

1  
**1993-1994**

# McMASTER UNIVERSITY

## Undergraduate Calendar

◆ This Calendar covers the period from September 1993 to August 1994.

ARTS AND SCIENCE  
BUSINESS  
ENGINEERING  
HEALTH SCIENCES  
HUMANITIES  
SCIENCE  
SOCIAL SCIENCES  
WOMEN'S STUDIES

## Table of Contents

Directory for Correspondence and Enquiries .....	2
McMaster University .....	3
Sessional Dates .....	4, 5
Glossary .....	6
Admission Requirements .....	7
Application Procedures .....	11
Academic Regulations .....	13
Senate Policy Statements .....	19
Financial Information .....	20
Degrees and Programmes .....	23
Degrees by Programme .....	24
Arts and Science Programme .....	25
School of Business .....	33
Faculty of Engineering .....	36
Faculty of Health Sciences .....	45
Faculty of Humanities .....	59
Faculty of Science .....	75
Faculty of Social Sciences .....	98
Women's Studies Programme .....	114
Theme Schools .....	115
Minors and Thematic Areas of Study .....	116
Part-time Degree Studies .....	118
Course Listings .....	119
Student Services and Organizations .....	230
Academic Services and Research Facilities .....	236
Governing Bodies .....	243
Student Financial Aid .....	245
Undergraduate Academic Awards .....	249
Index .....	271
Notes .....	276

### Using the Calendar

Please read carefully all sections in this Calendar which pertain to your residency at McMaster University. The University has instituted new Academic Regulations which likely will affect the structure of your degree programme.

The first sections describe University-wide procedures and regulations. These are *Sessional Dates*, *Admission Requirements*, *Application Procedures* and *Academic Regulations*, *Senate Policy Statements* and *Financial Information*.

The next sections begin with a summary of the University's Minors, Theme Schools, degree programmes, and descriptions of the Arts and Science programme, the Business, Engineering, Health Sciences, Humanities, Science and Social Science Faculties, and the Women's Studies programme. Each section describes regulations and undergraduate degree programmes by department. The programme descriptions specify courses and academic standing necessary to satisfy the University's requirements for awarding a Bachelor's degree.

**When choosing your courses, please be careful to note all prerequisites, antirequisites, corequisites and cross-listings; they may have a significant impact on your programme. If no prerequisite is listed, the course is Open.** If you are not sure of the meanings of these terms, please consult the *Glossary* on page 6.

To determine the requirements to register for a course, please see the *Course Listings* section. Listings are presented alphabetically, by department and subject.

Information about awards, scholarships, bursaries, loan funding, University services, the libraries, residences, research facilities, computing facilities, and student activities and organizations are included near the back of this Calendar.

➤ Please note that the (416) area code listed with University telephone and fax numbers is in effect only until **October 3, 1993**. The area code changes to (905) on **October 4, 1993**.

# Directory for Correspondence and Enquiries

## Mailing Address

McMaster University  
Hamilton, Ontario, L8S 4L8

## Telephone

(416) 525-9140

The following is a list of University offices (with the appropriate postal code) and administrative staff members that are most frequently called on. Other offices and services, with their addresses and telephone numbers, are described throughout the Calendar.

### Admission to Undergraduate Studies

Associate Registrar (Liaison and Admissions): Ann McLaughlin  
Admissions Officer: Wendy Joyce  
Gilmour Hall, Room 120, L8S 4L8, ext. 4796; Fax: (416) 527-1105

### Health Sciences Admissions

Associate Registrar (Health Sciences): Laurel Stuart  
Health Sciences Centre, Room 1B7, L8S 4J9, ext. 2114

### Student Liaison

Assistant Registrar (Liaison): Laurie Deans  
Liaison Officers: Michael Markowski, Patricia Sullivan  
Gilmour Hall, Room 102, L8S 4L8, ext. 4787; Fax: (416) 527-1105

### Student Financial Aid and Scholarships

Director: John Edwards  
Co-ordinator: Denise Eills  
Hamilton Hall, Room 401, L8S 4K1, ext. 4319, 4789

### Transcripts and Records

Associate Registrar (Systems): Helen Barton  
Associate Registrar (Records): Darlene Russell  
Gilmour Hall, Room 108, L8S 4L8, ext. 4457; Fax: (416) 527-1105

### Examinations, Schedules and Reservations

Associate Registrar (Systems): Helen Barton  
Assistant Registrar (Schedules and Examinations): Tracie Long  
Gilmour Hall, Room 107, L8S 4L8, ext. 4453; Fax: (416) 527-1105

### Student Affairs

Dean of Student Affairs: Rudy Heinzl  
Hamilton Hall, Room 312, L8S 4K1, ext. 4649

### School of Graduate Studies

Dean of Graduate Studies: C.D. Wood  
Gilmour Hall, Room 110, L8S 4L8, ext. 3679

### Centre for Continuing Education

Director: Dr. D.W. Carment  
Commons Building, Room 116, L8S 4K1, ext. 4321

### Office for Ability and Access

Manager: William A. Hoch  
Co-ordinator, Student Accommodations: Tim Nolan  
Kenneth Taylor Hall, Room 118, L8S 4M4, ext.

### Alumni Association

Alumni Memorial Building, Room 203, L8S 4K1, ext. 2604  
Director of Alumni Advancement: Roger Trull  
Chester New Hall, Room 111, L8S 4L9, ext. 3804

### On-campus Housing (Residence)

Director of Housing and Food Services: Ron Coyne  
Manager, Admissions and Conferences: Leanne Piper  
Commons Building, Room 101, L8S 4K1, ext. 4223

### Off-campus Housing

Wentworth House, Room 118, L8S 4K1, ext. 4086

### Counselling and Career Services

Director of Counselling and Career Services: Dr. W. Wilkinson  
Hamilton Hall, Room 302 L8S 4K1, ext. 4711

### Employment Opportunities

Placement Services Manager: Donna Yates  
Placement Office  
Hamilton Hall, Room 409, L8S 4K1, ext. 4253

### Advice for Overseas Students

International Students Advisor: Patrick J. Fernando  
Divinity College, Room 146, L8S 4K1, ext. 4748

### Grievances

Secretary of the Senate: Joan Morris  
Gilmour Hall, Room 104, L8S 4L8, ext. 4337

## Other Publications for McMaster Students

### ◆ Undergraduate Studies

- Year 1 Handbook
- Learning and Discovery
- Part-time Degree Studies Calendar
- School of Social Work Booklet
- McMaster Divinity College Calendar

The above publications are available from the Office of the Registrar.

### ◆ Graduate Studies

- Calendar of the School of Graduate Studies  
(Available from the School of Graduate Studies.)
- Graduate Studies in Business (MBA and Ph.D programmes)  
(Available from the Michael G. DeGroot School of Business.)

- Post-Graduate Medical Programme Calendar  
(Available from the Health Sciences Registry,  
in the Health Sciences Complex, Room 1B7.)

Teaching departments that offer graduate studies also provide information booklets about their programmes. These may be requested directly from the departments.

### ◆ Certificate and Professional Studies

The Part-time Studies Calendar, which describes professional designations, certificate and correspondence programmes, is available from the Centre for Continuing Studies.

### ◆ General-Interest, Non-Credit Studies

Brochures about non-credit programmes and special offerings are available from the Centre for Continuing Education.

## Ombuds Office

Ombudsperson: Rick Russell  
Hamilton Hall, Room 217, L8S 4K1, ext. 2003, or (416) 528-9887

The Ombudsperson provides information and advice relating to complaints, disputes and appeals involving members of the McMaster community. For information and advice with respect to University regulations and services, and human rights procedures, see the Student Services and Organizations section of the Calendar.

# McMaster University

McMaster University, through its continued dedication to innovative education and ground-breaking research, has earned its reputation as one of the leading post-secondary institutions in Canada.

McMaster is a medium-sized, full-service university offering educational programmes through six Faculties. The extensive activity in research, supported by more than \$74 million in grants and contracts, means there are first-class libraries and sophisticated facilities. Undergraduate teaching is conducted through the School of Business, the Faculties of Engineering, Health Sciences, Humanities, Science, and Social Sciences, and the distinctive Arts and Science programme. The Department of Physical Education, and the School of Social Work are part of the Faculty of Social Sciences.

## DISCIPLINES AND DEGREES

The Michael G. DeGroote School of Business offers the Honours B.Com. and B.Com. degrees in accounting, business policy, finance, management science and information systems, marketing and international business, and human resources and labour relations.

The Faculty of Engineering offers the Bachelor of Engineering programme in Ceramic Engineering, Chemical Engineering, Civil Engineering, Civil Engineering and Computer Systems, Computer Engineering, Electrical Engineering, Engineering Physics, Manufacturing Engineering, Materials Engineering, Mechanical Engineering and Metallurgical Engineering.

Students may register in the Faculty of Engineering to take the five-level Engineering and Management programme, which is offered jointly by the School of Business and Faculty of Engineering, or the five-level Engineering and Society programme.

The Faculty of Health Sciences has gained an international reputation for its innovative educational programming, and offers, through the School of Medicine, the M.D. programme, and through the School of Nursing offers the B.Sc.N. degree programme. The Bachelor of Health Sciences (B.H.Sc.) degree may be earned in Occupational Therapy or Physiotherapy.

The Ontario government announced, in December 1992, its approval of a new baccalaureate programme in Midwifery. Beginning in September 1993, McMaster's Faculty of Health Sciences — in conjunction with Laurentian University and Ryerson Polytechnical Institute — will administer the three-year joint programme, which leads to a B.H.Sc. degree in Midwifery.

The Faculty of Humanities offers programmes in Art, Art History, Classics (Ancient History and Archaeology, Classical Languages and Literature) Comparative Literature, Drama, English, French, History, Japanese Studies, Modern Languages (German, Hispanic Studies, Italian, Russian), Modern Languages and Linguistics, Music, and Philosophy leading to B.A. degrees, as well as a Bachelor of Music degree. Students pursuing Honours degree programmes may complete and receive credit for the third level of the programme in study at a university in a country approved by the Faculty.

Bachelor of Science programmes are available in the Faculty of Science at the B.Sc. and B.Sc. Honours levels. Programmes are offered in Biochemistry, Biology, Chemistry, Computer Science, Earth Science, General Science, Geography, Geography and Environmental Science, Geology, Life Science, Mathematical Science, Mathematics, Materials Science, Medical and Health Physics, Molecular Biology and Biotechnology, Physical Science, Physics and

Astronomy, Psychology, and Statistics.

The Faculty of Social Sciences offers B.A. programmes in Anthropology, Economics, Geography, Geography and Environmental Studies, Gerontology, Labour Studies, Political Science, Psychology, Religious Studies and Sociology. The School of Social Work offers the combined B.A./B.S.W. degree, and the Department of Physical Education the B.P.E. degree.

## THE UNIVERSITY

Named after Senator William McMaster, who bequeathed funds to endow a Christian school of learning, the University grew out of educational work initiated by Baptists in central Canada as early as the 1830s. After its initial years in Toronto, from 1887 to 1930, the University was moved to Hamilton. It became non-denominational in 1957, although the historic Baptist connection continues through the separately incorporated McMaster Divinity College.

More than 13,000 full-time students attend McMaster University, 1,500 of whom are pursuing advanced degrees offered through the School of Graduate Studies. In addition, about 4,000 part-time students are registered in the Fall/Winter session, from September to April, and 3,500 in the Spring/Summer session, from May to August. The University also provides courses in centres located outside Hamilton, for which full credit is granted.

Most of the 1,000 members of the University faculty hold doctoral degrees in their areas of specialization. Faculty members are expected to teach both graduate and undergraduate courses and may be involved in the academic counselling of students.

The University's diverse academic programmes are supported by some fine, and even unique, facilities. The University Library is a member of the Association of Research Libraries and contains over 1.6 million volumes, and has subscriptions to nearly 14,000 periodical titles. The Library has an extensive special collections section which includes the Bertrand Russell Archives, 18th Century materials and major Canadian collections. Facilities for programmes in the Humanities include modern language laboratories, music rehearsal rooms, art studios, an art gallery and seminar rooms. The work of the Faculties of Science and Engineering is supported by sophisticated facilities, which include a nuclear reactor and Van De Graaff Accelerator. Computing facilities include mainframes, terminal clusters, and microcomputers. The Faculty of Engineering has arranged for students to lease or purchase microcomputers.

The recreation and intramural programmes offer more than 30 different sports in which over 5,000 students participate. The Intercollegiate Athletic Programme provides 17 sports for men and 15 for women. The athletic facilities include a 50-metre pool, a 400-metre, all-weather track, as well as fully equipped laboratories for exercise, physiology and biomechanics.

McMaster's campus, which is restricted to pedestrian traffic, is adjacent to the Royal Botanical Gardens at the western end of Lake Ontario. On-campus men's, women's and co-educational residences are available for about 2,765 students.

The University is minutes from downtown Hamilton, and the activities that a major city has to offer. Students can get their by car or by taking one of the buses from the region's public transit system, which make frequent stops on campus.



# Sessional Dates

The academic year is divided into sessions, as shown on the chart below.

Most undergraduate students register for the **Fall/Winter Session**, which runs from September to April.

The **Spring/Summer Session** offers day classes and starts at the beginning of May and ends in mid-August.

## The 1993-94 Academic Year Divided by Session and Term

The numbers on the left and right of each block are the respective **start and end dates** for that term.

Examination periods (where applicable) are included in this chart.

SESSIONS	TERMS	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.					
FALL/ WINTER SESSION	Term 1	9				18												
	Term 2						5					30						
	Term 3	9								30								
SPRING/ SUMMER SESSION	Term 1										9			24				
	Term 2													4			19	
	Term 3											9						

## CONVOCATIONS

**Friday, September 10, 1993**

- ◆ Last day to file a Graduation Information Card for Autumn 1993 Convocation.

**Friday, November 12, 1993**

- ◆ Autumn 1993 Convocation (all Faculties)

**Friday, February 11, 1994**

- ◆ Last day to change Programmes for Spring 1994 Convocations.

**Friday, February 11, 1994**

- ◆ Last day to file a Graduation Information Card for Spring 1994 Convocations.

**Friday, May 13, 1994**

- ◆ Health Sciences Convocation 1994

**Wednesday, June 1 to Friday, June 3, 1994**

- ◆ Spring Convocations 1994

**Friday, September 9, 1994**

- ◆ Last day to file a Graduation Information Card for Autumn 1994 Convocation.

**Friday, November 11, 1994**

- ◆ Autumn 1994 Convocation (all Faculties)  
(Subject to approval)

## Release from Liability

McMaster University reserves the right to change or revise information contained in this Calendar, including the alteration of fee structures, schedules and/or courses. The University reserves the right to limit enrolment in, or admission to, any course or programme at any level.

The University will not be liable for any interruption in, or cancellation of, any academic activities as set forth in this Calendar and related information where such interruption is caused by fire, strike, lock-out, inability to procure materials or trades, restrictive laws or governmental regulations, actions taken by the faculty, staff or students of the University or by others, civil unrest or disobedience, or any other cause of any kind beyond the reasonable control of the University.

## Note:

- ◆ The Fall timetables and part-time degree studies brochures, which are published periodically by the University, should be used to determine:

- 1 if a course is to be offered;  
and
- 2 the term in which a course will be offered.

# Sessional Dates for 1993-94

The following schedule applies to both full- and part-time students.

## Fall/Winter Session 1993-94

	Term 1	Term 2	Term 3
➤ Level I Early Registration		Friday, August 13	
➤ Registration (All Levels)	Friday, Sept. 3, Tuesday, Sept. 7, Wednesday, Sept. 8		
➤ Classes begin	Thursday, September 9	Wednesday, January 5	Thursday, September 9
➤ Last day for registration and adding classes	Wednesday, September 22	Friday, January 14	Wednesday, September 22
➤ Thanksgiving Day: No classes	Monday, October 11	—	Monday, October 11
➤ Last day for withdrawal without failure by default	Friday, October 15	Friday, February 11	Friday, February 11
➤ Mid-term recess	—	Monday, February 28 to Saturday, March 5	Monday, February 28 to Saturday, March 5
➤ Good Friday: No classes	—	Friday, April 1	Friday, April 1
➤ Test and Examination ban: No tests or examination may be held	Monday, November 29 to Sunday, December 5	Wednesday, April 6 to Wednesday, April 13	Wednesday, April 6 to Wednesday, April 13
➤ Classes end	Saturday, December 4	Tuesday, April 12	Tuesday, April 12
➤ Mid-Session Tests (Level I)	—	—	Monday, December 6 to Saturday, December 18
➤ Final Examinations	Monday, December 6 to Saturday, December 18	Thursday, April 14 to Saturday, April 30	Thursday, April 14 to Saturday, April 30
➤ Last day to confirm intent to write deferred examinations	Friday, February 11	Friday, June 24	Friday, June 24
➤ Deferred Examinations	Thursday, April 14	Monday, July 25 to Thursday, July 28	Monday, July 25 to Thursday, July 28

◆ Please note that, at the discretion of the instructor, class time may be scheduled for **Saturday, October 16, 1993**, in order to make up for a reduced number of Monday classes in Term 1 of the Fall/Winter session.

## Spring/Summer Session 1994

	Term 1	Term 2	Term 3
➤ Classes begin	Monday, May 9	Monday, July 4	Monday, May 9
➤ Last day for registration and changes in registration	Friday, May 13	Friday, July 8	Friday, May 13
➤ Victoria Day: No classes	Monday, May 23	—	Monday, May 23
➤ Last day for withdrawal from a course without failure by default	Friday, May 20	Friday, July 15	Friday, July 15
➤ Mid-term recess	—	—	Monday, June 27 to Friday, July 1
➤ Canada Day: No classes	—	Friday, July 1	Friday, July 1
➤ Civic Holiday: No classes	—	—	Monday, Aug. 1
➤ Classes end	Friday, June 24	Friday, August 19	Friday, August 19
➤ Examinations	During class time, as arranged by instructor		
➤ Last day to confirm intent to write deferred examinations	Friday, October 21	Friday, October 21	Friday, October 21
➤ Deferred Examinations	December '94 Examination period	December '94 Examination period	December '94 Examination period

# GLOSSARY

**Academic Probation** will be assigned to students who do not meet the minimum standards for continuation at the University.

