study of illustrative
$2510 \mathrm{~A} / \mathrm{B}$ Introduction to Latin American Literature: Holloway, lecture authors and trends in recent Latin American literature. Study of illustrative works.
$3010 \mathrm{~A} / \mathrm{B}$ Workshop in Advanced Oral Spanish: staff, lecture and ocabulary, increase fluency and enhance the style of spoken Spanis hrough cointinued development and intensive use of oral Spanish skills. 020A/B Translation: staff, lecture and discussion 2 hours. Exercises in ranslation from Spanish to English and from English to Spanish.

3Q30A/B Composition: staft, lecture and discussion 2 hours. Training wards accuracy in writing Spanish. Vocabulary building, free

070A/B Contemporary Latin American History: Kirk, lecture and discussion 2 hours, conducterl in English, no prerequisites. Open to cass 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 evelopments, such as the Mexican and Cuban Revolutions, Petroleur ower in Mexico, Chile under Allende and Pinochet, and the Sandinistas caragua. This helps the student understand the present-day reality of his important world area
$3200 \mathrm{~A} / \mathrm{B}$ Cervantes: Jones, lecture and discussion 2 hours, onducted in English, no prerequisites. Open to students in al partments. No knowledge of Spanish necessary. This class examine Cervantes' philosophy of lite through an analysis of his great
masterpiece, Don Quixote. In this precursor of the modern nove Cervantes studies human nature in all its many aspects. Life is presented as a complex and ironic interplay of idealism and sillusionment, appearance and reality, chivalrous love and worldy love All truth is relative, but the ultimate irony is felt by the reader himself who hat of all the "sensible" people who judged him to be mad.
$3210 \mathrm{~A} / \mathrm{B}$ Borges: Holloway, lecture and discussion 2 hours, onducted in Spanish. The Cervantine tradition of fiction dealing with a mematical reality persists in twentieth century Hispanic literature, and most noted continuator is Jorge Luis Borges. Renowned for his antastic, metaphysical short stories, Borges is one of the leading figures
contemporary world literature, and perhaps the greatest living writer in he Spanish language. This class serves as an introduction to his work and its relationship to the currents of contemporary literature and ought which inform it.

220A/B Galdos: Ruiz Salvador, lecture and discussion 2 hours, conducted in Spanish. A liberal thinker who studiously confronted the social conditions of his day and sought to counteract the prejudices of a Spain's foremost socio-psycithological novelist, or, perhaps, literary social sychologist. Pre-eminent in his own country, Galdós must also be onsidered one of the most vital and representiative novelists of the neteenth century in Europe. This class focusses on Fortunata y Jacinta, his masterpiece.

3230A/B Literature of the Spanish Civil War: Ruiz Salvador, lecture and

500 AB Contemporary Spanish Literature: Ruiz Salvador, lecture d dis works.

3510A/B Contemporary Spanish American Literature: Hollow ecture and discussion 2 hours, conducted in Spanish. A study of presentative works.

3970A/B Directed Reading in Spanish American Literature
975 C Directed Hispanic Studie
3980A Reading course for major
3990B Reading course for majors
4040A/B Advanced Style and Syntax: staff. lecture and discussion 2 hours.
$500 \mathrm{~A} / \mathrm{B}$ Golden Age Theatre staff lecture and discussion 2 hours. 4510A/B Golden Age Poetry and Prose: staff, lecture and discussion hours.
980A Reading course for Honours students
985C Independent Advanced Hispanic Studies
4990B Reading course for Honours students

## Statistics

## Classes Offered

Statistics is the discipline which is concerned with the organization, isplay and interpretation of data. By a study of the uncertainty inherent scientificic hypotheses, statistics enables us to make inferences based There are several honours programs in Statistics available to student Any student interested in such a course of study should consult the Drector of Statistics, Department of Mathematics, Statistics and

## Honours in Statistics

The honours program in Statistics will provide students with a he honours program in Statistics will provide students with a
comprehensive knowledge of both theoretical and applied statistics and comprehensive knowledge of boil theoreical and appied staistics Graduate work in statistics.
Entering students should take Math 1500 and Computing Science
The program of study for year.
s 2,3 and 4 is as follows.
year 2: Statistics 2070A, 2080B, Mathematics 2030A and 2040B or
130R; 2000R or 2500R.
Year 3: Statistics 3360A, 3460B, 3340A, 3380B; Mathematics 3090A,
,
ear 4:Statistics 4060R, 4620A
addition $3-7$ further $1 / 2$ classes are required from Statistics 3390,4370 080, 4100, 4350, 4390 to make 9 -11 class concentration

## Honours Comprehensive Examination

prerequisitie: Successful completion of the third year Honours Statistics
program. The student will carry out an independent statistical study or ct as a major statistical contributor to a research project under the supervision of a faculty member. In addition the student will participate in he statistical consulting servic

## Combined Honours

Students interested in taking honours in statistics and another subject
should consult the Director of Statistics through whom a suitable course of study can be arranged.