**Advanced Standing** may be granted to an applicant who has completed work at another university or college, subject to the applicant having met the minimum requirements prescribed by the University.

**Antirequisite** is a course which cannot be taken for credit before, after, or at the same time as the course with which it is listed.

**Bursaries** are granted based upon demonstrated financial need, a minimum expectation of academic accomplishment and, in some cases, other forms of earned merit. They may vary in monetary value, based upon the level of financial need demonstrated.

**Continuing Student** is a university graduate who is not proceeding to an advanced degree, but wishes to take one or more undergraduate courses.

**Corequisite** is a course which must be taken together with another course.

**Course Numbers** (e.g. 1A03) can be interpreted as follows: the initial digit indicates the Level of the course; the letter(s) in the middle identifies the specific courses within the Level; and the final digit(s) defines the number of units of credit associated with the course.

**Cross-listed Course** is a course which is listed under two or more departments.

**Cumulative Average (CA)** is a weighted average based on the grades obtained in all courses taken.

**Degree** is conferred when a student completes a programme of study (e.g. Bachelor of Arts, Bachelor of Physical Education, Master of Science, Doctor of Philosophy).

**Department** is a subdivision of a Faculty, responsible for a particular subject or group of subjects (e.g. Department of Chemistry, Department of Modern Languages).

**Elective Courses** are those courses which are not Required Courses, and which a student has choice in selecting. These courses form part of the total number of units required for the degree programme.

**Extra Courses** are those courses taken by a student which are over and above the total number of units required for the degree programme. The grades obtained in such courses will not be included in the computation of the Cumulative Average. However, they will be included in the computation of the Sessional Average.

**Faculty** is a major administrative and teaching unit of the University responsible for programmes and courses relating to common fields of study or academic disciplines (e.g. Faculty of Humanities, Faculty of Engineering).

**Full Load** is the number of units specified in the Calendar for an individual level of a programme (e.g. Honours Biology and Psychology, Level II: 33 units). If the Calendar does not specify the programme requirements by individual levels, divide the total units for all levels by the number of levels, discarding the remainder. Full-time students must carry a full load to be eligible for Undergraduate In-Course Academic Awards. A full load is not required to be eligible for graduation awards.

**Full-time Student** is an undergraduate student who is registered in at least 24 units in the Fall/Winter session, including Extra Courses.

**Letter of Permission** is a formal document which allows a McMaster student to take one or more courses at another university for credit towards a McMaster degree.

**Level** is used to describe a student's progression through a programme.

**Loans** are monetary advances granted to students currently regis-

tered, based upon a demonstrated means and promise of repayment.

**Mature Student** is at least 21 years old prior to his or her first day of classes; has not attended secondary school for at least two years; and has not previously attended university.

**Minor** is an option available to students enrolled in four- or five-level programmes. A Minor consists of at least 24 units — of which no more than six units may be from Level I — that meet the requirements set out in the programme description of that Minor.

**Part-time Student** is an undergraduate student who is registered in fewer than 24 units in the Fall/Winter session, including Extra Courses.

**Post-Degree Student** is a university graduate or a person with professional qualifications who is not proceeding to an advanced degree, but wishes to take one or more graduate courses.

**Prerequisite** is a requirement to be fulfilled before registration in a course is permitted. This is usually the successful completion of another course.

**Programme** is a specific combination of courses that fulfils the requirements for a degree.

**Programme Probation** will be assigned to students who do not attain the required Cumulative Average for specified programmes, which appear under the programme regulations.

**Registration** is the process whereby a student enrolls in a programme of study and/or courses and pays, or makes acceptable arrangements to pay, all fees.

**Required Courses** are those courses which are specifically designated for inclusion in a programme.

**Result of Session** is the statement of the academic standing of a student at the end of a reviewing period. "May continue in programme", "May not continue" and "Clear to graduate" are three examples.

**Review** is an assessment of a student's performance to determine eligibility to continue in a programme or to graduate.

**Reviewing Period** is the time between two reviews for a student. Reviews will take place in May and August, provided the student has completed 18 units of work since the last review or is eligible to graduate.

**Session** is a period of study within the academic year. For example, the Fall/Winter session runs from September to April.

**Sessional Average (SA)** is a weighted average based on the grades attained in a session. Overload courses and Extra courses are included in the Sessional Average. To be eligible for Undergraduate In-Course Academic Awards, full-time students must complete a full load of course units during the Fall/Winter session, as defined by the programme and level.

**Term** is a period of study within a session. The Fall/Winter session, for example, contains three terms, Term 1 runs from September to December; Term 2 runs from January to April; Term 3 runs from September to April.

**Transcript** is an official document summarizing the entire academic record of a student at a particular educational institution.

**Tuition** is fees paid in consideration for enrolment in a programme of study and selected courses.

**Undergraduate Academic Awards** are granted based upon academic excellence and, in some cases, other forms of earned merit.

**Undergraduate Student** is a student enrolled in a programme of study leading to a bachelor's degree or to the degree Doctor of Medicine.

**Units** define the number of credits associated with a course. Three-unit courses are usually one term in length. Six-unit courses are usually two terms, or one session.

**Weighted Average** is calculated taking into account the grade and the unit value of each course.

**Withdrawal** is the formal process of discontinuing studies in a particular course or programme.



# ADMISSION REQUIREMENTS

## ADMISSION FROM ONTARIO SECONDARY SCHOOLS

To be considered for admission, you must satisfy the general requirements of the University and the subject requirements for the specific programme to which you applied.

If you are an applicant from an Ontario secondary school you must meet three requirements:

1. The Ontario Secondary School Diploma with acceptable standing; and
2. A "weighted average" in Ontario Academic Credits (OACs) completed, which is above the minimum specified by each programme; and
3. Satisfactory completion of the subject requirements for the appropriate programme.

OAC Music is acceptable as a credit and the mark you obtained can be included in your average for admission. Alternatively, you may submit certificates from a recognized conservatory of music in Grade 4 theory, or in Grade 9 practical and Grade 3 theory. Marks supplied by an acceptable Conservatory of Music may be used to determine your average for admission.

### Early Admission from Ontario Secondary Schools

Early Admission is granted annually in mid-June on a date agreed upon by all Ontario universities. Early Admission is based on interim marks, or a combination of interim and final marks, supplied by secondary schools in April and may be granted to you if you expect to acquire final standing later in the year.

If you are granted Early Admission, you must successfully complete six OACs, including all required subjects. The University reserves the right to withdraw its offer of admission if you do not meet the minimum final average prescribed for your chosen programme; if you have not received the Ontario Secondary School Diploma; or if you have not responded within the two-week response period. Final marks are reported to the University in mid-July for students registered in OACs, but you may submit such marks directly to the Admissions Office.

### Final Admission from Ontario Secondary Schools

If, prior to June, you have fulfilled the requirements for the Ontario Secondary School Diploma, including the subject requirements for your chosen programme, you may be granted an offer of Final Admission prior to June.

If you do not receive an offer of admission by June 30, you may still be considered for admission in mid-July, when final marks are received, depending on availability in the chosen programme.

### Deferral of Admission for Ontario Secondary School Students

If you are a secondary school student who has been admitted to McMaster and your admission average is greater than 80%, McMaster will defer your admission for one year at your request. If you have been admitted to Music or Nursing, you will not be given automatic deferral, but will be reviewed again. In the case of Music, an additional audition may be required. This deferral is valid if you do not complete any post-secondary work during that year. In order to qualify, please send a request in writing to the Admissions Office by September 30 of the year in which you have been admitted.

### Programme Transfer After Admission

If you have been admitted to one programme and subsequently wish to transfer to another, you may be able to do so, provided you have met the subject requirements for the second programme and a place is available. If you wish to make such a transfer please

consult the Admissions Office.

## SUBJECT REQUIREMENTS FOR SPECIFIC LEVEL I PROGRAMMES

All Level I programmes have limited enrolment and admission is made by selection. Possession of the minimum admission requirements does not guarantee admission.

**McMaster University offers nine Level I programmes: Arts & Science I, Business I, Engineering I, Humanities I, Music I, Nursing I, Physical Education I, Natural Sciences I and Social Sciences I.**

### > ARTS AND SCIENCE I (SPECIAL PROGRAMME)

You are required to submit a completed Supplementary Application, normally by April 1. The information provided enters into the selection process. Only applicants with high academic standing are selected. In recent years successful candidates had an admission average in the upper 80s or higher. The following are the minimum requirements:

1. One of OAC English I, OAC anglais I or OAC anglais II;
2. OAC Calculus;
3. Completion of additional OACs to total six credits. At least three of the additional OACs must be selected from among English, français, other languages, Algebra and Geometry, Finite Mathematics, Biology, Chemistry, Physics, Geography, History, and Music.

If you do not have these qualifications, but provide evidence of unusual promise, you will also be considered.

### > BUSINESS I

The specific percentage required for admission to Business I varies from year to year. The following are the minimum requirements:

1. One of OAC English I, OAC anglais I or OAC anglais II
2. One of OAC Calculus, OAC Finite Mathematics or OAC Algebra and Geometry. A second OAC Mathematics course is strongly recommended.
3. Completion of additional OACs to total six credits, with a minimum overall average of 70%

Although the stated minimum is 70%, in recent years, an average in the mid-70s has been required for an offer of admission.

### > ENGINEERING I

You are required to submit a completed Supplementary Application, normally by May 15. The information provided is utilized as part of the selection process. The following are the minimum requirements:

1. One of OAC English I, OAC anglais I or OAC anglais II
2. OAC Calculus
3. OAC Algebra and Geometry
4. OAC Chemistry
5. OAC Physics
6. Completion of one additional OAC to total six credits with a minimum overall average of 75%

Although the stated minimum is 75%, in recent years, an average in the high 70s has been required for an offer of admission.

### > HUMANITIES I

The following are the minimum requirements:

1. One of OAC English I, anglais I or anglais II, with a grade of at least 65%
2. Completion of additional OACs to total six credits with a minimum overall average of 70%

Although the stated minimum is 70%, in recent years, an average in the mid-70s has been required for an offer of admission.

The Faculty of Humanities strongly recommends that you select at least one OAC from Humanities subjects (Art, Drama, English, French, français, other languages, History and Music) in addition to Requirement 1 above.

**ART 1F06:** ART 1F06 is open to you only if you intend to pursue a degree in Honours Art or Combined Honours Art and Another Subject on a full-time basis. You must present a portfolio of your work

and be interviewed by the Department of Art and Art History by April 30. Your portfolio should contain a variety of original works in different media, including work derived from both first-hand observation and your imagination. If you apply late, you will be considered only if spaces remain available after the first allocations have been made. **Please use the MHA OUAC Code to ensure that the Art Department contacts you.**

#### ➤ MUSIC I

The academic requirements are the same as for Humanities I. In addition, applicants to Music I or to the B.A. in Music must successfully complete a music audition/examination consisting of:

1. Demonstration of technique (approximately Grade 9 level of the Royal Conservatory of Music, Toronto)
2. Performance (approximately 20 minutes duration) of two or three varied pieces of your choice (approximately Grade 9 level), including at least one from the 20th century
3. Ear test appropriate to the Grade 9 performance level
4. Written examination on rudiments of theory (Grade 2 level)
5. Interview

You must make arrangements with the Department of Music for your audition.

#### ➤ NATURAL SCIENCES I

The following are the minimum requirements:

1. One of OAC English I, OAC anglais I or OAC anglais II
2. OAC Calculus
3. One of OAC Algebra and Geometry, or OAC Finite Mathematics
4. Two of OAC Biology, OAC Chemistry, OAC Physics
5. Completion of one additional OAC to total six credits
6. An average acceptable to the Faculty in the four credits specified in points 2, 3, and 4 above.
7. An average acceptable to the Faculty in the best six OAC credits (which must include the four OACs specified in points 2, 3 and 4 above)

Although the stated minimum is 75%, in recent years, an average in the high 70s has been required for an offer of admission.

**Note:** OAC Finite Mathematics is recommended for students interested in the Life Sciences. OAC Algebra and Geometry is recommended for students proceeding to the Mathematical or Physical Sciences.

#### ➤ NURSING I

The following are minimum requirements:

1. One of OAC English I, OAC anglais I or OAC anglais II
2. OAC Chemistry
3. One of OAC Calculus, OAC Algebra and Geometry or OAC Finite Mathematics
4. One of OAC Biology or OAC Physics
5. Completion of two additional OACs to total six credits

Although the stated minimum is 70%, in recent years, an average in the high 70s has been required for an offer of admission.

**Note:** You must apply to the programme within two years of completion of the OAC requirements.

**Health requirements for admission:** Before registration, you must file with the University information pertaining to your state of health and immunization. Detailed instructions will be provided upon acceptance into the programme.

#### ➤ PHYSICAL EDUCATION I

The following are minimum requirements:

1. One of OAC English I, OAC anglais I or OAC anglais II
2. One of OAC Algebra and Geometry, OAC Calculus or OAC Finite Mathematics
3. Completion of additional OACs to total six credits

Although the stated minimum is 70%, in recent years, an average in the high 70s has been required for an offer of admission.

It is strongly recommended that you include one of Biology, Chemistry, or Physics in your OACs.

#### ➤ SOCIAL SCIENCES I

The following are minimum requirements:

1. One of OAC English I, OAC anglais I or OAC anglais II
2. Completion of additional OACs to total six credits

Although the stated minimum is 70%, in recent years, an average in the mid-70s has been required for an offer of admission.

You are strongly advised to complete an OAC in Mathematics, even though it is not a requirement for most Social Science degree programmes. If you are interested in entering any of the Psychology and Economics degree programmes or Honours and Combined Honours Geography, you should complete OAC Calculus in order to prepare yourself for your first-year university courses.

## ADMISSION WITH OTHER QUALIFICATIONS

### A. Admission from Ontario Colleges of Applied Arts and Technology

If you apply from an Ontario College of Applied Arts and Technology and have completed at least one year of work in a diploma programme and you have an A average, you are invited to apply for admission to Social Sciences I or Humanities I. Each case will be considered individually on its merits and the programme desired.

If you are applying to Engineering and have achieved a first-class honours standing in the last two years of a three-year technology programme in an Ontario College of Applied Arts and Technology, you will be considered for admission to the second level of a relevant Engineering programme.

Technician programmes are not recognized for credit toward admission in either Engineering I or Natural Sciences I.

Advanced credit could be up to 24 units if you are a well-qualified graduate of a three-year programme, and at least six units if you have completed two years and performed well, provided the college work is appropriate to your chosen university programme.

Credit beyond this may be given on an individual basis where the college and university programmes are in similar areas, and where your academic record warrants special consideration.

In the granting of credit, attention will be given to:

1. your performance in the college programme;
2. the duration of the college programme;
3. the programme taken at the college and the programme to which entry is sought;
4. your secondary school record.

### B. Admission from Ryerson Polytechnical Institute

In determining admissibility and the possibility of advanced credit, due consideration is given to the admission requirements of the Ryerson programme, its length of study and nature (i.e. certificate, diploma or degree), standing in the programme and studies desired at university level. Students with high standing after one or two years of study are invited to apply.

Every application is dealt with individually so that appropriate academic credit may be granted where warranted.

### C. Admission from Redeemer College

As a student from Redeemer College, you must present, with an appropriate average, six Year 1 courses from Redeemer College which are appropriate for the McMaster programme. Redeemer College courses in the 110-119 series are treated as equivalent to OACs for purposes of admission. If you wish advanced credit for work completed at Redeemer College, you must write an examination set by McMaster for each course in which credit is sought.

### D. Admission from Other Canadian Provinces

As a student from another Canadian province, you must meet the following minimum requirements:

- Quebec: CEGEP
- All other Canadian provinces: Grade 12

You must also present subjects appropriate to the programme as described under *Subject Requirements for Specific Level I Programmes* and in the following chart.



# OAC Course Equivalents for Students from Other Canadian Provinces

	B.C./ Yukon	Alta./ N.W.T.	Sask.	Manitoba	Que. (CEGEP)	Nova Scotia	New Brunswick	P.E.I.	Nfld.
ENGLISH	English 12 Writing 12 English Lit 12	English 30	English 30	English 300	English 603s	English 441 or 541	English 120, 121, 122	English 620s	English 3100s English 3200s
CALCULUS	Calculus 12 (LD) (Locally Developed)	Math 31	Calculus 30	Introduction to Calculus 305	Math 103, 203	Math 541 ** or Calculus 441	Math 121	Advanced Math 621 (Locally Developed)	Math 4225 (AP)
ALGEBRA AND GEOMETRY	Math 12	Math 30	Geom-Trig 30 Algebra 30 Math 30	Math 300	Math 105	Math 441	Math 120	Math 621	Math 3201 or 3203
FINITE MATH	Survey Math 12	Not available*	Finite Math 30L	Advanced Math 305 (Topics in Math) Stats and Probability 305	Not available*	Math 442	Math 120	Not available*	Not available*
CHEMISTRY	Chemistry 12	Chemistry 30	Chemistry 30	Chemistry 300	Chemistry 101, 201	Chemistry 441 or 541	Chemistry 121, 122	Chemistry 621	Chemistry 3202
PHYSICS	Physics 12	Physics 30	Physics 30	Physics 300	Physics 101 and 201 or 301	Physics 441 or 541	Physics 121, 122	Physics 621	Physics 3204
BIOLOGY	Biology 12	Biology 30	Biology 30	Biology 300	Biology 301, 401	Biology 441 or 541	Biology 121, 122	Biology 621	Biology 3201

\* Topics related to Finite Math are found in several Math courses.

\*\* Applicants to Engineering I without Calculus at the time of application will be considered conditionally providing an appropriate Calculus course is completed prior to September registration.

For further information, please contact the Admissions Office.

## E. Admission from Other Countries

We welcome applications from international students. We have, for convenience, indicated below our admission requirements for applicants from selected countries.

As a student from another country, you should send official matriculation certificates well in advance of the session. The equivalent of first-class standing may be required for some limited enrolment programmes. Clear notarized photocopies of certificates in a language other than English should be accompanied by notarized English translations. Clear photocopies of English language certificates must be notarized.

You are considered on an individual basis, but are strongly advised not to come to the University until you have been informed of your

acceptance.

If your native language is not English and you have not resided in an English-speaking country for four years, you will be required to obtain standing satisfactory to the University in the Michigan English Language Assessment Battery (MELAB). The MELAB authorization form will be sent upon receipt of a formal application for admission. If the Test of English as a Foreign Language (TOEFL) has already been written, its results may be submitted in place of the MELAB results.

Applicants from the General Certificate of Education system require:

1. five GCE subjects at least two of which must be at the Advanced Level;
2. Advanced-Level subjects appropriate for the programme

desired, (refer above to Subject Requirements for Specific Level 1 Programmes);

3. an average of at least C in the two Advanced-Level subjects.

If you are from **Hong Kong**, you need:

1. five subjects in the GCE or University of Hong Kong Matriculation Examinations, at least two of which must be at the Advanced Level;
2. Advanced-Level subjects appropriate for the programme desired, (refer above to Subject Requirements for Specific Level 1 Programmes);
3. an average of at least C in the two Advanced-Level subjects
4. standing satisfactory to McMaster University in MELAB or TOEFL. Details of the MELAB test will be sent upon receipt of a formal application for admission.

If you are an applicant from the **United States of America**, you should have high standing from Grade 12 of an accredited high school in the U.S.A. Normally, high standing will have been demonstrated by an A (80%) standing. If you do not meet these requirements, you may qualify for admission by completing one year of college-level work with standing acceptable to the University.

## F. Mature Students (Part-time Admission)

If you do not meet the normal admission requirements described in any other Admission category in this Calendar, you may be eligible for limited admission to part-time study, provided **both** of the following conditions are satisfied:

1. You are at least 21 years old, or will be, prior to the first day of classes for the session to which you apply.

2. You have not attended secondary school for at least two years.

If admitted, you may register as a mature student to take Level I courses, one course at a time. If after the first six units, you have achieved a grade of B- or better, you may petition your Faculty to be allowed to take two courses at a time. After taking at least 12 units, your performance will be reviewed.

1. If you have a Cumulative Average of at least 3.5 and a grade of D- in each course, you will be allowed to register for full-time study.
2. If you have a Cumulative average of less than 3.5, with no more than six units of failure, you will be allowed to register in another six units of study. You will be reviewed again after 18 units. At this stage:
  - a. If you have a Cumulative Average of at least 3.5, you will be allowed to register for full-time study.
  - b. If you have a Cumulative Average of less than 3.5, you will be required to withdraw from the university.
3. If you have failed more than six units, you will be required to withdraw from the University.

You are not admissible as a mature student if you have previously attended a university or if you plan to study Engineering. If you apply to the Natural Sciences I programme as a mature student, you will be required to obtain satisfactory standing in the area OAC Mathematics and Science requirements, as described in the *Admission from Ontario Secondary Schools* on page 7.

## G. Transfers from Other Universities

When you transfer to McMaster University, normally you will receive credit only for courses in which you have obtained at least a C (third-class honours) standing. Assessment of courses for transfer credit is subject to the guidelines of the individual Faculties.

You must also satisfy the Residence Requirements set out in Academic Regulations; the University will not accord to you privileges which would not be granted by your own university. Grades obtained in courses taken at another university will not be included in McMaster's Cumulative Average, and, therefore, cannot be used to raise your standing.

If you have been required to withdraw from another university and have fulfilled your period of suspension, you may apply for admission. However, you must present a letter of explanation and clarification concerning your past academic performance. In addition, you may be asked to provide academic documentation for proof of further academic achievement which is both current and relevant.

If you are transferring from a university in a country whose native

language is not English and you have not resided in an English-speaking country for four years, you must obtain standing satisfactory to the University in the Michigan English Language Assessment Battery (MELAB). The MELAB authorization form will be sent upon receipt of a formal application for admission. If the Test of English as a Foreign Language (TOEFL) has already been written, its results may be submitted in place of the MELAB results.

## H. Graduates Applying for a Second Bachelor's Degree

Admission is by selection. If you have a first degree, you may apply to take a second degree in the same discipline or in another discipline. The requirements are set out in the *Academic Regulations* section on page 13.

If you wish to enter a Second Bachelor's Degree in a subject area from the Faculty of Science, please note the additional regulations for such a programme in the section *Faculty of Science, Second Bachelor's Degree Programmes* on page 77.

## I. Continuing and Post-Degree Students

As a continuing student, you need only apply formally through Admissions in the first instance. In subsequent sessions, only submission of a Registration form is necessary.

You will be expected to have at least a C (third-class standing) average, with no failures, in your final year's work (or the equivalent, in the case of a degree taken in part-time studies), and academic records which are satisfactory to the Department and the Office of the Associate Dean (Studies) of the appropriate Faculty.

Acceptance as a Continuing Student carries no implications with respect to acceptance in the School of Graduate Studies. Students who plan to proceed to a graduate degree should apply directly to the specific department of your programme of interest.

As a post-degree student, you must apply to the appropriate departments and have your admission and registration approved by the School of Graduate Studies for each session in which you wish to take courses. You will register and pay fees as an undergraduate.

Acceptance as a post-degree student carries no implications with respect to admission to advanced degrees, and even if such admission is granted subsequently, credit toward the advanced degree will not normally be granted for the work previously taken.

## J. Graduates of McMaster Certificate Programmes

If you have completed certificate programmes, you may be granted advanced credit up to maxima specified by Undergraduate Council. Faculties will take into account the subject matter of both the certificate and degree programmes. The credit will normally be applied against your elective courses.

## K. Enrichment Programme

For more information about this programme, please contact the Admissions Office.

## L. Advanced Credit

As noted in sections (A), (B), (C), and (G) above, advanced credit may be granted if you have completed work at another university or college, and you have met the minimum requirements prescribed. Advanced credit may shorten your degree programme.

If you have acquired knowledge at another kind of institution or in a manner that makes assessment of your qualifications difficult, the University may require an examination. In such a case, the Associate Dean (Studies) of the Faculty will request that the appropriate academic Department assess the feasibility of such an examination. If an examination is deemed feasible, the academic department involved will decide the appropriate method of evaluation and will be responsible for administering it. The examination must be arranged by the last date for registration in your initial term at the University and may not be repeated. Any credit granted as a result of the examination will be shown on your transcript in the normal manner used for advanced credit.

# APPLICATION PROCEDURES

## PROCEDURES

Please read the bold-faced portions of these procedures to determine the category under which you fall. When you have decided where you stand, please follow the guidelines for your application procedure.

**A** If you are now taking one or more Ontario Academic Courses (OACs) in day school and wish to enter a Level I full-time degree programme, please follow this procedure.

Please pick up a university application form (OUAC 101) from your guidance office and follow the enclosed instructions.

You will be contacted by the Admissions Office after your application has been received by McMaster.

**B** If you wish to enter Level I of a full-time degree programme, but you are not currently taking one or more Ontario Academic Courses (OACs) in day school, please follow this procedure.

This procedure is also pertinent if you are applying from out of province, you are an international applicant, or you are a student from another Ontario university or College of Applied Arts and Technology and wish to transfer to McMaster.

Please obtain an application form (OUAC 105) from the Ontario Universities' Application Centre or from any Ontario university and follow the enclosed instructions. You must provide McMaster with transcripts of marks and/or certificates from any secondary school or post-secondary institution you have attended.

If you are attending secondary school, please see your guidance counsellor to obtain a transcript. If you have previously attended secondary school in another province, you may have to obtain the transcript of secondary school marks from the Ministry or Department of Education for that province.

**C** This procedure applies if you wish to enter as:

1. a part-time student; or
2. a continuing student; or
3. a student taking work on a Letter of Permission for credit at another university; or
4. a second-degree candidate; or
5. a mature student.

You must obtain a McMaster application form from the Admissions Office, Gilmour Hall, Room 120, McMaster University, Hamilton, Ontario, L8S 4L8. You will be provided with more information on application procedures at that time.

**D** This procedure applies if you wish to register as a post-degree student.

You must apply to the appropriate departments and have your admission and registration approved by the School of Graduate Studies for each session in which you wish to take courses.

You can obtain the appropriate application form from the Graduate Studies Office, Gilmour Hall, Room 110, McMaster University, Hamilton, Ontario, L8S 4L8.

**E** This procedure applies if you wish to enter a programme which commences above Level I.

**Health Sciences:** The Faculty of Health Sciences section in this Calendar provides detailed information about the curriculum and admission requirements for programmes in Medicine, Occupational Therapy and Physiotherapy, all of which require prior university studies. There are also a number of positions in the Nursing programme if you are an RN with a diploma or you have prior university work.

Please obtain the appropriate application forms from the Admissions-Records Office (Health Sciences), at the Health Sciences Centre, Room 1B7, or by calling (416) 525-9140, ext. 2114.

**Social Work:** You enter the Social Work programme in Level II. Admission to the Combined B.A. and Social Work Programme is by selection. You must have completed, or be completing, 30 units of work including PSYCH 1A06 and SOCIOL 1A06 and normally have a Cumulative Average of at least 6.0.

If you are already enrolled at McMaster, you should apply directly to the School of Social Work. If you wish to apply for transfer from another university, you are required to complete a two-tier application procedure. This is explained on page 111.

**For all other programmes, please obtain an application form (OUAC 105) from the Admissions Office of any Ontario university or from the Ontario Universities' Application Centre, 650 Woodland Road West, Guelph, Ontario, Canada, N1H 7P4.**

You should choose one of the degree programmes listed in this Calendar, and complete the form. Send the form and the application fee to the Ontario Universities' Application Centre.

If you have attended secondary school in another province, you may have to obtain the transcript of secondary school marks from the Ministry or Department of Education for that province.

**F** This procedure applies if you wish to register as a Listener. You may attend classes, but you do not write assignments or examinations.

You will not receive a grade for courses you attend. To register as a Listener, write, visit or telephone the Centre for Continuing Education, Commons Building, Room 116, McMaster University, Hamilton, Ontario, L8S 4K1 (416) 525-9140, ext. 4321.

## DEADLINES

A complete application includes: an application form, all relevant transcripts, and any other documentation stipulated in the Admission Requirements and the specific Faculty sections of this Calendar, or in letters from the appropriate Faculty or the Registrar's Office.

All Level I programmes have limited enrolment and may be full before the deadlines. *The University reserves the right not to accept applications submitted after a programme is full.* You are advised to submit your application well in advance of the deadlines given below.

### FALL/WINTER SESSION (SEPTEMBER ENTRY)

Undergraduate programmes which are not specified below:

- International Applications ..... May 1
- International Documentation ..... June 1
- Domestic Applications ..... June 30
- Domestic Documentation ..... August 1
  
- Arts & Science Applications ..... March 1  
Supplementary Applications ..... April 1
- Gerontology Applications ..... April 15  
Supplementary Applications ..... June 1
- Labour Studies ..... April 15
- Medicine ..... November 1
- Midwifery ..... April 1
- Nursing (OAC) ..... May 1  
(Other than OAC) ..... February 15  
(Transfers from other university Nursing programmes) .. July 1
- Occupation Therapy/Physiotherapy ..... January 15
- Social Work (McMaster Applicants) ..... March 1  
(OUAC) ..... December 1

### FALL/WINTER SESSION (JANUARY ENTRY)

- All eligible programmes ..... November 1

### FEBRUARY TO JULY SESSION (1993 ONLY)

- May Entry ..... April 15
- June Entry ..... May 31

### SPRING/SUMMER SESSION (BEGINNING 1994)

- May Entry (Term 1 or 3) ..... April 1
- July Entry (Term 2) ..... June 1

### Retention of Documents

All documentation which you submit in support of your application for admission becomes the property of the University.

If you are not accepted, or you fail to enrol following acceptance, your documentation normally is destroyed at the end of each

admissions cycle. If you reapply, you must submit any additional academic information and any documentation submitted previously.

### Readmission

If you are seeking readmission, you usually fall into one of three categories. You must adhere to the application deadlines listed above.

- 1. You were required to withdraw from McMaster University.**  
You should submit a letter to the Office of the Associate Dean (Studies) of the appropriate Faculty outlining your activities since leaving McMaster University and your reason for returning to the specified Faculty. Your application will be reviewed by the Office of the Associate Dean (Studies) of the appropriate Faculty.
- 2. You voluntarily withdrew from McMaster University.**  
Provided the last semester attended was within five years, you will be automatically admitted to the same programme. If you have been absent more than five years, you must reapply through the Office of the Registrar.
- 3. You completed the last semester registered and are in good academic standing.**  
Please see (2) above.

### Academic Counselling for Those Offered Admission

If you are offered full-time admission to Level I, you will be asked to confirm that you have accepted the offer of admission and will attend the University.

When we receive your acceptance, we will send you a Registration Kit with information about the University, academic counselling and registration procedures.

Your Faculty will also arrange a visit to the University so you may meet with a Faculty advisor to set up your programme. Although attendance at the summer counselling and registration sessions is not compulsory, you are strongly advised to do so. If you cannot attend one of these sessions, counselling will be provided at the September registration.

If you are offered admission above Level I, you may arrange for academic counselling with the Office of the Associate Dean (Studies) of the Faculty offering the programme, or the Office of the Director of the programme.

### Enquiries

Please direct your enquiries about Application Procedures to:

**REGISTRAR'S OFFICE**  
Gilmour Hall, Room 120  
McMaster University  
Hamilton, Ontario, L8S 4L8

or please call (416) 525-9140, ext. 4796

# ACADEMIC REGULATIONS

The regulations which follow are the general regulations of the University. You should read both these general regulations and your Faculty regulations which may be more specific. They appear in the Faculty sections of this Calendar.

Since the Academic Regulations are continually reviewed, we reserve the right to change the regulations in this section of the Calendar. This University also reserves the right to cancel the academic privileges of a student at any time should the student's scholastic record or conduct warrant so doing.

In the event there is a conflict between the programme regulations and the general regulations in this chapter, the programme regulations take precedence.

Faculties are authorized to use discretion in special situations by taking into account past practice, the spirit of the regulations, and extraordinary circumstances. Students who believe their situations warrant special consideration should consult the appropriate Office of the Associate Dean (Studies).

The Academic Regulations listed below are effective as of September 1993. These new regulations will apply to all undergraduate students admitted or readmitted to the University from September 1993 onward, except for students who graduate in Spring or Fall of 1994.

All students who graduate in the Spring and Fall of 1994 will be governed by the previous regulations, which can be found in the McMaster 1992-93 Calendar.

All other students will be governed by transitional arrangements, under which the CA will be calculated using:

1. "area courses" (as defined in the 1992/93 Undergraduate Calendar) taken before September 1993; and
2. all courses taken from September 1993 onward.

## 1. UNIVERSITY REGULATIONS

### Residence Requirements

While most students will complete all their undergraduate work at McMaster University, the minimum requirements set out below apply to students who take part of their work at other institutions.

In order to obtain a four- or five-level (Honours, Major, etc.), first undergraduate degree, you must complete at least two of the levels (approximately 60 units of work) beyond Level I, including the final level, at McMaster.

To obtain a three-level, first undergraduate degree, you may satisfy the residence requirements either:

1. by completing the final level and at least one other level (a minimum of approximately 60 units of work) at McMaster University; or
2. by completing the final level (approximately 30 units of work) at McMaster University, including at least 18 units of programme-specific courses.

The work used to satisfy the residence requirements must be completed at McMaster University; work taken at another university on a Letter of Permission will not count toward the minimum residence requirements.

All the work for a second bachelor's degree must be completed at McMaster University.

### Registration

The purpose of registration is to record officially your selection of programme and courses. This is done before each session, and information on how to register will be sent to eligible students. Counselling is available to assist you in course selections.

■ **Approval of Programmes:** You are responsible to ensure that your registration documents are complete and accurate. Your programme and course selections — and deletions — must be approved by the Office of the Associate Dean (Studies) of your Faculty. If you try to register in a programme or courses from which you are restricted, your registration will not be approved.

■ **Selection of Courses:** *Before you select the courses you wish to take, please read the requirements for your programme in the appropriate Faculty sections of this Calendar.* If you fail to meet the programme requirements, you will not be eligible to graduate.

Select the courses required for your programme; then select your electives. Ensure that you have completed the courses which are listed as **prerequisites** and have completed or chosen courses that are listed as **corequisites**. If you have not passed the prerequisite courses, you will not be able to take the course selected.

■ **Limit on Level Courses:** In most Faculties, credit may be obtained in no more than 42 units of Level I courses in a three-level programme, and in no more than 48 units in a four-level programme.

■ **Eligibility for Awards:** (See *Section 5* in this section and *Undergraduate Academic Awards* on page 249 for more information.)

■ **Overload Work:** If you wish to take more than the normal number of units prescribed for a Level, you may do so only with the permission of the Office of the Associate Dean (Studies) of your Faculty. Normally, a Sessional Average of at least 7.0 in the immediately preceding review period will be required if an overload is to be permitted. Additional academic fees will be assessed for overload work. (See *Financial Information* section on page 20.)

■ **Repetition of Courses:** To repeat a course for which credit has been obtained, you need approval of the Office of the Associate Dean (Studies). There is no limit on the number of repetitions of a failed course. The grades for all attempts appear on the transcript and enter into the computation of the Cumulative Average. However, only one successful attempt will enter into the computation of credit earned towards your degree.

■ **Auditing Courses:** If you do not wish to have credit for a course, you may, with the approval of the Chair of the Department and the Office of the Associate Dean (Studies), audit the course. You must satisfy the prerequisite for the course, but will not complete assignments nor write the final examinations. You will not be permitted to register for credit in the course after the registration deadline for the session has passed.