## Co-Operative Education Program

The Co-operative education program integrates the usual hono program of 8 academic terms with 4 work terms of relevant
industrial $/$ laboratory employment. The wort terms each of 4 months Uaration, are spent in industria and aboratory positions prima applicability of their training in mathematics, statistics and computing science and helps them make intelligent career choices. Upon uccessiu completion of the program the student receives the Honours o-operative one.
It is possible to complete a Co-op degree in 4 and $1 / 3$ years, although students should expect to take 5 years. There is some freedom how the work term/academic ern seque. Students interested in a Co-op program rogram with statistics should consult the Director of Statistics or the Director of Co-op Education in the Department of Mathematics,
study.
More details on the Co-op program appear in the main entry for the
Department in the

## Statistics Classes Offered

Credit may not be obtained twice for the same class even if the mbers have been changed

1060A/B Introductory Statistics for Science and Health Sciences Same as Mathematics $1060 \mathrm{~A} / \mathrm{B})$.lecture 3 hours, tutorial 1 hour.
Prerequisite: Nova Scotia Mathematics 442 or equivalent. Through extensive use of illustrative real-life examples drawn from a wide variety statistics, data reduction, estimation and hypothesis testing. The emphasis is on statistical concepts, rather than mathematical manipulations. The principal aim is to enable students to identify and familiar with the statistical vocabulary most commonly used in scientific journals. The student requiring a more extensive exposure to the statistical methods of scientific experimentation should follow this class with Statistics 1070 . Topics include descriptive statistics, elementar probabiilty and distributions, estimation, hypoihesis testing and
regression. Statistics 1070 is a natura sequel for this class. Students may obtain credit for only one of Statistics 1060,2070 and Economics 2222. Students planning to take higher level statistics classes are 1070A/B Statisticar Techniques of Scientific Experimentation (Same as Matre Prerequisite: Statistics 1060 A continuation of 1060 including a Topics include multiple regression and correlation analysis, analysis of variance, and curve fiting techniques. The presentaion of hese topics includes consideration of the statistical aspects of experimental design. The objectives are (1) to explain what information can be obiained
experiments through use of these techniques; (2) to explain the assumptions that must be satisfied before these techniques can be applied. (3) to illustrate the nature and methods of the necessary computations. Students may obtain credit for only one of Statistics 1070, 2080 and Economics 2223 . Students planning to take higher level
statistics classes are strongly urged to take Statistics $2070 / 2080$ instead statistics classe
of $1060 / 1070$.
2070A/B Introduction to Probability and Statistics $1:$ (Same as Mathematics $2070 \mathrm{~A} / \mathrm{B}$ ). lecture 3 hours. Prerequisite: Mathematics 100 1500. A basic introduction to the concepts of probability and statistics. The subject matter is developed systematically with an emphasis on esults of an important practical nature. The class is well suited for any student with a knowlerge of calculus who wants a basic understanding
of statistical procedures and tests. Topics include descriptive statistics, counting techniques, combining elementary probabilities, normal theory stimation and inference for one and two samples, one way analysis of ariance and simple linear regression. Not more than one-half credit can be given for Statisics 1060 and 2070 and Economics 2222.
2080B Introduction to Probability and Statistics $11:$ (Same as
Mathematics 2080). 3 hours. Prerequisites: Statistics 2070 , and Mathematics 2080). 3 hours. Prerequisites: Statistics 2070 , and
Mathematics 1010 or Mathematics 2030. Some knowledge of matrice sassumed. A continuation of 2070 A , this class deals with commonly used data analysis techniques and related topics in probability theory and mathematical statistics. Topics include discrete and continuous random variables, sampling distributions, central limit theorem, multiple
regression analysis, analysis of variance, inferences for binomial data, regression analysis, analysis of variance, inferences for binomial data,
contingency tables. Natural sequels for this class are Statistics 3340 , $3360,3380,3460,4350$ and 4390 . Not more than one-half credit can be given for Statistics 1070 and 2080 and Economics 2223 . Not more than
one credit can be given for Statistics $2070 / 2080$ and the previous class