■ **Letters of Permission:** If you wish to attend another university to take courses which will carry credit towards a McMaster degree, you must obtain permission ahead of time. To do this you must seek a **Letter of Permission** from the Office of the Associate Dean (Studies) and pay the appropriate fee. Please take note of any conditions that might apply, including the requirement of a grade of at least C- for transfer credit. You should note that the grades obtained in courses taken at another university will not be included in the Cumulative Average.

## 14 GENERAL ACADEMIC REGULATIONS

■ **Changes to Registration:** You may change the courses you have selected until approximately the second week of the term. (Please see the tables in the *Sessional Dates* section on page 5 for the relevant dates for this academic year.) You may add new courses, or drop courses which you originally selected. After the above-mentioned period, you may drop a class until the last day to withdraw without failure by default. Any course dropped will be shown on your transcript with the notation CAN (Cancelled). After this date, you will remain registered in the course whether or not you attend. Your transcript will show a grade of F for any course not successfully completed.

■ **Withdrawal from the University:** If you wish to withdraw from the University, you must consult the appropriate Office of the Associate Dean (Studies). Your student identity card must be surrendered to the Office of the Associate Dean (Studies). Your record in the courses being taken will be handled as outlined above in *Changes to Registration*.

■ **Transfer of Credit between Faculties:** Transfer of credit between Faculties is handled by the Office of the Associate Deans (Studies) to which you wish to transfer. It is possible that full credit may not be given at the time of transfer between Faculties and additional courses may need to be taken.

■ **Calculation of Cumulative Average Following Readmission After Poor Academic Performance:** If you are readmitted, your Cumulative Average will be calculated on all courses taken that are applicable to your current degree, including those taken before you were required to withdraw. The Associate Dean (Studies) has the discretion to designate courses as Extra to your current degree when you are readmitted. If you are required to withdraw, you will be readmitted on academic probation.

### International Study

If you wish to engage in international study, you may do so either by participating in one of the formal exchange programmes that exist between McMaster and a number of universities in other countries, or by participating in one of the programmes available through specific Faculties.

Formal exchange programmes are those in which McMaster has an agreement with another institution, involving a temporary exchange of students. As an exchange student, you register and pay your regular tuition fees, excluding supplementary fees, at McMaster. No tuition is paid at the foreign institution. If you are interested in participating in a formal exchange programme, you can obtain an application form at McMaster International, John Hodgins Engineering Building, Room A414. Applications are normally due February 1 for exchanges expected to begin the following September. Admission is by selection. A registration checklist is available to assist you in making all necessary arrangements.

McMaster also offers other programmes which allow you to spend all or part of your third year of a four-year programme at another institution. You register but do not pay tuition at McMaster. These programmes are not available at universities with which McMaster University has a formal exchange agreement. For more information on these programmes, please see your Faculty advisor.

International study is not available if you are enrolled in a three-level degree programme.

## 2. ACADEMIC STANDING AND PROGRAMME REQUIREMENTS

### Academic Standing

Academic standing is reviewed in May and August each year for students who

1. have completed at least 18 units of work since the last review; or
2. may be eligible to graduate at the next Convocation; or
3. were admitted under the part-time mature student provision and have attempted the first 12 units of work.

In the review of academic standing, three sets of decisions are made:

1. whether a student may graduate;
2. whether a student may continue at the University; and
3. whether a student may continue in a programme.

### Registration in Level I

When you are admitted to McMaster University for a first degree, you will register in one of the following Level I programmes: Arts and Science I, Business I, Engineering I, Humanities I, Music I, Natural Sciences I, Nursing I, Physical Education I, or Social Sciences I. If you enter the University without Advanced Standing being granted, you must normally attempt a full load of Level I work before proceeding to the work of higher levels.

If you are studying part-time, the Office of the Associate Dean (Studies) has the discretion to permit you to take some of the work in the higher levels prior to having attempted the full load of Level I. Decisions will be made on an individual basis, according to the special circumstances that apply in the particular case.

If you meet the requirement for continuance at the University after completing the Level I work, but fail to meet the admission requirements of any programme, you may continue at the University for one additional reviewing period. You will be registered in your original Faculty as a Level I Irregular Student. If, at the end of the next reviewing period, you again do not qualify for admission to a programme, you will be required to withdraw from the University.

### Minimum Requirements for Entering and Continuing in a Programme Beyond Level I

Admission to the programmes beyond Level I is based on performance in Level I. You must meet both the minimum requirements to continue at the University, as described above, and programme-specific requirements of each Faculty, as described in this Calendar.

#### > ARTS AND SCIENCE PROGRAMME

■ **B. Arts Sc. (Honours) and B. Arts Sc. Programmes:** You must have a CA of at least 6.0 to continue beyond Level I.

To continue beyond Level II in all Arts and Science programmes, you must maintain a CA of at least 6.0. You will be granted programme probation for one reviewing period if your CA is less than 6.0 but no lower than 5.5, and you have not been on probation before. If your CA falls below 5.5 you will not be allowed to continue in the programme.

#### > SCHOOL OF BUSINESS

##### Level II

To be considered for Commerce Level II, you must have a CA of at least 5.0 on your Business I courses with no failures. When calculating



your CA and checking for failures, only first attempts at Business I courses are considered. **However, enrolment in Commerce II is limited to a maximum 300 students. Up to 50 of those spaces may be given to transfer students from other universities or from other Faculties within McMaster.** Therefore, being eligible for consideration for entry to Commerce II does not guarantee you entry. In 1992-93, only students with CAs of 6.0 or greater were admitted. If you are not admitted to Commerce II at the end of Business I, you have the following options available to you.

If your CA is 3.5 or greater, although you may not continue in Commerce, you are still in good standing at the University. You may continue at the University in a programme outside the School of Business or as an irregular student in Business. To continue in a programme outside the School of Business you must apply for admission to that programme through the Office of the Associate Dean (Studies) appropriate for that programme. You should consult that office for more details. If you are not admitted to another Faculty you may register in the School of Business as an irregular student for one reviewing period. During that period you cannot take Commerce courses and at the end of it you will not be eligible for consideration for admittance to Commerce II or readmittance to Business I. The purpose of your registration as an irregular student is to make yourself eligible for admission to a programme outside the School of Business.

If you have a CA of at least 3.0 but less than 3.5, you will be on academic probation and may continue at the University for one reviewing period. While on academic probation, you will be registered at the School of Business as an irregular student but cannot take Commerce courses. At the end of your probation period you will not be eligible for consideration for admittance to Commerce II or readmittance to Business I. The purpose of the probation period is to make yourself eligible for a programme outside the School of Business. If you have a CA which is less than 3.0 at the end of Business I you may not continue at the University.

#### Levels III and IV

You may continue in Levels III and IV of an Honours Commerce programme if you maintain a CA of at least 7.0 (with no more than six units of failure). If you maintain a CA of at least 7.0 (with no more than six units of failure) and maintain at least a 7.0 weighted average in all Economics courses taken beyond ECON 1A06, you may continue in the Honours Commerce and Economics programme. If you maintain a CA of at least 4.0 (with no more than six units of failure), you may continue in the Commerce programme. However, if you fail to achieve a CA of at least 4.0, but have a CA of at least 3.5 (with no more than six units of failure), you are permitted to continue in Commerce on programme probation for one reviewing period. If your CA is less than 3.5, you may not continue at the University.

#### ➤ FACULTY OF ENGINEERING

■ **B.Eng. Programmes:** To be admitted to a Level II Engineering programme, you need a minimum CA of 4.0.

In Level II and above, you must maintain a CA of at least 4.0, with no failures, to continue in an Engineering programme. If your CA is at least 4.0 and includes a failure, *and* you have not previously been placed on probation, you will be placed on programme probation, subject to the availability of space.

If your CA is less than 4.0 and you have not been granted probation, you may not continue at the University.

#### ➤ FACULTY OF HEALTH SCIENCES

■ For specific minimum requirements, please see the descriptions for the individual programmes within the Faculty of Health Sciences.

#### ➤ FACULTIES OF HUMANITIES and SOCIAL SCIENCES

■ **Honours Programmes:** You must have a CA of at least 6.0 to continue in an Honours programme. If your CA falls between 5.5 and 5.9, you may remain in the Honours programme, but will be placed on programme probation for one reviewing period. You may be on programme probation only once. If your CA falls between 3.0 and 5.4, you must transfer to another programme for which you qualify. If your CA is less than 3.0, you may not continue at the University.

■ **B.A. Major (Psychology) and B.P.E. Programmes:** You must have a CA of at least 4.0 to continue in a four-level Major (Psychology) or a B.P.E. programme. If your CA falls between 3.5 and 3.9, you may remain in the programme, but will be placed on programme probation for one reviewing period. You may be on programme probation only once. If your CA falls between 3.0 and 3.4, you must transfer to another programme for which you qualify, and be placed on academic probation. If your CA is less than 3.0, you may not continue at the University.

■ **B.A. Programmes:** You must have a CA of at least 3.5 to continue in, or graduate from, a three-level B.A. programme. If your CA falls between 3.0 and 3.4, you may remain in the programme, but will be placed on academic probation. You may be on academic probation only once. If your CA is less than 3.0, you may not continue at the University.

#### ➤ FACULTY OF SCIENCE

■ **Honours B.Sc. Programmes:** You must have a CA of at least 6.0 to continue in an Honours B.Sc. programme. If your CA falls between 5.0 and 5.9, you may remain in the Honours B.Sc. programme, but will be placed on programme probation. You may be on programme probation for only two reviewing periods. If your CA falls between 3.0 and 4.9, you must transfer to another programme for which you qualify. If your CA falls below 3.0 you may not continue at the University.

■ **B.Sc. Programmes:** You must have a CA of at least 3.5 to continue in a three-level B.Sc. programme. If your CA falls between 3.0 and 3.4, you may continue on academic probation for one reviewing period. You may be on academic probation only once. If your CA is less than 3.0, you may not continue at the University.

### Transfer Between Programmes

If you wish to transfer from one programme to another, you should discuss the possibility with the appropriate Office of the Associate Dean (Studies) to which you wish to transfer. It is possible that full credit may not be given at the time of transfer between Faculties and additional courses may need to be taken.

### Minors

If you are enrolled in a four- or five-level programme, you are eligible to obtain a Minor in another subject area.

If you wish to receive a Minor, you should check the information under the heading Minor in the appropriate department's listing. McMaster also offers Minors in Indigenous Studies and Peace Studies, which are not connected to a specific Faculty or Department. (See *Minors and Thematic Areas* on page 116.) The University has also established two Theme Schools — International Justice and Human Rights, and New Materials and Their Impact on Society — which give you, upon successful completion of one of the programmes, a Minor in that area of study. (See *Theme Schools* on page 115.) You will be responsible for ensuring that you register in the required Minor courses. Normally,

you must complete a minimum of 24 units in the Minor subject, of which no more than six can be at Level I. At least 18 units must be completed at McMaster.

In the final year of your programme, when you file your Graduation Information Card, you must indicate your desire to receive a Minor in the chosen subject. The Faculty Reviewing Committee will verify that the requirements have been met. If you are successful, your transcript will contain a designation for Minor in that area. See *Sessional Dates* on page 4 for deadlines.

You may apply for only one Minor. Minors cannot be revoked once approved, nor applied for retroactively. (See *Note 4* under *Second Bachelor's Degree Programmes*.)

**Minors are not available to students graduating in the Spring or Fall of 1994, with the exception of students who have previously registered in an Honours with a Minor programme in the Faculty of Social Science.**

## Second Bachelor's Degree Programmes

For admission to a second undergraduate degree programme you must hold a first undergraduate degree. The minimum admission requirements and programme of study for the second degree depend on the subject areas of the two degrees.

■ **Honours Degree following a Three-Level Degree in the Same Subject:** For entry, a Cumulative Average of at least 6.0 in the first degree programme is required. If admitted, you must take at least 30 units beyond the first degree, including all Honours requirements specified for the programme. In some Faculties, this includes a minimum number of units of work in the discipline.

■ **B.A. or B.Sc. in Another Subject:** For entry, you must meet the admission requirements for the programme. If admitted, you must complete at least 30 units beyond the first degree, including all programme requirements. In some Faculties, this includes a minimum number of units of work in the discipline.

■ **Honours B.A. or B.Sc. in Another Subject:** For entry, you must meet the admission requirements for the programme and have a Cumulative Average of at least 6.0. If admitted, you must complete at least 60 units beyond the first degree, including all Honours requirements specified for the programme.

### Notes

1. All work for the second degree must be completed at McMaster University.
2. Some additional regulations are applied by the Faculty of Science involving cognate disciplines, e.g. Mathematics and Statistics. These are described in the *Faculty of Science* section on page 75 of this Calendar.
3. A second degree is not available in all subject areas. See individual Faculty regulations for further information.
4. Minors will not be revoked to permit later registration in a three-level second degree in the same subject. Students may return for a second degree in a subject in which they have obtained a Minor, but only at the Honours level. (See *Minors* above.)
5. Extra courses taken while you are registered in a first degree programme, or courses completed as a Continuing Student, may, with the approval of the Faculty, be applied to the second degree programme.
6. You must meet the same standards for continuation and graduation as are applied to students registered in a first degree programme.
7. Credit from the first two degrees cannot be applied to a third undergraduate degree. To obtain a third undergraduate degree you must take the complete programme, i.e. approximately 90 units for a three-level degree and approximately 120 units for a four-level degree.

## Deans' Honour List

Each year outstanding students with a minimum Sessional Average of 9.5 are named to the Deans' Honour List. Full-time students must have completed a full programme load in a Fall/Winter session. The Associate Deans (Studies) may exercise discretion where the full load for a particular level of a programme is not 30 units. Part-time students will be assessed at the reviewing periods where 30, 60, 90 and 120 units have been completed (based on the units completed since your last review).

## 3. EXAMINATIONS

The Office of the Registrar schedules and conducts most final examinations and December mid-year examinations for full-year Level I courses. See the section *Sessional Dates* on pages 4 and 5.

Examinations organized by the Office of the Registrar during these dates may be scheduled in the morning, afternoon, or evening, Monday through Saturday.

Other instructor-scheduled tests and examinations may be held throughout each session but may not be scheduled during the final week of the terms of the Fall/Winter session, except as approved by the Undergraduate Council. See the *Sessional Dates* section.

### Examinations Conducted by the Office of the Registrar

■ **McMaster student photo identification cards are required at all examinations.** If you arrive at an examination without a proper I.D. card you will be required to have a substitute card made before being seated. There is a fee for this service. No additional time is given to compensate for examination time missed.

■ You may only use books, papers or instruments during an examination if they are specifically prescribed on the examination paper.

■ You may leave an examination only after the first 45 minutes have elapsed.

■ If you become ill during an examination, you may be excused by a presider.

■ If you miss or leave an examination for medical reasons you must submit a medical certificate from Student Health Services, or a doctor, to the Office of the Associate Dean (Studies) of your Faculty before the end of the examination schedule. The certificate must indicate that you were medically unfit to write the examination.

■ If you miss or leave an examination for any other reason, report immediately to the Examinations Section of the Office of the Registrar. You will be advised whether you can write your examination before the end of the examination schedule, or whether you must apply for special consideration by submitting documentation to the Office of the Associate Dean (Studies) of your Faculty.

■ Special examination arrangements may be made upon application to the Examinations Section of the Office of the Registrar in some circumstances, such as:

- a conflict with religious obligations
- a conflict between two Registrar-scheduled examinations
- a schedule with three examinations in one calendar day or three consecutive examinations

- arrangements are required to accommodate a disability

Application must be made at least 10 working days before the scheduled examination date and acceptable documentation must be supplied.

- **Examinations are not rescheduled for purposes of travel.** You must arrange to be available for the entire range of examination dates as listed in the *Sessional Dates* section.

### Deferred Examinations

A deferred examination may be granted by your Faculty Reviewing Committee if you fail to write a final examination for certifiable medical or compassionate reasons. Documentation must be submitted to the Associate Dean (Studies) of your Faculty before the end of the examination schedule.

Deferred examinations must be written in the examination session which follows the one for which the privilege is granted (e.g. in the April session for an examination missed in December).

The decision to grant you a deferred examination will be reported on your grade report. You must confirm your intent to write by submitting an application to the Office of the Registrar.

Examination and confirmation deadline dates appear in the section *Sessional Dates* on page 5.

## 4. GRADING SYSTEM

The method for determining your final grade will be given in the course outline. Unless otherwise specified in a course outline, course results determined on a percentage scale will be converted to an official letter grade, as indicated in the equivalent percentage scale which follows. The results of all courses attempted will appear on your transcript as letter grades.

- Before submitting a failing grade, your instructor reassesses whatever examples of your work are available.
- To satisfy prerequisite requirements, a grade of at least D- is required, unless otherwise stated.
- You retain credit for all courses with grades of D- or better, except in those programmes for which a higher grade is specified in the programme regulations.

◆ Since September 1982, the grading scale has been:

Grade	Equivalent Grade Point	Equivalent Percentages
A+	12	90-100
A	11	85-89
A-	10	80-84
B+	9	77-79
B	8	73-76
B-	7	70-72
C+	6	67-69
C	5	63-66
C-	4	60-62
D+	3	57-59
D	2	53-56
D-	1	50-52
F	0	0-49 — Failure

## 5. UNDERGRADUATE ACADEMIC AWARDS

To retain Entrance Scholarships and to qualify for major In-Course Awards, full-time students must complete, during the Fall/Winter session, a full load of course units, as defined by the programme and level. A Sessional Average will be computed to determine your eligibility for these awards.

Terms and conditions of awards for full-time and part-time studies are defined in the section *Undergraduate Academic Awards* on page 249.

## 6. GRADUATION

Graduation "With Distinction" standing may be awarded if a minimum CA of 9.5 is achieved.

The following Cumulative Averages are required to graduate:

- B.A. — 3.5
- B.A. (Honours) — 5.0
- B.Arts Sc. and B.Arts Sc. (Honours) — 5.0
- B.Comm — 4.0
- B.Comm (Honours) — 6.0
- B.Comm & Arts (Honours) — 6.0
- B.Sc. — 3.5
- B.Sc. (Honours) — 5.0
- Engineering (All programmes) — 4.0

Please see the graduation regulations for individual Health Sciences programmes in the *Faculty of Health Sciences* section on page 45.

If, at the time of graduation, you fail to meet the requirements for an Honours degree, you may seek to transfer to another programme.

If you are registered in Level III of an Honours or Major programme and wish to transfer to a three-level degree programme to be eligible for graduation at the next Convocation, you must apply to the appropriate Office of the Associate Dean (Studies) by March 1 for Spring Convocation, and by September 1 for Autumn Convocation. If permission is granted, you must go to the Office of the Registrar and complete a **Graduation Information Card**.

When you register for the session in which you expect to complete the graduation requirements, you must file a Graduation Information Card. If you fail to do so at the time of registration you must do so in the Office of the Registrar before February 11 for Spring Convocation and before September 8 for Autumn Convocation.

If you wish to apply for recognition of a Minor as part of your programme of studies, you must indicate this on your Graduation Information Card.

## 18 GENERAL ACADEMIC REGULATIONS

---

You must take the degree at the Convocation *immediately* following the completion of the appropriate degree work.

### 7. RECORDS POLICY

---

#### Transcripts

Transcripts, which summarize your academic career at McMaster University, are available from the Office of the Registrar.

**Transcripts  
Office of the Registrar  
Room 108, Gilmour Hall  
McMaster University  
L8S 4L8**

**Phone: (416) 525-9140, ext. 4572**

**FAX: (416) 527-1105**

Requests for transcripts may be made in person, by mail, or by fax. To protect the confidentiality of student records, all requests must be signed by the student whose transcript is being requested.

Requests are filled promptly on receipt of payment. Official transcripts are usually delivered to other Ontario universities by courier and elsewhere by Canada Post. To avoid disappointment, please allow for processing and delivery time. Transcripts will not be issued if you have outstanding accounts at the University.

#### Retention Policy

When you apply for admission to McMaster University and register in programmes at the University, you accept the University's right to collect pertinent personal information. The information is needed to assess your qualifications for entry, establish records of performance in programmes and courses, provide the bases for awards and governmental funding, and to assist the University in the academic and financial administration of its affairs.

All documentation that you submit to the University in support of applications for admission, residence accommodation or financial awards, or any appeals or petitions, becomes the property of the University. You are notified of your academic performance in courses by grade reports sent by the Office of the Registrar.

All information needed to produce official transcripts is maintained permanently.

If you are not accepted, or if you fail to enrol following acceptance, your documentation is normally destroyed at the end of each admissions cycle. If you reapply, you must resubmit any previous documentation and any additional academic information.

Supporting documentation relevant to your admission to, and performance at, the University will normally be eliminated seven years after the end of your enrolment at the University (regardless of whether you graduate).

# Senate Policy Statements

The University has defined its expectations of students in both the academic and non-academic life of the University community, and developed procedures to ensure that all members of the community receive equitable treatment. Each year at registration, you will receive the document *Senate Policy Statements* which contains the following:

- Statement on Academic Ethics
- The University's Statement on Human Rights
- Code of Conduct
- Student Appeal Procedures
- General Regulations for McMaster University Library
- Policy Statement on Applicants and Students with Disabilities
- Policy on Undergraduate Student Access to Final Examinations

*The following provides a brief summary of the major policies contained in the Senate Policy Statements. Complete versions of the policies may be obtained from the Senate Secretariat, Room 104, Gilmour Hall.*

## Academic Ethics

The *Senate Statement on Academic Ethics* explains the expectations the University has of its scholars. Some Departments and instructors have also developed more specific rules and regulations designed to maintain scholarly integrity. It is the responsibility of each instructor to make students aware of these expectations.

It is the responsibility of each student to adhere to the *Senate Statement on Academic Ethics* (and to any additional rules and regulations developed by Departments and instructors), not only in course work, tests and examinations, but also in other scholarly activities such as laboratory research, and the use of computing and library resources.

Breaches of academic ethics fall into two general categories:

- A disregard for the norms of scholarly integrity, without necessarily intending to deceive.
- Academic dishonesty, which is an intentional disregard for the norms of scholarly integrity.

Minor breaches of academic ethics that fall into category a) are normally drawn to students' attention by instructors and may result in penalties such as a reduced mark or a zero for the piece of work.

Academic dishonesty is not qualitatively different from other types of dishonesty. It consists of *misrepresentation by deception or by other fraudulent means*.

The *Senate Resolutions on Academic Dishonesty* define academic dishonesty and specify the procedures to be followed in the event that a student is charged with academic dishonesty. Penalties include expulsion from the University. A copy of the Senate Resolutions may be obtained from the Senate Secretariat, Gilmour Hall, Room 104.

## Appeal Procedures

The University has a responsibility to provide fair and equitable procedures for the lodging and hearing of students complaints arising from University regulations, policies and actions that affect them directly. The procedures described in the *Student Appeal Procedures* are intended to provide a mechanism to remedy injustices and may culminate in a hearing before the Senate Board for Student Appeals.

**However, students are strongly encouraged to pursue any complaint or grievance through informal channels, before following the formal procedures. Experience has shown that many complaints can be resolved satisfactorily through informal communication.**

Students should seek remedies for their grievances as promptly as possible, and must do so within six months of the end of the academic year in which the grievance has occurred. The end of the academic year is August 31.

Decisions on admission or readmission to an undergraduate degree programme may not be *appealed*, except under the conditions described in the next paragraph. However, applicants may ask for a *review* of a decision on admission or readmission or on the granting of transfer credits. To initiate such a review, the applicant must write to the Registrar within one week of receiving the original decision and state the grounds for seeking the review.

Applicants who have been refused readmission to an undergraduate degree programme may appeal the decision, using the procedures described in the *Student Appeal Procedures*, if the following two conditions have been met:

- 1) The applicant withdrew voluntarily from the University.
- 2) The applicant alleges error or injustice on grounds other than academic judgment.

## Code of Conduct

McMaster University is a community dedicated to furthering learning, intellectual inquiry, and personal and professional development. Membership in the community implies acceptance of the principle of mutual respect for the rights of others and a readiness to support actively an environment conducive to intellectual growth, both for individuals and for the whole University.

The *Code of Conduct* contains regulations which outline the limits of conduct considered to be consonant with the goals and the well-being of the University community, and define the procedures to be followed in cases of violation of the accepted standards.

## Statement on Human Rights

McMaster University wishes to ensure the full and fair implementation of the principles of the *Ontario Human Rights Code* which states:

**Every person has the right to equal treatment with respect to services, goods and facilities, without discrimination because of race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, sex, sexual orientation, age, marital status, family status or handicap.**

The University Senate has approved Procedures on Human Rights which outline the procedure to be followed in the event that a student has a complaint regarding an alleged violation of human rights.

## Student Records

The University has developed operating procedures which are designed to protect the confidentiality of undergraduate student records. The following have been defined as public information: student number, student name, sex, degrees earned and when, undergraduate awards earned and when, and whether a student is full-time or part-time. Additional information may be used by the various offices and officials of the University where a *need to know* has been established.

Information about applicants for admission who do not gain admission will be kept for a limited period only. A separate admission is maintained for those admitted to the Nursing and M.D. programmes.

While a student may have access to his or her file, documents received from a third party in confidence are not normally placed in the students file. But, in those cases where they have been, they will not be disclosed.

The operating procedures also define the circumstances under which information may be disclosed to: judicial and law enforcement agencies, the Ontario Universities' Application Centre, Statistics Canada, agencies charged with the recovery of funds provided under OSAP or CSL, and secondary schools.

Transcripts are issued only with the consent of the student. Addresses will not be released except under provisions noted above.

## FINANCIAL INFORMATION

Upon receiving official acceptance from the Registrar's Office and upon completion of registration, you are responsible for the full payment of all fees as defined in this Calendar.

Payment of academic fees does not imply your acceptance to the University or approval of your registration. Academic requirements have to be fulfilled before your registration is completed.

If you are a new student, you may not forward academic fees to the Business Office until you have received your Letter of Acceptance.

You should not send residence fees unless you have received notification of acceptance.

You are responsible for the fees for each academic session. No fee credits can be transferred from one academic session to another.

It is the policy of the University not to accept registrations until all previous accounts are paid in full. Any payments received are, therefore, first applied to previous debts and any balances to the most recent debts.

The following fees and regulations were in effect at the time of publication of this Calendar. The University reserves the right to amend the fees and regulations at any time.

### UNDERGRADUATE FEES

Fees are composed of an academic fee and supplementary fees. Academic fees are calculated on a per-unit basis up to the maximum stated under Tuition Fee in the fee schedules, below. Full supplementary fees are payable if you are taking 18 units or more.

If you are a full-time student, fees cover your portion of the tuition cost, registration, library, diplomas, campus health services, student organizations, and athletics, and are payable by all students.

No caution deposits are required, but students will be assessed for any unwarranted loss or breakage.

The University reserves the right to assess other supplementary fees or charges in some courses or programmes to recover—in part or in full—the cost of providing course materials, accommodation and transportation for field trips, and the costs of breakages.

Fees charged by the University are approved annually by the Board of Governors for the academic year beginning September 1.

Fees shown below are for 1992-93. The fee and refund schedules for 1993-94 are enclosed in the Registration Handbook sent to each student during the summer preceding registration.

#### Canadian Citizens and Landed Immigrant Students

##### Full-time Fees

(Academic load of 30 units or more, except for Engineering, Eng. Mgt. III, V, 33 units or more)

	Tuition Fee	Supplementary Fees	Total Fees
➤ Medicine I, II	3,612.00	322.00	3,934.00
➤ Medicine III	2,408.00	322.00	2,730.00
➤ Engineering and Eng. Mgt. III, V	2,055.20	373.80	2,429.00
➤ Eng. Mgt. II, IV	1,894.20	373.80	2,268.00
➤ Nursing	1,894.20	420.80	2,315.00
➤ Business and Commerce	1,894.20	350.80	2,245.00
➤ Arts & Sci. Prog.	1,894.20	321.80	2,216.00
➤ Physical Education	1,894.20	305.80	2,200.00
➤ Humanities and Social Sciences	1,894.20	315.80	2,210.00
➤ Science	1,894.20	310.80	2,205.00

If you are registered in the Co-op programme in Honours Biology/Pharmacology Level III, you will be assessed an additional \$325.00 Co-op Fee per term along with the normal Science fees.

If you are registered in the Co-op programme in Honours Biology/Pharmacology Level IV, you will be assessed one half the Tuition and Supplementary Fees for Science and an additional \$325.00 Co-op Fee.

The tuition fee was \$63.18 per unit, plus full supplementary fees, for academic loads of 18 to 29 units (32 units for Eng., Eng. Mgt. III, V).

You will be assessed extra fees per unit for units taken over your programme maximum load.

#### Midwifery

The establishment of a Bachelor of Health Sciences programme in Midwifery was announced in December 1992. Although a complete list of costs was not finalized before publication of this Calendar, Midwifery students can expect to pay approximately \$3,039 for three terms in 1993-94. You will be assessed additional fees, as outlined upon registration.

Books, transportation and accommodation costs should also be factored into your expense preparations.

#### Student Health Services Fee

The supplementary student health services fee of \$36.00 supports the "on-campus" clinic facilities, which provide the services of doctors and nurses. The McMaster Students Union Health Insurance Plan fee of \$28.80 includes reimbursement of expenses resulting from an accident incurred during the academic year, where such expenses are not recoverable under the Ontario Health Insurance Plan. These expenses may include X-ray, ambulance, dental treatment, prescribed drugs, wheelchairs or similar appliances. Reimbursement is not made for accident expenses to dental plates, crowns, fillings, glass frames, lenses or similar. Accidents should be reported to Student Health Services within 10 days.

Prescribed drugs, excluding contraceptives, may be claimed through this plan. For details concerning dollar amounts allowable, contact the McMaster Students Union Office.

#### Part-time Fees

If you took fewer than 18 units, in 1992-93, the fee was \$63.18 per unit, plus a supplementary fee of \$8.42 per unit for membership in the McMaster Association of Part-time Students, your Centennial Fund donation, and Student Athletic Fee. If you took 18-23 units, you paid supplementary fees as follows:

➤ Student Athletic Fee .....	69.00
➤ Student Health Services .....	36.00
➤ Canadian Federation of Students .....	7.00
➤ McMaster Student Union Fees:	
● Student Organization Fee .....	77.80
● Health Insurance Plan .....	28.80
● Student Refugee Fee .....	1.05
● Ancillary Fee for CFMU-FM .....	9.00
● Ancillary Fee for MarMar Yearbook .....	6.15

#### Plus

➤ McMaster Student Union's University Student Centre Building Fee (per unit*) .....	2.20
* to a maximum of \$66.00 (30 units)	

#### And

➤ Society Fees according to Faculty:	
● Arts & Science Society .....	21.00
● Commerce Society .....	50.00
● Engineering Society .....	73.00
● Humanities Society .....	15.00
● Nursing Society .....	20.00
● Nursing Learning Resource Fee .....	100.00
● Bachelor of Physical Education Society .....	5.00
● Science Society .....	10.00
● Social Science Society .....	15.00

#### Listeners

As of 1991-92, you are classified as a Listener if you wish to attend



classes, but are not seeking academic credit. You may be admitted at one-half of the standard fee upon application to the Centre for Continuing Education.

A husband and wife attending the same course as Listeners may pay the reduced rate of one Listener fee, plus half of the fee for another Listener.

This category excludes currently registered students, who may audit a course. See *Academic Regulations* on page 13 for details.

### Persons Aged 65+

Subject to meeting admission and prerequisite requirements, if you are aged 65 or over, you may register in any courses without payment of tuition and supplementary fees.

### Visa Students

#### FULL-TIME FEES

(Academic load of 30 units or more)

	Tuition Fee	Supplementary Fees	Total Fees
> Medicine I, II	15,450.00	322.00	15,772.00
> Medicine III	10,300.00	322.00	10,622.00
> Nursing	10,300.00	420.80	10,720.80
> Engineering, and Engin. & Mgt.	10,300.00	373.80	10,673.80
> Business and Commerce	6,318.00	350.80	6,668.80
> Arts & Sci. Prog.	6,318.00	321.80	6,639.80
> Physical Education	6,318.00	305.80	6,623.80
> Humanities and Social Sciences	6,318.00	315.80	6,633.80
> Science	6,318.00	310.80	6,628.80

If you are registered in the Co-op Programme in Honours Biology/Pharmacology, you will be assessed fees in the same manner as Canadian/Landed Immigrant students.

#### PART-TIME FEES

If you are a visa student enrolled in Engineering, Engineering and Management and Nursing courses, in 1992-93 you were assessed at \$343.38 per unit tuition fee, up to 17 units, plus supplementary fees of \$8.42 unit. If you were enrolled in courses for all other programmes, you were assessed at \$210.68 per unit tuition fee, up to 17 units, plus \$8.42 per unit supplementary fee.

## RESIDENCE AND FOOD SERVICE FEES

### Regular Session

If you live on campus, your residence fees cover the period, Labour Day to the end of the April examination period.

Full payment of fees is due during the August/September registration period. If you cannot make full payment during this time, you must make a minimum payment of about 70% of the total fee. The balance of your fees is due by January 21.

The fees below are those for 1992-93.

	Payable in Full	Payable in Part
<b>Residences</b>		
> Room and Board		
● Small	4,625.00	3,235.00
● Regular	4,825.00	3,375.00
● Large	5,025.00	3,515.00
<b>Apartments</b>		
> Room Only (Per person)	2,450.00	1,715.00
> Food Plan Only		
● Small	2,175.00	1,520.00
● Regular	2,375.00	1,660.00
● Large	2,575.00	1,800.00

If you wish to change your selection of meal plans, you may do so up to September 30, 1993. Please contact Food Services, ext. 7448, to make any changes.

A complete and current schedule of residence charges and payment dates may be obtained upon application to the Manager, Residence Admissions, Commons Building, Room 101, telephone (416) 525-9140, ext. 4070.

The University reserves the right to use the rooms during vacation periods. Charges do not include the use of the room or the cost of meals during these periods, unless arrangements to the contrary are made. You will be assessed for unwarranted breakage.

### Summer Residence

McMaster University offers residence, with centralized washroom facilities, to men and women of all ages from early May to late August each year.

For further information, contact Housing and Food Services, Commons Building, Room 101, telephone (416) 525-9140, ext. 4781.

## PAYMENT OF FEES

**Full-time tuition fees and residence/food plan fees** are payable in full during the registration period in August/September. Prepayment of fees will significantly simplify the registration process (see Prepayment of Fees). If you are unable to make full payment at the time of registration, you may be registered by paying the minimum first payment, which is equal to approximately 70% of the total fee, at the time of registration. The balance must be paid no later than January 21. Failure to make payment by January 21 will result in a late instalment fee. Interest is added monthly to the unpaid balance.

**Part-time fees** must accompany registration.

Cheques must be made payable to **McMaster University**. Any cheque not accepted and returned by the bank will be subject to an additional administrative charge of \$26 for the first occurrence and an additional \$10 for each subsequent occurrence.

**Failure to comply with payment dates will result in the University adding interest at the rate of 1.3% per month on overdue fees.**

In addition, if you refuse to pay fees, or any part of the fees, you may be refused admission to the University or you may be requested to withdraw with all privileges suspended. Fees to the date of withdrawal will be assessed. If you wish to re-register within the same academic session, you will also be assessed a \$50 reinstatement fee.

You are not considered to be registered at McMaster University unless *all* fees are paid or acceptable arrangements have been made with the Financial Services Office by November 1 of each year. The names of students who are not registered by that date will be removed from all official class lists.

You will not be eligible for any examination results, transcripts, diplomas or the payment of awards of any kind, until fees and any other accounts owed to the University are paid, or until acceptable arrangements are made.

**Note:** Effective November 1, 1991, graduands who have outstanding accounts with the University will be permitted to attend convocation, but will not receive their diplomas until their accounts have been cleared in full.

### Prepayment of Fees

All tuition, supplementary, residence and food plan fees and any debts from prior sessions should be received in the Business Office prior to registration.

For payment deadlines, please refer to the registration handbook.