2090A Intermediate Statistics for Health Sciences: (same as Nursing 000A, PE 5003A, Pharmacy 5980 A ) Prerequiste. Silsics 1060 or opropriate 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 includ ant squares melhods alysis of crossed and nested designs rank methods, analysis of count or frequency data with log linear models, power of a test. This class is intended primarily for graduate students is NOT available for credit in the Faculty of Arts and Science
$3340 \mathrm{~A} / \mathrm{B}$ Regression and Analysis of Variance:(Same as Mathematics 3340).|ecture 3 hourrs. Prerequisites: Statistics 2070/2080 and Mathematics 2030, or an equivalent knowlege of matrices. An introduction to regression with emphasis on the practical rather than the and fititing of general linear models, analysis of residuals. Tranṣformation
of data, correlation, multiple and polynomial regression, weighted least
squares indicator variables, selecting the best regression equation, 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.
$3360 \mathrm{~A} / \mathrm{B}$ Probability:(Same as Mathematics 3360 ). lecture 3 hours. requistes. Slailics 20 . 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 functions of random variables, and distributions of sums of independen random variables: (d) conditional events and their probabilities; their uses; (e) laws of large numbers and the Central Limit Theorem. xamples ilustrating the applicability of probabiilistic formulations are -
3380A/B Sample Survey Methods:(Same as Mathematics 3380). ecture 3 hours. Prerequisite: Statistics $2070 / 2080$. The development simple, stratified and systematic random sampling, ratio and regressio estimation, sub-sampling with units of equal and unequal size, doublemuttistage and multiphase sampling, non-sample errors and 3390A/B Statistical Computing:(Same as C.S. 3390 ).lecture 3 hours.
Prerequisites: Statistics 2080, Matematics 2040, Computitg Science
1210 (or 1410 . The course will provide an introduction to the principal 1210 (or 1410). The course will provide an introduction to the principal
computational methods which are important for data analysis. Maior computational methods which are important for data analysis. Major ensure the validity and accuracy of the computations are necessary. Topics covered will include data management and manipulation, umerical computations, linear models, nonlinear models, simulation of andom processes and computational grahics.
3460A/B Intermediate Statistical Theory: (Same as Mathematics 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, testing and the related topics of sampling distributions, sufficiency, and Fisher Information are discussed.
4060R Advanced Statistical Theory: lecture 3 hours. Prerequisites: Statistics 3360,3460 and Mathematics 2000 . This course is intended to provide a solid basis in statistical theory. The classical theory of estimation and testing provides a starting point. The Rao-Blackwell
heory, Cramer-Rao bound, Neyman-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 ollowed 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 course.
4080A/B Statistical Analysis of Spatially Coherent Systems: (same 4080A/B Statistical Analysis of Spatially Coherent Systems: (same as Mathematics 4080 A/Bis lecture 3 hours. For Mathematics majors the science, the natural prerequisiste is Physics 4540 . Techniquest for the analysis of modelling of statistical relationships within a spatially models and of estimation and prediction constraints in the construction of are illustrated with examples from weather and climate studies.
4100A/B Topics in Advanced Probability and Statistics: lecture 3 100A/B Topics in Advanced Prerequisites: Statistics 3360,3460 This course is normally offered as a graduate course ( Statistics 5100 ) but is open to advanced .
4350A/B Applied Multivariate Analysis: lecture 3 hours. Prerequistes: Statistics 3340 and Mathematics 2130 or 2040 or 2270 . The class deals with the stochastic behaviour of several variables in systems where their
interdependence is the object of analysis, Greater ems nasis is on practical application than on mathematical refinemi hasis is placed
lassification, cluster analysis, categorized data, analysis of erdependence, structural simplification by transformation or modelling hypothesis construction and testing.
4370A/B Stochastic Processes: lecture 3 hours. Prerequisite: Statistics 3360. A development of concepts of (a) Markov chains and continuous normal distribution, (c) stationary time series. Emphasis is on practical pplications. The ability to translate from a physical context into the anguage of probability model is stressed. This class is a natural seq
o 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.
4390A/B Time Series Analysis and Forecasting: lecture 3 hours. Prerequisite: Statistics 3340 . The analysis of univariate time series data is discussed. Topics include stationarity, transformation, differencing, 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.
4620A/B Data Analysis: lecture 3 hours. Prerequisite: Statistical techniques useful as background for this class would include any lechniques covered in Statistics 2070/2080, 3340, 3360 or 3460 Admission to the class is by consent of the instructor. A problemoriented approach to statistical analysis. The problems discussed are based on real life data. Students are encouraged to develop novel approar' - - for data analysis problems of case studies. Some general
techniques which arise in non-traditional data analysis are presented in his ck ©