You must complete the fee prepayment form and send it with a cheque, which may be post-dated to September 3, to the Business Office. Your student identification number should be written on the back of your cheque. By following this procedure you will significantly reduce the time needed to complete registration.

If you expect to receive financial assistance under the Ontario Student Assistance Programme, or will receive scholarships, bursaries or other awards, you may arrange fee deferrals prior to the

day of registration, provided you can show satisfactory evidence that such awards have been granted. Please contact the Credit/Collection Department, ext. 4331 or 3235. All fees are payable upon receipt of financial assistance. Any difference between the amount of the award, and minimum first payment must be paid by September 3.

If you are being sponsored by outside organizations, e.g. Vocational Rehabilitation Services, RCMP, Canadian Armed Forces, etc., you are required to bring copies of fee authorizations at the time you request a deferment.

**If you are unable to pay your fees at the time of registration, please contact the Business Office, Room 208, Gilmour Hall, prior to registration.**

## Refunds

If you are forced, by illness or other personal reasons, to withdraw from courses, you will be charged a partial fee for courses that are cancelled.

A Charge Schedule for Course Cancellation is included with the fee schedules which are sent in the summer preceding September registration. The charge is determined by the date on which notices of withdrawal in writing are received at the Office of the Dean of the appropriate Faculty. A full refund will be given for courses dropped until the end of the drop and add period.

## MISCELLANEOUS FEES

The following fees were in effect for the 1992-93 academic year, and are over and above assessed academic fees, supplementary fees, and residence fees and food plan fees.

### Academic User Fees

➤ Admissions Assessment Fee .....	50.00
➤ Application Fee (Non-OUAC Applicants) .....	10.00
➤ Certification of Enrolment Fee .....	3.00
➤ Deferred Examination at Another Centre .....	40.00
➤ Examination Reread (Refunded if grade is changed) .....	30.00
➤ Letter of Permission .....	30.00
➤ Notarizing Fee (plus 50 cents per page over 10) .....	10.00
➤ Photocopying of Examination Script .....	10.00
➤ Replacement of Diploma .....	25.00
➤ Replacement of M.D. and Graduate Diploma .....	30.00
➤ Replacement of Student I.D. Card .....	15.00
➤ Supervision of Examinations at Other Universities .....	35.00
➤ Transcript (per copy) .....	3.00

### Financial/Administrative User Fees

➤ Replacement Fee	
● Income Tax Receipt/Education Credit Certificate .....	6.00
➤ Replacement Food Card .....	15.00
➤ Residence Withdrawal Fee .....	35.00
➤ Food Card Fine for Misuse .....	25.00
➤ Returned Cheque Charge (NSF, Stopped Payment)	
● First Occurrence .....	26.00
● Each Subsequent Occurrence (Additional) .....	10.00
➤ Late Document Fee .....	30.00
➤ Late Registration Fee	
● Full-time Students .....	50.00
● Part-time Students .....	25.00
➤ Late Payment Fee .....	31.00
➤ Deferment Fee .....	31.00
➤ Reinstatement Fee .....	50.00
➤ Locker Rentals .....	12.00
➤ Library Charges	
● Overdue Recalled Books (per day) .....	2.00
● Overdue Reserve Material (per hour) .....	2.00
● Replacement Cost, plus Fine: up to .....	100.00
● Returned Books After Replacement Obtained .....	10.00
● Locker Rentals (includes \$5 refundable key deposit) ...	10.00

## EXPENSES

### Costs Other Than Fees For Students in Clinical Courses

You must buy uniforms, shoes, stockings and uniform accessories, for clinical practice.

If you are a Nursing student, your uniform and accessories are ordered under the direction of the School of Nursing. The approximate cost is \$200. White shoes and hose are also necessary.

### Registration Examinations

Graduates of the B.Sc.N. programme can expect to pay fees (\$252 in 1992) to write the comprehensive registration examinations administered by the College of Nurses of Ontario.

### Insurance of Personal Property on University Premises

The University cannot assume any responsibility for the personal property of any employees, faculty members, or students, nor does the University carry any insurance that would cover their personal property.

In most cases, personal fire insurance policies provide an automatic 10% extension covering property away from home. You should inspect your insurance policies to be certain that this is the case.

### Death and Dismemberment Insurance

The University considers that the purchase of insurance coverage for death and dismemberment is the individual responsibility of its students.

There are various insurance plans available, and although the University does not specifically endorse any one of these plans, it has no objection to explanatory brochures and literature being posted on bulletin boards or distributed in appropriate places.

If you are involved in laboratory or field work, you are particularly encouraged to investigate such coverage.

- For information on student awards and financial aid, please refer to Undergraduate Academic Awards and Student Financial Aid sections of this Calendar.

# DEGREES AND PROGRAMMES

McMaster University offers the following undergraduate degrees:

## FACULTY AND DEGREE                      DURATION IN YEARS

### ARTS & SCIENCE PROGRAMME

B.Arts Sc. ....	3
B.Arts Sc. (Honours)* .....	4
(*With the exception of the Combined Honours degrees in Biology and Physics which require five years of study.)	

### SCHOOL OF BUSINESS

B.Com. ....	4
B.Com & Arts (Honours) .....	4
B.Com. (Honours) .....	4

### FACULTY OF ENGINEERING

B.Eng. ....	4
B.Eng.Mgt. ....	5
B.Eng.Soc.* .....	5
(*Subject to approval by the Ministry of Colleges and Universities.)	

### FACULTY OF HEALTH SCIENCES

B.H.Sc. (Midwifery) .....	3*
B.H.Sc. (Occupational Therapy/Physiotherapy) .....	2*
(Follows completion of a prior undergraduate degree)	
B.Sc.N. ....	4
B.Sc.N. (Diploma RN Stream) .....	2
M.D. (Doctor of Medicine) .....	3*
(*In these programmes, an academic year extends beyond the regular Fall/Winter session.)	

### FACULTY OF HUMANITIES

B.A. ....	3
B.A. (Honours) .....	4
B.Mus. ....	4

### FACULTY OF SCIENCE

B.Sc. ....	3
B.Sc. (Honours) .....	4
B.Sc. (Honours) .....	5

### FACULTY OF SOCIAL SCIENCES

B.A. ....	3
B.A. (Honours) .....	4
B.A. (Major) .....	4
B.P.E. ....	4
B.A./B.S.W. ....	4
B.S.W. (as a Second Degree) .....	2

## Second Undergraduate Degree

Provision exists for a university graduate to take a second bachelor's degree. This programme is normally shortened (except for the B.H.Sc. — Occupational Therapy/Physiotherapy programme). An application for admission is necessary for entry to a second degree programme, and it should be submitted by the application deadlines. (See *Application Procedures and Academic Regulations, Programmes Entered Above Level I, Second Bachelor's Degree Programme.*)

## Combined Programmes

There is the opportunity to combine two subjects of study within one Faculty, or between two Faculties. Further information can be obtained by referring to the Faculty sections of this Calendar, or contacting the appropriate Office of the Associate Dean (Studies).

## Courses Instructed in French

To facilitate the intellectual development of students in the French language, the University will attempt to offer one or two courses annually where French is the language of instruction. These courses are open to all students providing they have the necessary prerequisite, and a suitable working knowledge in the French language.

## ELECTIVE COURSES

### AVAILABLE TO LEVEL I STUDENTS

The following is a list of courses available as Electives to Level I students, provided that the students have met any prerequisites, and subject to enrolment limitations. Normally, students may select up to six units in any particular subject (excluding Mathematics, of which up to 12 units may be taken). A brief description of each course can be found under the appropriate Department within the *Course Listings* section in this Calendar.

ANTHROP .....	1A03, 1L03, 1Z03
ART HIST .....	1A06
★◆ BIOLOGY .....	1J03
★◆ CHEM .....	1A06, 1C03
CHINESE .....	1Z06, 1ZZ6
CLASSICS .....	1B06, 1L06
COMP LIT .....	1A06
★◆ COMP SCI .....	1MA3, 1MB3, 1ZA3
DRAMA .....	1A06
ECON .....	1A06
ENGLISH .....	1D06
FRENCH .....	1A06, 1N06, 1Z06
★◆ GEOG .....	1C03, 1G03
GEOG .....	1B06
★◆ GEOLOGY .....	1C03
GERMAN .....	1A03, 1AA3, 1Z06, 2Z06
GERONTOL .....	1A06
GREEK .....	1Z06, 2A03, 2R03
HISPANIC .....	1A06, 1Z06
HISTORY .....	1C06, 1D06, 1L06
HUMAN .....	2B06
ITALIAN .....	1A06, 1Z06, 1ZZ6
JAPANESE .....	1Z06
LABR ST .....	1AA3, 1A03
LATIN .....	1Z06, 2A03, 2R03
LINGUIST .....	1A06
★◆ MATH .....	1A06, 1AA6, 1B03, 1C06, 1K03, 1M03
★◆ MATLS .....	1A03, 1B03
MUSIC .....	1A06
PHILOS .....	1B06, 1D06
★◆ PHYSICS .....	1A06, 1B06, 1C06
POL SCI .....	1B03, 1C03
◆ PSYCH .....	1A06
RELIG ST .....	1B06, 1D06, 1E06, 1F06, 1I06
RUSSIAN .....	1Z06
SOCIOL .....	1A06
★ STATS .....	1A03, 1L03
WOMEN ST .....	1A06

★ These courses are not acceptable for the six-unit complementary studies elective required in Engineering I.

◆ These courses are not acceptable for the six units of Humanities or Social Sciences electives required in Natural Sciences I.

# DEGREES BY PROGRAMME

- ★ This degree programme is also available through a combination of evening and summer study.
- ◆ This degree programme is pending approval.
- This is a five-year co-op degree programme.

SUBJECT	BACHELOR'S DEGREE	MAJOR DEGREE	HONOURS DEGREE	COMBINED HONOURS	PROFESSIONAL DEGREE
Anthropology	B.A.★		B.A.★	B.A.★	
Applied Chemistry			B.Sc.		
Applied Physics			B.Sc.		
Art			B.A.	B.A.	
Art History	B.A.★		B.A.★	B.A.★	
Arts and Science	B.Arts Sc.		B.Arts Sc.	B.Arts Sc.	B.Arts Sc./B.S.W.
Biochemistry			B.Sc.	B.Sc.	
Biological Chemistry			B.Sc.		
Biology			B.Sc.	B.Sc.; B.A.	
Biotechnology & Genetic Engineering			B.Sc.		
Ceramic Engineering					B.Eng.; B.Eng.Mgt.; B.Eng.Soc ◆
Chemical Engineering					B.Eng.; B.Eng.Mgt.; B.Eng.Soc ◆
Chemistry			B.Sc.	B.Sc.	
Civil Engineering					B.Eng.; B.Eng.Mgt.; B.Eng.Soc ◆
Classics	B.A.★		B.A.	B.A.	
Commerce					B.Com.; B.Com (Honours)
Comparative Literature				B.A.	
Computer Engineering					B.Eng.; B.Eng.Mgt.; B.Eng.Soc ◆
Computer Science			B.Sc.	B.Sc.; B.A.	
Drama	B.A.★		B.A.★	B.A.★	
Earth Science	B.Sc.				
Economics	B.A.★		B.A.★	B.A.	
Electrical Engineering					B.Eng.; B.Eng.Mgt.; B.Eng.Soc ◆
Engineering Physics					B.Eng.; B.Eng.Mgt.
English	B.A.★		B.A.★	B.A.★	
French	B.A.		B.A.	B.A.	
General Science	B.Sc.				
Geography	B.A.★				
Geography & Environmental Science			B.A.★; B.Sc.	B.A.★; B.Sc.	
Geography & Environmental Studies			B.Sc.		
Geology			B.A.	B.A.; B.Sc.	
German Area Studies					
Gerontology	B.A. (Combined)			B.A.	
History	B.A.★		B.A.★	B.A.★	
Japanese Studies				B.A.★	
Labour Studies	B.A.★		B.A.★	B.A.★	
Life Science	B.Sc.				
Linguistics			B.A.		
Literary Studies				B.A.	
Manufacturing Engineering					B.Eng.
Materials Engineering					B.Eng.; B.Eng.Mgt.; B.Eng.Soc ◆
Materials Science			B.Sc.		
Mathematical Science	B.Sc.				
Mathematics			B.Sc.	B.Sc.; B.A.	
Mechanical Engineering					B.Eng.; B.Eng.Mgt.; B.Eng.Soc ◆
Medical & Health Physics			B.Sc.		
Medicine					M.D.
Metallurgical Engineering					B.Eng.; B.Eng.Mgt.; B.Eng.Soc ◆
Midwifery					B.H.Sc.
Modern Languages			B.A.	B.A.	
Modern Languages & Linguistics			B.A.		
Molecular Biology & Biotechnology			B.Sc.		
Music	B.A.		B.Mus.	B.A.	
Nursing					B.Sc.N.
Occupational Therapy					B.H.Sc.
Pharmacology ●				B.Sc.	
Philosophy	B.A.★		B.A.★	B.A.★; B.Sc.	
Physical Education					B.P.E.
Physical Science	B.Sc.				
Physics			B.Sc.	B.Sc.	
Physiotherapy					B.H.Sc.
Political Science	B.A.★		B.A.★	B.A.★	
Psychology	B.A.★	B.A.★	B.A.★; B.Sc.	B.A.★; B.Sc.	
Religious Studies	B.A.★		B.A.★	B.A.★	
Russian & East European Area Studies			B.A.		
Science			B.Sc.		
Social Work					B.A./B.S.W.; B.S.W.
Sociology	B.A.★		B.A.★	B.A.★	
Statistics			B.Sc.	B.Sc.	
Women's Studies				B.A.★	

■ The University also offers Thematic Areas of Study and a large number of Minor programmes. Suggested lists of courses, which constitute non-degree Thematic Areas, have been assembled in the section *Minors and Thematic Areas of Study*. Also in that section are two Minors which are not connected to a specific department or Faculty. Other Minors are found in the programme sections of most departments.

# ARTS & SCIENCE PROGRAMME

## Director

B.M. Ferrier/B.Sc., Ph.D.

The Arts & Science Programme has been designed for students who wish to use their university years to further their intellectual growth through a study of the methods of inquiry and of significant achievements in both arts and sciences. The programme also allows for substantial specialization in a discipline or area through the use of electives. The philosophy of the Arts & Science Programme can be expressed by quoting A.N. Whitehead:

"What education has to impart is an intimate sense of the power of ideas, for the beauty of ideas, and for the structure of ideas, together with a particular body of knowledge which has peculiar reference to the life of the being possessing it."

— The Aims of Education and Other Essays, 1929

The core curriculum consists of courses offered by the Council of Instructors of the Arts & Science Programme, together with other courses offered by Departments. The core curriculum is designed to meet three major objectives:

1. to increase understanding of biological and physical sciences, behavioral sciences, technology, and the arts;
2. to develop skill in the use of the written and spoken word, and in quantitative reasoning; and
3. to foster the art of practical inquiry into problems of public concern.

Meeting the last of these objectives is the aim of inquiry seminars which begin in Level I and continue in upper levels. To investigate with skill and insight a complex public issue, such as world population growth in relation to food supply, requires an understanding of the methods and findings of many disciplines; it calls on a liberal education. Moreover, acquiring skill in such investigations requires practice in formulating questions, searching out evidence, and bringing the insights of academic disciplines to bear on the interpretation of evidence. The programme offers preparation for advanced study in many professional schools, including those of business, health administration, journalism, law, medicine, and teaching.

Students in this programme who wish to prepare for graduate study in an academic discipline should consult with the appropriate department concerning requirements. In general, preparation for graduate study may be accomplished by combining the core Honours Arts & Science curriculum with a concentration of electives in the intended area of graduate study. Combined Honours programmes, which are available in many subjects (see specific programme descriptions below), combine the core curriculum of the Arts & Science Programme with a prescribed set of courses in a subject and can be expected to satisfy course requirements for admission to graduate study in the particular subject.

## ACADEMIC REGULATIONS

The Arts & Science Programme is governed by the General Academic Regulations of the University, (see the *Academic Regulations* section on page 13 of this Calendar) and the regulations described below.

The Programme begins in Level I and leads to the degree, Bachelor of Arts & Science (B.Arts Sc.) on completion of Level III or B.Arts Sc. (Honours) on completion of Level IV. The four-level programme provides an increased opportunity for specialization through electives and through an individual study or thesis course.

Continuation in the programme requires Honours-level performance, and the requirements for Level III are the same whether or not Level IV is undertaken.

Registration in Level I of the Arts & Science Programme is limited to approximately 50 students.

## INQUIRY SEMINAR REQUIREMENTS

Inquiry seminars are comprised of ARTS&SCI 1C06 and a set of upper-level inquiry seminars on a variety of topics that change from time to time. The upper-level inquiry seminars are designated as "3C" at the beginning of the course code (3CA6, 3CB6, etc.) and are described in the programme listing as "upper level Inquiry". See the course listing for topic designations. ARTS&SCI 1C06 must be completed in Level I. Upper-level inquiry seminars may be taken in Level II and beyond.

Students intending to graduate with the B.Arts Sc. (Honours) degree are required to complete 12 units of upper-level inquiry seminars. Students in Combined Honours programmes may, with approval of the Director, replace six units of upper level inquiry with six units of another upper-level course or courses.

Students intending to graduate with B.Arts Sc. degree are required to complete six units of upper-level inquiry seminar. An additional six units of upper-level inquiry seminar may be taken as an elective.

## COMBINED HONOURS

Students in the Arts & Science Programme may undertake Combined Honours programmes in many disciplines within the Faculties of Social Sciences, Humanities and Science. The combined programmes with Physics and with Biology are five-level programmes. Combined programmes that are already established are described below. Students are encouraged to consult the Director of the Arts & Science Programme for consideration of other possible combinations.

**Registration:** Registration in each level of any Combined Honours programme requires the written approval of the Director of the Arts & Science Programme and the appropriate Departmental Counselor.

**Individual Study/Thesis:** Students in the B.Arts Sc. (Honours) programme are required to complete either Individual Study or Thesis (ARTS&SCI 4A06, or 4C06). For students in Combined Honours programmes, this requirement can be, and in some cases must be, met by a Departmental course.

## LEVEL I STANDING

Level I standing is computed as the average of the 30 units of Level I work. Continuation beyond Level I requires a Level I standing of at least 6.0. In the case of some Combined Honours programmes, the average must include specified courses. These courses are indicated in the programme descriptions below.

## CONTINUATION BEYOND LEVEL II

For information, please see *Academic Standing and Programme Requirements* in the *Academic Regulations* section, page 14.

## ARTS & SCIENCE PROGRAMME

### B.ARTS Sc. (Honours) and B.ARTS S

#### NOTES

1. Six units of upper-level Inquiry beyond Level I are required for B.Arts Sc. students.
2. Twelve units of upper-level Inquiry beyond Level I are required for B.Arts Sc. (Honours) students.
3. Combined Honours students may substitute six units Inquiry upon approval by Director.

#### REQUIREMENTS

##### LEVEL I: 30 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units BIOLOGY 1A06 (BIOLOGY 1A06 must be completed by the end of Level II)

##### LEVEL II: 30 UNITS

18 units ARTS&SCI 2A06, 2D06, 2R06  
6 units Elective or Upper-level Inquiry (Inquiry may be taken in Level III)  
6 units Elective or BIOLOGY 1A06 (if not completed in Level I)

##### LEVEL III: 30 UNITS

12 units ARTS&SCI 3B06 or 3B03 and 3BB3, and 3A06 or 3D06

- 6 units or 3D03 and 3DD3  
Elective, or Upper-level Inquiry if this requirement has not already been completed. (Students enrolled in B.Arts Sc. may include an additional six units upper-level Inquiry as an elective if six units were completed in Level II)
- 12 units Elective

**LEVEL IV: 30 UNITS**

- 6 units ARTS&SCI 3A06 or 3D06 or 3D03 and 3DD3 (whichever not completed in Level III)
- 6 units Upper-level Inquiry
- 6-12 units from ARTS&SCI 4A06, 4A12, 4C06, 4C12
- 6-12 units Elective

**Arts & Science and Another Subject**

Established Combined Honours programmes are described below. Students are encouraged to consult the Director of the Arts & Science Programme by Year II for consideration of other possible combinations.

**Honours Arts & Science and Anthropology****ADMISSION**

Completion of Arts & Science I with an average of at least 7.0 in ANTHROP 1A03 and 1Z03.

**REQUIREMENTS****LEVEL I: 30 UNITS**

- 24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06
- 6 units ANTHROP 1A03, 1Z03

**LEVEL II: 30 UNITS**

- 12 units ARTS&SCI 2A06, 2R06
- 6 units BIOLOGY 1A06
- 12 units from ANTHROP 2E03, 2F03, 2I03, 2PA3, 2Q03

**LEVEL III: 30 UNITS**

- 12 units ARTS&SCI 2D06, 3A06
- 6 units Upper-level Inquiry
- 3 units from ANTHROP 2E03, 2F03, 2I03, 2PA3, 2Q03 whichever not taken in Level II
- 3 units from ANTHROP 3A03, 3B03, 3D03, 3F03
- 6 units Anthropology courses

**LEVEL IV: 30 UNITS**

- 12 units ARTS&SCI 3B06 or 3B03 and 3BB3, 3D06 or 3D03 and 3DD3
- 6 units Upper-level Inquiry
- 6 units ANTHROP 4I03; three units Level IV Anthropology
- 6 units Anthropology courses

**Honours Arts & Science and Biochemistry****ADMISSION**

Completion of Arts & Science I with an average of at least 6.0 and an average of at least B- in ARTS&SCI 1D06 and CHEM 1A06.

**REQUIREMENTS****LEVEL I: 30 UNITS**

- 24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06
- 6 units CHEM 1A06

**LEVEL II: 33 UNITS**

- 12 units ARTS&SCI 2A06, 2R06
- 6 units BIOCHEM 2A06
- 6 units BIOLOGY 1A06
- 9 units CHEM 2O06, 2R03

**LEVEL III: 33 UNITS**

- 12 units ARTS&SCI 2D06, 3A06
- 12 units BIOCHEM 3A03, 3AA3, 3L03, 3P03
- 6 units BIOLOGY 2B03 (if not completed), 2C03
- 3 units CHEM 3F03

**LEVEL IV: 33 UNITS**

- 12 units ARTS&SCI 3B06, or 3B03 and 3BB3, 3D06, or 3D03

- 6 units and 3DD3
- 9 units Upper-level Inquiry
- 9 units BIOCHEM 4E03 and either BIOCHEM 4B06 or 4P03 and 4A03
- 6 units from BIOCHEM 4D03, 4I03, 4M03

**Honours Arts & Science and Biology****ADMISSION**

Completion of Arts & Science II with an average of at least 6.0 and at least B- in one of ARTS&SCI 1D06 or CHEM 1A06.

**NOTES**

- Continuation in the programme beyond Level II requires at least B- in BIOLOGY 1A06.
- Students are advised to note carefully the prerequisites for all Level III and IV courses listed in the programme, particularly BIOCHEM 3A03, 3AA3, 3G06.
- In Levels IV and V students may elect either the Whole Organism Option or the Cell, Molecular Biology, Genetics Option.

**COURSE LIST**

All Level II, III, and IV Biology courses; BIOCHEM 3A06, 3A03, 3AA3, 3G03, 3GG3, 3G06, 4D03, 4E03, 4M03; ENGINEER 4X03; GEOG 3P03, 4P03; GEOLOGY 2J03, 3D06, 3J03, 4D03, 4F03; MOLBIO4H03: PHARMAC 4B03; PSYCH 3F06, 3R03, 3S03, 3T03

**REQUIREMENTS****LEVEL I: 30 UNITS**

- 24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06
- 6 units CHEM 1A06

**LEVEL II: 30 UNITS**

- 18 units ARTS&SCI 2A06, 2D06, 2R06
- 6 units BIOLOGY 1A06
- 6 units CHEM 2O06

**LEVEL III: 30 UNITS**

- 6 units ARTS&SCI 3B06 or 3B03 and 3BB3
- 6 units Upper-level Inquiry
- 12 units from BIOLOGY 2B03, 2C03, 2D03, 2E03, 2F03
- 6 units from BIOCHEM 3G03, 3GG3, 3G06

**LEVEL IV: 30 UNITS****Whole Organism Option (Option A)**

- 6 units ARTS&SCI 3A06 or 3D06 or 3D03 and 3DD3
- 3-6 units from BIOLOGY 3U03 and 3UU3, or 4B03, or 3SS3 and 3I3
- 6 units BIOLOGY 3N03 and 3NN3
- 6 units from BIOLOGY 3B03, 3BB3, 3F03, 3FF3, 3K03
- 3 units BIOLOGY 3I03 or 3J03
- 3-6 units Electives

**LEVEL V: 30 UNITS**

- 6 units ARTS&SCI 3A06 or 3D06 or 3D03 and 3DD3 (whichever not completed)
- 6 units Upper-level Inquiry
- 6 units ARTS&SCI 4C06
- 3 units BIOLOGY 4E03, 4J03, 4Q03, 4X03, 4Y03
- 6 units Level III or Level IV BIOLOGY courses
- 3 units Electives

**LEVEL IV: 30 UNITS****Cell, Molecular Biology, Genetics Option (Option B)**

- 6 units ARTS&SCI 3A06 or 3D06 or 3D03 and 3DD3
- 24 units BIOLOGY 3E03, 3H03, 3HH3, 3I03, 3J03, 3N03, 3NN3, 3O03

**LEVEL V: 30 UNITS**

- 6 units ARTS&SCI 3A06 or 3D06 or 3D03 and 3DD3 (whichever not completed)
- 6 units Upper-level Inquiry
- 6 units ARTS&SCI 4C06
- 12 units BIOCHEM 4E03 and BIOLOGY 4M03; BIOLOGY 4I03 or 4V03; three units of Level IV Biology



## Honours Arts & Science and Computer Science

### ADMISSION

Completion of Arts & Science I with an average of at least 6.0, including a B- in ARTS&SCI 1D06, and COMP SCI 1MA3 and 1MB3.

### REQUIREMENTS

#### LEVEL I: 30 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units COMP SCI 1MA3 and 1MB3.

#### LEVEL II: 33 UNITS

12 units ARTS&SCI 2A06, 2D06  
6 units BIOLOGY 1A06  
6 units STATS 2D03 or 2MA3; MATH 1B03  
9 units COMP SCI 2MF3, 2MC3, 2MD3

#### LEVEL III: 33 UNITS

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
15 units COMP SCI 2ME3 or 2MJ3, 3MG3, 3MH3, 3MI3 and one of 3CA3, 3EA3, 3IA3

#### LEVEL IV: 30 UNITS

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
15 units COMP SCI 4MP6 and nine additional units of Level III or IV COMP SCI courses, including COMP SCI 3EA3 if not already taken  
3 units Electives

## Honours Arts & Science and Drama

### ADMISSION

Completion of Arts & Science I with a weighted average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in DRAMA 1A06.

### REQUIREMENTS

#### LEVEL I: 30 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units DRAMA 1A06

#### LEVEL II: 30 UNITS

12 units ARTS&SCI 2A06, 2R06  
6 units BIOLOGY 1A06  
12 units Level II DRAMA

#### LEVEL III: 30 UNITS

12 units ARTS&SCI 2D06, 3A06  
6 units Upper-level Inquiry  
12 units Level III or IV DRAMA

#### LEVEL IV: 30 UNITS

12 units ARTS&SCI 3B06 or 3B03 and 3BB3, 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
6 units Level III or IV DRAMA  
6 units Level IV DRAMA approved as the Arts & Science Programme Individual Study/Thesis requirement

## Honours Arts & Science and Economics

(There are two options of study for this combined programme described as Option A or Option B.)

### ADMISSION

Completion of Arts & Science I with a grade of at least B- in ECON 1A06.

### NOTE

One of OAC Finite Math, MATH 1L03, STATS 1L03, or STATS 2D03 is a prerequisite for research methods courses offered by the Department of Economics.

### REQUIREMENTS

#### Option A

#### LEVEL I: 30 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06

6 units ECON 1A06

#### LEVEL II: 30 UNITS

12 units ARTS&SCI 2A06, 2D06  
6 units BIOLOGY 1A06  
12 units ECON 2G03, 2GG3, 2H03, 2HH3

#### LEVEL III: 30 UNITS

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
6 units ECON 3O06 or ARTS&SCI 2R06  
3 units from ECON 2K03, 3I03  
3 units Electives

#### LEVEL IV: 30 UNITS

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
18 units ECON 3F03, 3LL3, 4A03 and nine additional units Economics, excluding ECON 2C03 and 2D03, six units of which must be approved as substitutes for ARTS&SCI 4A06/4C06

#### Option B

#### LEVEL I: 30 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units BIOLOGY 1A06

#### LEVEL II: 30 UNITS

18 units ARTS&SCI 2A06, 2D06, 2R06  
6 units ECON 1A06  
6 units Electives

#### LEVEL III: 30 UNITS

12 units ARTS&SCI 3A06, 3B06 or 3B03, 3BB3  
6 units Upper-level Inquiry  
12 units ECON 2G03, 2GG3, 2H03, 2HH3

#### LEVEL IV: 30 UNITS

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
3 units from ECON 2K03, 3I03  
9 units ECON 3F03, 3LL3, 4A03  
6 units ECON to replace ARTS&SCI 4A06/4C06

## Honours Arts & Science and English

(Beginning in 1993-94)

### ADMISSION

Enrolment in this programme is limited. Selection is based on academic achievement but requires, as a minimum, completion of Arts & Science I with (a) a grade of at least B- in ENGLISH 1D06, and (b) a weighted average of at least 7.0 in 18 units of Level I courses, including ENGLISH 1D06 and ARTS&SCI 1A06 or 1B06.

### NOTES

1. With special permission of the English Department, students may substitute ENGLISH 4X03 for three units of Level IV seminar work in the second term.
2. Six units of a language other than English are needed to complete the programme.

#### LIST 1

ENGLISH 3C06, 3D03, 3DD3, 3I03, 3J06, 3T03, 3V06

#### LIST 2

ENGLISH 3G06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3

### REQUIREMENTS

#### LEVEL I: 30 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units ENGLISH 1D06

#### LEVEL II: 30 UNITS

18 units ARTS&SCI 2A06, 2R06; BIOLOGY 1A06  
6 units ENGLISH 2A06  
6 units from ENGLISH 2B06, 2G06, 2H06, 2I06

#### LEVEL III: 30 UNITS

12 units ARTS&SCI 2D06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry

6 units ENGLISH 3K06  
6 units from List 1 or 2

**LEVEL IV: 30 UNITS**

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
6 units from List 1 or 2 (whichever list requirement not complete)  
6 units Level IV English seminars  
6 units Language requirement

**Honours Arts & Science and English**

(For students who entered the programme prior to September 1993)

Students who entered this programme before September 1990 must consult the Departmental Counsellor to discuss ways of meeting their programme requirements.

**NOTES**

1. Students should plan their programmes in consultation with the Departmental Counsellor. A minimum of six units of work from four of the six fields in Department Note 2 (see *Faculty of Humanities, Department of English* in this Calendar) must be taken. ENGLISH 2A06, 4X03 and the Level IV seminars may not be used for field coverage.
2. In addition to the 36 units of English courses, students must successfully complete six units of a language other than English.
3. With special permission of the English Department, students may substitute ENGLISH 4X03 for three units of Level IV seminar work in the second term.

**COURSE LIST 1**

ENGLISH 3C06, 3D03, 3DD3, 3G06, 3H06, 3I03, 3J06, 3K06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3, 3T03, 3V06

**REQUIREMENTS****LEVEL I: 30 UNITS**

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units ENGLISH 1D06

**LEVEL II: 30 UNITS**

18 units ARTS&SCI 2A06, 2R06; BIOLOGY 1A06  
6 units ENGLISH 2A06  
6 units from ENGLISH 2B06, 2G06, 2H06

**LEVEL III: 30 UNITS**

12 units ARTS&SCI 2D06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
12 units from Course List 1

**LEVEL IV: 30 UNITS**

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
6 units from Course List 1  
6 units Level IV ENGLISH seminars  
6 units Language requirement

**Honours Arts & Science and French****ADMISSION**

Completion of Arts & Science I with a weighted average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in FRENCH 1A06 or 2M06.

**NOTES**

1. When selecting their courses, students must ensure that the overall total includes a minimum of 24 units of Level III and IV French courses.
2. Upon completion of 60 units of work (including at least 12 units of required Level II French courses), and with the approval of the Department of French, the Associate Dean of Humanities (Studies), and the Director of the Arts & Science Programme, up to 15 units of Level III French may be replaced by courses of study at a French-language university.

**COURSE LIST 1 (SIX UNITS REQUIRED):**

FRENCH 3S03, 4F03, 4I03, 4J03, 4LL3, 4MM3, 4N03, 4O03, 4Q03, 4R03, 4U03, 4Y03

**COURSE LIST 2 (THREE UNITS REQUIRED):**

FRENCH 2C03, 2G03, 3CC3, 3F03, 4BB3

**REQUIREMENTS****LEVEL I: 30 UNITS**

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units FRENCH 1A06 or 2M06

**LEVEL II: 30 UNITS**

12 units ARTS&SCI 2A06, 2R06  
6 units BIOLOGY 1A06  
9 units FRENCH 2A03; FRENCH 2J03 or 2JJ3; 2W03 or 2WW3  
3 units from Course List 2 (This requirement can be done in Level IV)

**LEVEL III: 30 UNITS**

12 units ARTS&SCI 2D06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
3 units FRENCH 3C03  
6 units FRENCH 3K03 or 3KK3; FRENCH 3Q03 or 3QQ3  
3 units from FRENCH 3AA3, 3BB3, 4U03

**LEVEL IV: 30 UNITS**

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
12 units FRENCH 4A03; three units Level III or IV FRENCH courses; two three-unit Level IV French courses from Course List 1  
6 units Electives

**Honours Arts & Science and Geography****ADMISSION**

Completion of Arts & Science I with a weighted average of at least 7.0 in six units of Level I Geography.

**REQUIREMENTS****LEVEL I: 30 UNITS**

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units Level I Geography

**LEVEL II: 30 UNITS**

12 units ARTS&SCI 2A06, 2D06  
6 units BIOLOGY 1A06  
6 units ARTS&SCI 2R06, GEOG 2LL3, 2NN3, 2N03  
6 units Level II Geography, excluding 2C03, 2E03, 2P03

**LEVEL III: 30 UNITS**

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
12 units GEOG 3O03; nine units Level III Geography, excluding 3JJ3, 3R03

**LEVEL IV: 30 UNITS**

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
18 units GEOG 4CC3 and 15 units Level III/IV Geography, or GEOG 4C06 and 12 units of Level III/IV Geography

**Honours Arts & Science and Gerontology****ADMISSION**

Completion of Arts & Science I with a weighted average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in GERONTOL 1A06.

**NOTES**

(See *Faculty of Social Sciences, Gerontological Studies* section of this Calendar)

**COURSE LIST 1**

ANTHROP 3Z03, ECON 3D03, 3Z03, GEOG 4S03, HTH SCI 3B04, HISTORY 3EE3, PHILOS 3C03, RELIG ST 2M03, 2N03, 2WW3, SOC WORK 3C03, SOCIOL 3CC3, 3G03, 3HH3, 3X03, 4P03, or other designated and approved courses. (See *Note 3, Gerontological Studies* in the *Faculty of Social Sciences* section of this Calendar.)