8700 non-credit) Co-op Semina
8701 (non-credit) Co-op Seminar
8880 Honours examination
891 Co-op Work Term I
3892 Co-op Work Term II
893 Co-op Work Term II
8894 Co-op Work Term IV
8895 Co-op Work Term V

## Theatre

Chairperson of Department
P. Perina

Student Advisor
A.R.fessor Andrews, BA, Dipl. Ed., MA (Leeds). PhD (III.) FRSA

Associate Professors
G. Merritt, AB (Corn.), MA (N.Car.) PhD (Tul)
P. Perina, MA, Dipl. Scenography (Prague)
D. Overton. BA. MA (UBC). PhD (Calif.)
D. Hastonain, BA, MA (UWO)
ASC
R. Doyle

Lecturer
B. Zatzman, BA, MA (Tor.)
P. Guildforrd, BA, Hon. BEd (Dal), MA (UBC)

Production Manage
pecial Instructors
Clare Bader (Acting)
Bruce MacLennan (Light and Sound)
Mary McM Murray Pigot (Acting)
David Porter (Properties)
Lynn Sorge (Costumes)
Rnea Theriault (Costume
lan Thomson (Construction).
hearre is a rich, complicated performing art that involves refined Thative work in many different perields.
The Dahousie Theatre Department offers different ways to study the neatre: (1) You can undertake programs that lead to a university nroll in a training program in costume studies that leads to a Certificate nroll in a training program in costume studies that leads to: a Cer 2 years), a Diploma $(3$ years); ( 3 ) You can stect certain theatre
classes to reinforce and complement your studies in other discipline offered by the university; (4) You can enrol in ore class, from a special roup, as a part-time or extension studen
Basically, the degree programs involve a curriculum of theatre niversity has a set of regulations which specity h disciplines. The st be arras a These regulations are specity how these programs d pospective. these regulaions are all isted earier in this calendar opoortunities offered. There are a surprising number of different ways to rrange one's studies; what we recommend is the basic structure you hould follow if theatre is your primary interes.

## Degree Programs

BA with Honours in Theatre (4 years)
 aintain a high scholastic level of performance to remain in this ogram (B- or better in all classes.) Only theatre classes are listed

Year 1: Theatre 1000, 1050.
ear 2: Theatre 2000, 2011A/B, 2012A/B, and choice of $2100 \mathrm{~A} / \mathrm{B}$, $100 \mathrm{~A} / \mathrm{B}$, or 2700 .
Year 3: Theatre 3500 and choice of two of 3000,3600 , or 4200 .
Year 4: Theatre 4900 , and choice of two of $3600,4200,4700,4710$.
BA with Combined Honours (4 years)
is possible to foliow a program of studies that leads to Combined onours in two subjects. Students interested in constructing such a program should start by seeing both Chairmen of the disciplines they
wish to combine. From that point a suitable program can be constructed

BA in Theatre (Acting) (3 years) accepled as a result of audition you pursue the following program: ear 1: Theatre 1500, Theatre 1050, plus three classes in other bjects.
2ar 2: Theatre $2011 \mathrm{~A} / \mathrm{B}, 2012 \mathrm{~A} / \mathrm{B}$, Theatre $2800 / 2810 / 2820$, plus ne class in another subject

Year 3: Theatre $3800 / 3810 / 3820$ and either 3500 or $2100 \mathrm{~A} / 3100 \mathrm{~B}$ ys one class in another subjec

BA with Honours in Theatre (Scenography \& Technical Scenography) (4 years)
People from very different backgrounds are attracted to the study of scenography. Students with considerable art school or architecture
background are offered especially tailored programs, and should ackground are offered especially tailored programs, and should contac scenography: Students starting with a keen interest and little formal background in art or architecture are admitted if they meet the niversity entrance requirement, and should then plan to follow the lowing program:
ar 1: Theatre 1000, 1050; plus three classes in other subjects.

Year 2: Theatre $2700,201 \mathrm{~A} / \mathrm{B}, 2012 \mathrm{~A} / \mathrm{B}, 2060 / 2070$; plus one class
in another subject Year 3: Theatre $3060 / 3070$; plus two of $2000,2100 \mathrm{~A} / \mathrm{B}$ plus 3100 A 3500, 3710, 4200; plus one class in another subject.

Year 4: Theatre 4900; plus two of $3600,4200,4700,4710$; plus two classes in other subjects.

Students wishing to pursue the scenography specialty are urged to make an appointment with the scenography protessor before the register to ensure they plan their specific program in line with thei particular needs

BA with a Major in Theatre (3 years) You can take a "major" in theatre in a three-year BA program (15
classes). This requires at least four and not more than eight theatre classes beyond the 1000 -level.

Year 1: Theatre 1000, 1050; plus three other classes of your choice. Year 2: Theatre $2011 \mathrm{~A} / \mathrm{B}, 2012 \mathrm{~A} / \mathrm{B}$ plus up to three of $2000,2100 \mathrm{~A} / \mathrm{B}$ plus $3100 \mathrm{~A} / \mathrm{B}, 2700$; plus elective(s)

Year 3: Up to four of $3000,3500,3600,4200$; plus elective(s).
Combined BA/BEd
The Theatre Department in conjunction with the Education Department offers a 4 -year program leadin

Year 1: ( 5 Credits) Theatre 1000, Theatre 1050, an approved witing Arts and Science elective (1 full credit).
Year 2: (5 Credits) Theatre 2000, Theatre 2100A/B plus 3100A/B, further classes in minor area* ( 2 full credits) $1 / 2$ credit class in
educational foundations, $1 / 2$ credit Arts and. Science or other elective.

Year 3: ( 6 Credits) Theatre 3000, Theatre $2011 \mathrm{~A} / \mathrm{B}$, Theatre $2012 \mathrm{~A} / \mathrm{B}$, further classes in minor area* (2 full credits at $2000+$ level), two $1 / 2$.credit other elective
Year 4: ( 6 Credits) Education 4620, 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 one credit in special education, $1 / 2$ credit class in educational uther class in minar area* ( 1 full credit), and $1 / 2$ credit Arts and Science or other elective
-The minor area must be a recognized teachable subject.
Costume Studies, Certificate in 2 years, Diploma in 3
years
This professional program is designed for the student whose goal is the
professional theatre or the fashion industry Students must meet university entrance requirements. Students in this program 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 assemionship only twenty-five student will be enrolled in the firs 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

## Facilities

The department is located in the theatre wing of the Dalhousie An Centre. The theatre wing is a self-sufficient unit involving one
proscenium theatre, two studios, and supporting workshops. 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 thearre classes by the nature of the work involved have a
restricted enrollment All students wishing to take any class in theatre 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 evening work or classes.

## Classes in the Degree Program

 Year 1Zatzman, 6 credit hours. This class provides arerith introdution and nature of the production process and theatre through lectures, 1050 Theatre Organization and Stren hours, Perina and staft, 6 credit hours. 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 theare and costumes, knowledge of basic theatre lighting and sound efficiently, creatively and safely make up the substance of this all of them Students who intend to major in the theatre programs must take this class. It is also a prerequisite for the scenography classes. Because of
the required evening production work, those enroling in this class must avoid permanent evening commitments other than departmenta theatr activity during the academic year. There are certain lab charges

- 1300 Introduction to Film: 3 hours, Merritt, 6 credit hours. This class considers aspects of film history and theory, but its primary emphasis is on film criticism and the sociology of film. Some films are presented in Class, but students are also required to attend films presented
elsewhere. The class presents reviews of films and specific aspects as directing, acting, cinematography, editing image and screenwwiting. The intent of the class is to provide an overview of
the nature of film its efte he nature of film, its effect on the public as a mass medium, and its dual 1500 An Introduction to Theatre Studies (Acting 1): 6 hours,
Hasnain and acting staff. Prerequisite for Theatre 2800. Entrance to class is by audition only. The first year in a course designed tor the concentrates on opening up and developing the emotional imaginative range of the student through a series of improvisational and extual exercises. There is also concentration on the development of the discipline necessary in the professional theatre Year 2
Prerequisite: Theatre 1000 . Designed to Overton, 6 credit hours production/performance procsss for those whe exposure to the career in the professional theatre: Through a workshot intend to pursu 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 onverbally is developed. The class may revesult in a a publich verboally and $2011 \mathrm{~A} / \mathrm{B}$ The History of the Theatre from its Origins to the students an opportunity to study various aspects of th this class gives heatre. Specific topics covered include the origins of thearlre history of theatre, the Roman theatre, the medieval theatre and the theatres of the alian Renaissance and of Shakespeare. Although there is no formal year of study. A background in theatre, history and be in their second erature will be an advantage. Text: O.G. Brockett, History of Thear most recent edition).
2012A/B The History of the Theatre from Renaissance to the Twentieth Century: 3 hours, Andrews et al, 3 credit hours. This class is in a sense the sequel to Theatre $2011 \mathrm{~A} / \mathrm{B}$, though that class is not a and North America from the Renaissancment of the theatre in Europe There is no prerequisite, but students should normally be century. second year of study. A background in history, theatre and or least the literature will be an advantage. Text: O.G. Brockett, History of Theatre -
${ }^{*} 2020$ Modern Dance: 4 hours of movement, 6 credit hours (summer session only. The theories and techniques of modern dance; the use of
space, rhythm, dynamics, kinesthetics, aesthetic awareness and composition. The development of personal expression through th medium of dance is also encouraged within the class.

2060/2070 Technical Scenography I. 6 hours, Perina progressively more complex proble 105 . This class is concerned with the production in lighting, sound, construction the preparation of theatre The theory behind the operation of these cratts, the advances in technology and their expense and adaptability, form part of this clas Lecture periods are concerned with Stage Management, Technical 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.

100A or B Dramatic Structure. 3 hours, Merrit 3 credit hours Prerequisite: First year writing requirement. The analysis of plays as specific dramaturgical proberns a detailed study and comparison of by various playwrights. Specific problems such as the rhythe handle dramatic structure, the languages of the theatre and the orchestr audience response are dealt with. The plays studied are drawn from a wide range of genres, styles and histoical periods.

2700 Scenography I: 6 hours, Perina, 6 credit hours. Designed to giv students basic visual judgement and understanding. In the first half, it follows the Baunaus approach to graphic design but adapts it to the eaches perspective: the final proiect is to in the second half the clas material and apply it to simple stage composition. Throughout the yea analysis and criticism of various works are encouraged. The texts The Elements of Colour Students wishin Vision and Johannes Ihen's consult with the instructor.
2800/2810/2820 Acting II: 15 hours, Hasnain and acting staff, 18 crea ours. Prerequisite: Theatre 1050, and a grade of at least C in Theatre 500 , permission of instructor. The second year of the actor training
course. The concentration is on the development of textual vocal and physical techniques for the actor. In the acting classes there is work on series of scene study exercises utilisisg the emotional and imaginativ work started in the first year. Classes will involve dance, movement, oles in major or minor productions.
Year 3
000 Theatre Performance II: 4 hours, Overton, 6 credit hours Predequisite: Theatre 2000. An exploration of the
Theatre 2000. Some performance on a more sophisticated level than participants, and the emphasis is on onderience is assumed among the performance skills. The class may result in a public perting

3060/3070 Technical Scenography II: 6 hours, Perina and staff, 12 credit hours. Prerequisites: Theatre $2011 \mathrm{~A} / \mathrm{B}, 2012 \mathrm{~A} / \mathrm{B}, 2060 / 2070$ and
2700. An advanced class in production technole intensively in one of the areas of construction pogy. Students work sound, or stage management. Lecture periods are devoted to Administration, Publicity, Advanced Techniques, and other related topic head for at least two departmental product student serves as crew charges connected with this class.

3100A or B Practical Theatre Criticism: 3 hours, Merritt, 3 credit hours. Prerequisite: Theatre $2100 \mathrm{~A} / \mathrm{B}$ or permission of instructor. The
class is concerned primarily with the relationship betw the play in performance. Some of the theoretical bases of criticism are considered, but the emphasis is on ways in which critics and critical theories can have a positive effect on the modes, methods, and styles of heare production.
3500 The Modern Theatre: 2 hours, Andrews, 6 credit hours Prerequisite: Theatre $2011 \mathrm{~A} / \mathrm{B}, 2012 \mathrm{~A} / \mathrm{B}$, or permission of instructor. The modern theatre has been characterized by successive bursts of these e evelopments in detail and to examine several important theatrical theories. Their implementation in particular plays and in theatrical
practice is also examined.

3600 The Playwright in the Theatre: 4 hours, Merritt, 6 credit hours. Prerequisite: Theatre $2100 \mathrm{~A} / \mathrm{B}$ or permission of the instructor. The play
as a vehicle for performance rather than as a literary work. Through as a venicle for perionmance ring with specific dramaturcical problem 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.

- 37110 Scenography: 6 hours, Perina, 6 credit hours. Prerequisites: Theatre $2011 \mathrm{~A} / \mathrm{B}, 2012 \mathrm{~A} / \mathrm{B}, 2060 / 2070$, and 2700 . For theatre honour
and special scenography students only. It builds on the knowledge from and special scenography students only. It builds on the knowledge from
the previous class in the field, Theatre 2700 , as far as visual knowledge is concerned, and from technical knowledge acquired in Theatre 2060/2070. Students concentrate on learning in more detail about liree-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 texis followed are John $R$ Walker's Exploring Dratting: Basic Fund̀amentals and Willis Wagner's

3800/3810/3820 Acting III: 15 hours, Hasnain and acting staff, 18 credit hours. Prerequisite : Theatre $2011 \mathrm{~A} / \mathrm{B}, 2012 \mathrm{~A} / \mathrm{B}$, class in
dramatic literature, a grade of at least B in Theatre 2800 /2810/2820 dramaic lierature, a grade of atean Added to the core acting, voice, text and movement sections are dance Shakespeare, solo singing and audition techniques for the actor. The student is required to perform four featured roles in, major productions.

Year 4
4200 (Education 4620) Developmental Drama: 3 hours, Zatzman, 6 credit hours. A class which shows anyone involved or interested in the development of children or adults how drama can be used both to guid personal development and to heighten learning ability. The class
considers how best to adapt developmental drama to school situatio 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.

4600 Directing: 4 hours, 6 credit hours. Prerequisites: Only available to honours theatre students who have taken Theatre $1050,2011 \mathrm{~A} / \mathrm{B}$, that lead to theatrical events are analysed. Requirements incluce the directing of scenes from plays, and at least one fully achieved production. The class is normally only available to honours theatre
students if the fourt year of their program.

4700 and 4710 Special Topics, Faculty: 6 credit hours each. rerequisite: Permission of department. The student explores in detai particular areas of the theatre of special interest, with the guidance of decided to meet the needs of the particular topic or proiect under study. The class is open only to fourth-year honours theatre students.
4800/4810/4820 Acting III: Hasnain and acting staff, 18 credit hours plus $3100 \mathrm{~A} / \mathrm{B}$, and consult departmental chairman. An advanced clas in exercises and scene study, as well as interview and audition. echniques.
4900 Dramatic Theory and Criticism, and the Aesthetics of the Theatre: 4 hours, Andrews, 6 credit hours. Prerequisites: Theatre the attempt to establish criteria for evaluating creative activity. This class tackles that problem in the theatre. It looks at the various hypotheses and critical strategies that have been devised hitherto, and attempts to for the survival and witure growth of the theatre

## Classes in Costume Studies

These classes make up an entire program. They are not available for ostume Studies program concentrate their work solely on these

Year 1
1750 Costume Studies 1.4 hours daily, Doyle and staff, 30 credit hours Prerequisite: Permission of the instructor. A basic outline of the history of
costume; a history of texties; pattern dratiting a designer's method for the media; and practical costume construction. There are certain lab charges connected with this class. The content of Theatre 1050 forms component of Theatre 1750 .

## Year 2

2750 Costume Studies II: 4 hours daily, Doyle, visiting professional designers and staft, 30 credit hours. Prerequisite: Theatre 1750, and the advanced pattern drafting; decoration techniques; millinery; costume accessories; the wearing of costume; and costume making. There are certain lab charges connected with this class. The content of Theatre 2011A/B and $2012 A / B$ may be a component of this class. Year 3
*3750 Costume Studies III: In residence and professional theatre apprenticeship, Doyle, 30 credit hours. Prerequisites: The content of Theatre $2011 \mathrm{~A} / \mathrm{B}$ and $2012 \mathrm{~A} / \mathrm{B}$, Theatre 2750 , 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 thes five or six students are selected for the third year. During his year, thes
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.

Pease note: Classes marked with asterisk (ay not be offered on a regular basis. For details consult department.

## Transition Year Program

In 1982, the Transition Year Program became a department in the Faculty of Arts and Science. It is a special one-year program designed.
for Black and Native students who have not yet developed all the skills needed for university-level study and may not yet meet standard entrance requirements.
While preparing its members for admission to regular programs at the beginning of their second year on campus, the Program introduces students to the University in a variety of ways. Its curriculum, which individual needs and objectives. Most students take courses in Black and Native Studies, Student Skills, English and Mathematics. They also choose a regular first-year elective that is of personal interest to them. Classroom instruction is complemented by an orientation week, specia lectures, tours, workshops, field trips and counseling. University
The Program's staff are drawn from the Dalhousie Unel Community as well as the Nova Scotian Black and Native Communities Guest lecturers come from all parts of the world.
Black, non-status Indian and Metis students acc
Black, non-status indian and Metis students accepted into the year. If they successfully completet this qualifying year, they become eligible for continued partial support as long as they remain in good academic standing and progress towards a first degree. Status Indian students attending the Program are fully funded throug
the Department of Indian Affairs' "University and College Entrance the Department of indian Affairs' "University and College Entrance Although enrollment is limited to ensure that each student receives
considerabbe students of all ages and educational backgrounds are encouraged apply. The TYP welcomes applications from students who did not complete high school or the courses required for university entrance, students who completed a general or mixed high school program and those who, athough they may have received low grades in as
program, can demonstrate intellectual potential in other ways.

The Program has no absolute entrance requirements. Admission
criteria are flexible, and the Admissions Committee considers each comprehensively on its own merits. The candidate's overall maturity and seriousness of purpose are vitally important.
For further information or application forms, please contact:

Dr. Karolyn Waterson, Director
Transition Year Program
Dalhousie University
Halifax, NS
B3H 3.15
Telephone: (902) 424-3730
Deadline for receipt of applications for the following September:
Women's Studies

Although there is at present no program in Women's Studies. the Although there is at present no program in Women's Studies, the
following classes are offered at Dalhousie University and may be taken as electives or form part of a major program. For further information
consult the Department under which they are listed. A BA program in Women's Studies was approved by Senate and awaits approval by MPHEC.

## Core Courses:

Comparative Literature 215R Women in Literature \& Society
Education 4021A Gender Role
Education 4022B Gender Roles
English 221 Fictions of Development
History 3350A/B Family \& Community in North America 1600-1900
History 3461A/B Women and Development in Africa
History 3611 Women in Capitalist Society: The North American Experience

History 3612 Women in Socialist Societies
Philosophy 2160A/B Philosophical Issues in Feminism
Philosophy 3170A/B Theories of Feminism
Sociology and Social Anthropology 2190 Sex Roles in Cross Cultural Perspective

Sociology and Social Anthropology 3180 Gender and Health
Spanish 2090A/B Women in Latin America
Related Courses
Comparative Literature 210 Theories \& Manifestations of Love in Comparative Liter
Mediaeval Europe

Comparative Religion 1010/2010 Love in World Religions
Comparative Religion 3001 Western Spirituality
Comparative Religion 3003 Religion in Canada
Education 4101A The History of Western Educational Thought
Education 4171A/B The Teacher in History
Education 4371A/B Social Psychology of Education
Education 4381A/B Introduction to Counselling
English 207 Canadian Literature
English 208 The English Novel to 1900

English 229 The Victorian Nove
English 234 The Short Story
English 354 Victorian Novel
English 357 Modern Canadian Literature
English 453 Twentieth Century English Literature
English 457 Victorian Poetry
History 2212B The Social History of Canada since 1870 History 2230 Canada in the Twentieth Century History 2340 Social History of the United States History 2380 Latin America: Underdevelopment and Revolution History 3230 Canadian Working Class History I, 1830-1914 History 3231 Canadian Working Class History II, The Twentieth Century Experience
History 31818 Disreputable Pleasures: Popular Diversions and Common Vices in Canada
History 3390 The Caribbean: Underdevelopment and Revolution Political Science 2401 Justice, Law, Morality Concepts Versions Concepts and Arguments in Political Philosophy
Political Science 2455A/5455A Marxist Theory and its Upshot in the Modern World

Psychology 2020A/B Psychological Aspects of Social Issues
Psychology 2080A/B Social Psychology
Psychology 3120 Issues in Clinical Psychology
Sociology and Social Anthropology 2200 Sociology of the Family Sociology and Social Anthropology 3130 Sociology of Health and Illness

Sociology and Social Anthropology 3140 Sociology of Mental Disorders
Sociology and Social Anthropology 3190 Social Movements Spanish 2110A/B The Cuban Cultural Revolution Spanish 3070A/B Contemporary Latin American History Theatre 2012A/B History of the Theatre from Renaissance to the Twentieth Century
Theatre 3500 The Modern Theatre


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