**REQUIREMENTS****LEVEL I: 30 UNITS**

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units GERONTOL 1A06

**LEVEL II: 30 UNITS**

18 units ARTS&SCI 2A06, 2D06, 2R06  
6 units BIOLOGY 1A06  
6 units GERONTOL 2A03; 2B03 or 3D03

**LEVEL III: 30 UNITS**

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
12 units GERONTOL 3B03, nine units from Gerontology and/or Course List 1

**LEVEL IV: 30 UNITS**

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
6 units from Gerontology and/or Course List 1  
9 units GERONTOL 4A06, three units Level IV Gerontology  
3 units Elective

**Honours Arts & Science and History****ADMISSION**

Enrolment in this programme is limited. Selection is based on academic achievement, but requires, as a minimum, completion of Arts & Science I with a weighted average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in any Level I HISTORY course

**NOTES**

- In selecting courses, students must ensure that they take a minimum of three units in each of three fields of History. For this purpose the Department has established the following six fields: European, Ancient, Asian, Canadian, British, and the Americas (excluding Canada). This requirement must be completed by the end of Level III. All Level II and III History courses shown in the list of Subfields (see listing in the *Faculty of Humanities, Department of History* section of this Calendar) may be used toward this requirement. Students are permitted a maximum of 18 units of work in any one of the preceding fields.
- No Level IV seminars may be taken before completion of 12 units of History beyond Level I.

**REQUIREMENTS****LEVEL I: 30 UNITS**

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units Level I History

**LEVEL II: 30 UNITS**

18 units ARTS&SCI 2A06, 2D06, 2R06  
6 units BIOLOGY 1A06  
6 units Level II History

**LEVEL III: 30 UNITS**

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
12 units six units Level II History; six units Level III History

**LEVEL IV: 30 UNITS**

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
18 units six units Level III HISTORY; six units Level IV HISTORY; six units Level IV HISTORY approved as substitutes for ARTS&SCI 4A06/4C06

**Honours Arts & Science and Mathematics****ADMISSION**

Completion of Arts & Science I with an average of at least 6.0 including a weighted average of 7.0 in ARTS&SCI 1D06 or MATH 1A06 or 1AA6, and MATH 1B03.

**REQUIREMENTS****LEVEL I: 30-33 UNITS**

27 units ARTS&SCI 1A06, 1B06, 1C06, 1D06; MATH 1B03

6 units BIOLOGY 1A06 (may be taken in Level II)  
3 units Electives, if BIOLOGY 1A06 not taken in Level I

**LEVEL II: 33-36 UNITS**

12 units ARTS&SCI 2A06, 2D06  
3-6 units STATS 2D03 or 2MA3 or ARTS&SCI 2R06 if BIOLOGY 1A06 completed in Level I  
15-21 units MATH 2A06, 2B06, and 2D03 or 2E03; BIOLOGY 1A06 (if not completed in Level I)

**LEVEL III: 33-36 UNITS**

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
15-18 units MATH 3A06, 3E03, 3EE3, and 3 to 6 units from MATH 2C03, 3B03, 3F03, 3FF3, 3G03, 3H03, 3L03, 3P03, 3Q03, 3R03, STATS 3D06

**LEVEL IV: 30-36 UNITS**

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
6 units ARTS&SCI 4A06 or 4C06  
3-6 units from MATH 2C03, 3B03, 3F03, 3FF3, 3G03, 3H03, 3L03, 3P03, 3Q03,  
9-12 units Mathematics or Statistics from MATH 4A06, 4B03, 4BB3, 4C03, 4E03, 4F03, 4J03, 4K03, 4Q03, 4RR3, 4S03, 4V06, STATS 4M03

**Honours Arts & Science and Philosophy****ADMISSION**

Completion of Arts & Science I with a weighted average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in any Level I Philosophy course or, if no such course was taken, in six units of work acceptable to the Department of Philosophy.

**NOTES**

- Students intending to do graduate work in Philosophy are advised to include PHILOS 2B03 in their programme.
- Students are advised to note carefully the prerequisites for all courses. Students are also advised to take note which courses are offered in alternate years.
- Upon completion of 60 units of work and with the approval of the Department of Philosophy, the Associate Dean of Humanities (Studies), and the Director of the Arts & Science Programme, one or both terms of Level III may be replaced by courses of study at a designated university abroad.
- Arts & Science students may **not** take PHILOS 2R03.

**REQUIREMENTS****LEVEL I: 30 UNITS**

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units BIOLOGY 1A06

**LEVEL II: 30 UNITS**

18 units ARTS&SCI 2A06, 2D06, 2R06  
6 units PHILOS 2A06  
6 units Level III or IV Philosophy

**LEVEL III: 30 UNITS**

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
6 units PHILOS 2C06  
6 units Level III or IV Philosophy

**LEVEL IV: 30 UNITS**

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
12 units six units Level III or IV PHILOS; six units Level IV Philosophy  
6 units Electives

**Honours Arts & Science and Physics****ADMISSION**

Completion of Arts & Science I with an average of at least 7.0, including at least a 6.0 in ARTS&SCI 1D06 or MATH 1A06.

**NOTE**

Continuation in the programme beyond Level II requires at least

6.0 in PHYSICS 1A06 or 1B06.

**REQUIREMENTS****LEVEL I: 33 UNITS**

24 units ARTS&SCI 1A06, 1B06, 1C06; ARTS&SCI 1D06 or MATH 1A06  
6 units PHYSICS 1A06 or 1B06, or BIOLOGY 1A06  
3 units MATH 1B03

**LEVEL II: 30-33 UNITS**

6 units ARTS&SCI 2A06  
6 units Upper-level Inquiry  
6 units BIOLOGY 1A06, or PHYSICS 1A06 or 1B06, whichever not completed  
6 units CHEM 1A06  
6-9 units MATH 2A06 and 2C03 or MATH 2G03 and 2O03

**LEVEL III: 30 UNITS**

12 units ARTS&SCI 3B06 or 3B03 and 3BB3, and 3A06 or 3D06 or 3D03 and 3DD3  
18 units PHYSICS 2B06, 2C03, 2D03, 2H03; COMP SCI 1MA3

**LEVEL IV: 29 UNITS**

6 units ARTS&SCI 3A06 or 3D06 or 3D03 and 3DD3 (whichever not completed)  
17 units PHYSICS 3H04, 3K04, 3M03, 3MM3 and 3N03  
6 units MATH 3C03, 3D03

**LEVEL V: 32 UNITS**

6 units ARTS&SCI 4C06  
6 units Upper-level Inquiry  
11 units PHYSICS 4B04, 4F03, 4J04  
9 units Level III or IV PHYSICS, excluding PHYSICS 4Q04

**Honours Arts & Science and Political Science****ADMISSION**

Completion of Arts & Science I with an average of at least 7.0 in six units of Political Science courses.

**NOTES**

(Also, see notes under *Faculty of Social Science, Political Science* section):

- Prerequisites:** A number of Level III and IV courses have Level II prerequisites. Students who wish to enter courses but who lack the necessary prerequisites must obtain permission of the instructor.
- Because POL SCI 2O06 is a prerequisite for Level III and IV courses in political theory, the order in which POL SCI 2O06 and 2F06 will depend on the particular course of study chosen; further advice on this may be sought from the Department of Political Science Undergraduate Advisor.
- The second year Arts & Science Mathematics requirements may be fulfilled by POL SCI 2F06.

**REQUIREMENTS****LEVEL I: 30 UNITS**

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units BIOLOGY 1A06

**LEVEL II: 30 UNITS**

12 units ARTS&SCI 2A06, 2D06  
6 units POL SCI 2F06 (or ARTS&SCI 2R06)  
12 units from Level II or III POL SCI

**LEVEL III: 30 UNITS**

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
6 units POL SCI 2O06  
6 units Level III POL SCI

**LEVEL IV: 30 UNITS**

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
6 units Level III/IV Political Science  
6 units Level IV Political Science approved to replace ARTS&SCI 4A06 or 4C06  
6 units Electives

**Honours Arts & Science and Psychology****ADMISSION**

Completion of Arts & Science I, including a grade of at least B- in PSYCH 1A06 and at least B- in six additional units, and credit in ARTS&SCI 1D06.

**NOTES**

- ARTS&SCI 1D06 with a grade of at least C- must be completed before entrance into Level II of the programme.
- PSYCH 2R03 and 2RR3 must be completed before entrance into Level III.
- BIOLOGY 1A06 is a prerequisite for PSYCH 2F03.
- At some time during the programme, the student must meet a laboratory requirement by completing one of PSYCH 3C06, 3E03, 3L03 3QQ3, 3S03, 3V03, 4G03, 4QQ3. Enrolment in Psychology Laboratory courses is limited. Permission of the Department is required by March 1.
- Students who are planning to do graduate studies in Psychology and who meet the prerequisites should complete PSYCH 4D06
- One course from Course List 1 must be completed in Level III or IV.

**COURSE LIST 1**

PSYCH 3C06, 3E03, 3L03, 3QQ3, 3S03, 3V03, 4G03, 4QQ3

**REQUIREMENTS****LEVEL I: 30 UNITS**

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units PSYCH 1A06

**LEVEL II: 30 UNITS**

12 units ARTS&SCI 2A06, 2D06  
6 units BIOLOGY 1A06  
6 units PSYCH 2R03 and 2RR3 (or ARTS&SCI 2R06)  
6 units from PSYCH 2E03, 2F03, 2H03, 2T03

**LEVEL III: 30 UNITS**

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
3 units from PSYCH 2E03, 2F03, 2H03, 2T03 (whichever not taken in Level II)  
9 units Level III Psychology courses (See Note 3)

**LEVEL IV: 30 UNITS**

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
6 units Level III or IV Psychology courses (See Note 3)  
6 units PSYCH 4D06 or six units Level IV PSYCH courses approved as substitutes for ARTS&SCI 4A06 or 4C06  
6 units Electives

**Honours Arts & Science and Religious Studies****ADMISSION**

Completion of Arts & Science I with a weighted average of at least 7.0 in 12 units, including ARTS&SCI 1A06.

**NOTES**

- All students should consult the Department Handbook. All students are strongly urged to consult the Departmental Advisor at least once a year.
- With the written approval of the Departmental Advisor, courses from other departments may be substituted for Religious Studies courses.

**REQUIRED**

Three units from Course List 1; three units each from two other Course Lists.

**COURSE LIST 1****Asian Religions**

RELIG ST 2A03, 2J06, 2L03, 2P06, 2PP3, 2TT3, 3AA3, 3E03, 3H03, 3I03, 3U03, 3UU3, SANSKRIT 3A06, 4B06

**COURSE LIST 2****Biblical Studies and Early Christianity**

RELIG ST 2B03, 2D06, 2DD3, 2EE3, 2E06, 2F03, 2FF6, 2VV3,

2Z03, 3K03, 3M03, 3O03, 3T03, 3X03

### COURSE LIST 3

#### Western Religious Thought

RELIG ST 2C03, 2G06, 2H03, 2I03, 2I13, 2JJ3, 2KK3, 2R06, 2S06, 2ZZ3, 3D03 3KK3, 3LL3, 3MM3, 3NN3

### COURSE LIST 4

#### Contemporary and Comparative Religions

RELIG ST 2AA3, 2BB3, 2K03, 2M03, 2N03, 2O06, 2QQ3, 2SS3, 2W03, 2WW3, 3A03, 3B03, 3BB3, 3J06, 3JJ6, 3SS3

### REQUIREMENTS

#### LEVEL I: 30 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units BIOLOGY 1A06

#### LEVEL II: 30 UNITS

18 units ARTS&SCI 2A06, 2D06, 2R06  
9 units Course List Requirement  
3 units RELIG ST courses

#### LEVEL III: 30 UNITS

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
12 units RELIG ST 3F03; nine units Level III RELIG ST courses

#### LEVEL IV: 30 UNITS

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
12 units RELIG ST 4A06, 4J06 (one of which will replace ARTS&SCI 4A06, 4C06.)  
6 units Electives

## Honours Arts & Science and Sociology

### ADMISSION

Completion of ARTS&SCI I with a grade of at least B- in SOCIOL 1A06.

### NOTES

1. A student may take a maximum of six units of Level IV independent research (SOCIOL 4M03/4N03 or 4MM6).
2. Students should check both this Calendar and the Departmental Handbook for prerequisites and course descriptions.

#### LEVEL I: 30 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units SOCIOL 1A06

#### LEVEL II: 30 UNITS

12 units ARTS&SCI 2A06, 2D06  
6 units BIOLOGY 1A06  
12 units SOCIOL 2S06; six units Sociology

#### LEVEL III: 30 UNITS

6 units ARTS&SCI 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
12 units SOCIOL 3H06, six units SOCIOL  
6 units three units from SOCIOL 3A03, 3P03, 3PP3; three units from SOCIOL 3O03, 3W03

#### LEVEL IV: 30 UNITS

12 units ARTS&SCI 3A06, 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
6 units Level IV SOCIOL  
6 units SOCIOL 4M03 and 4N03 or 4MM6 to replace ARTS&SCI 4A06, 4C06

## Honours Arts & Science and Statistics

### ADMISSION

Completion of Arts & Science I with at least 7.0 in ARTS&SCI 1D06 and MATH 1B03.

#### LEVEL I: 30 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
3 units MATH 1B03  
3 units Electives (Suggested: COMP SCI 1ZA3)

#### LEVEL II: 30 UNITS

12 units ARTS&SCI 2A06, 2D06  
6 units BIOLOGY 1A06  
12 units MATH 2A06, STATS 2D03, 2MB3

#### LEVEL III: 30 UNITS

12 units ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3  
6 units Upper-level Inquiry  
12 units STATS 3D06; MATH 3O06

#### LEVEL IV: 30 UNITS

6 units ARTS&SCI 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
6 units ARTS&SCI 4A06 or 4C06  
12 units STATS 3U03, 3S03; MATH 3T03, and three units of Level IV STATS

## Honours Arts & Science and Women's Studies

### ADMISSION

Completion of Arts & Science I and a grade of at least B- in WOMEN ST 1A06.

### NOTES

1. **Enrolment in the Honours Arts & Science and Women's Studies programme is limited.** Application for admission, including a letter explaining the applicant's interest in Women's Studies, should be made to the Director of Women's Studies prior to April 15.
2. Students who have not taken WOMEN ST 1A06 in Level I but who are interested in this combined programme should consult the Director of Women's Studies.
3. Registration in each level of the programme requires written approval of the Director of Arts & Science and the Director of Women's Studies.
4. In Levels II, III, and IV, students must normally take the six-unit Women's Studies course appropriate to their level and six additional units of approved WOMEN ST courses from List 1.

### LIST 1

All Women's Studies courses. With approval of the Director of Women's Studies, appropriate courses may be selected from Anthropology, Classics, Comparative Literature, English, French, Modern Languages, Geography, History, Labour Studies, Philosophy, Physical Education, Religious Studies and Sociology.

#### LEVEL I: 30 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
6 units WOMEN ST 1A06

#### LEVEL II: 30 UNITS

12 units ARTS&SCI 2A06, 2R06  
6 units BIOLOGY 1A06  
12 units WOMEN ST 2A06; six units from List 1

#### LEVEL III: 30 UNITS

6 units ARTS&SCI 2D06  
6 units from ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3, 3D06 or 3D03 and 3DD3  
6 units Upper-Level Inquiry  
12 units WOMEN ST 3A06; six units from List 1

#### LEVEL IV: 30 UNITS

12 units from ARTS&SCI 3A06, 3B06 or 3B03 and 3BB3, 3D06 or 3D03 and 3DD3 (whichever not completed)  
6 units Upper-Level Inquiry  
12 units WOMEN ST 4A06, six units from Course List 1

## Bachelor of Arts & Science and Social Work (B.Arts Sc./B.S.W.)

### ADMISSION

Completion of Level I, including PSYCH 1A06 and SOCIOL 1A06, with a CA of 6.0. An applicant must complete Level I by April of the year in which application is made. The School of Social Work will evaluate personal suitability by one, or a combination of, written statements, tests, or interviews.

Enrolment is limited. Students who intend to apply must consult the

## 32 ARTS & SCIENCE PROGRAMME

---

School of Social Work before applying; applications must be made prior to March 1.

### CONTINUATION BEYOND LEVEL I

Students must achieve a minimum grade of C+ in each of the required Social Work core courses, and a CA of at least 6.0 in Social Work courses at each review.

Students must maintain an Arts & Science CA of 6.0 and a CA of at least 6.0 at the end of Level II and beyond in order to continue in the programme.

### NOTES

1. Courses in Social Work are divided into three groupings: required core courses, practice oriented courses, and policy oriented courses. Students should consult a counsellor in the School of Social Work concerning the specific courses related to each grouping.
2. Students are expected to assume the cost of travelling to and from field practice agencies.

### REQUIREMENTS

#### LEVEL I: 36 UNITS

24 units ARTS&SCI 1A06, 1B06, 1C06, 1D06  
12 units PSYCH 1A06; SOCIOL 1A06

#### LEVEL II: 36 UNITS

12 units ARTS&SCI 2A06, 2D06  
6 units BIOLOGY 1A06  
15 units PSYCH 2A03; SOC WORK 2B06, 2C03, 2D03  
3 units Electives

#### LEVEL III: 36 UNITS

12 units ARTS&SCI 3B06 or 3B03 and 3BB3, ARTS&SCI 2R06  
15 units SOC WORK 3D06, 3DD6, and 3N03 or 3R03  
3 units from Social Work practice courses  
6 units from Social Work policy courses

#### LEVEL IV: 36 UNITS

12 units ARTS&SCI 3A06 or 3D06 or 3D03 and 3DD3  
6 units Upper-level Inquiry  
15 units SOC WORK 4D06, 4DD6, and one of SOC WORK 4O03, 4X03 or 4Y03  
3 units from Social Work practice courses  
6 units from Social Work policy courses

---

---



# MICHAEL G. DEGROOTE

## SCHOOL OF BUSINESS

### (FACULTY OF BUSINESS)

#### Dean of Business

W.G. Truscott/B.S.E., M.B.A., D.B.A., P.Eng.

#### Associate Dean of Business (Academic)

J.W. Medcof/B.A., M.A., Ph.D.

#### Associate Dean of Business (External Relations)

M.W.L. Chan/B.Sc., M.A., Ph.D.

#### Administrator, Undergraduate Programmes

J. Osterman/B.A., B.Admin.

#### Undergraduate Student Advisor

B. Pegg/B.A.

The School of Business offers three programmes, each of which spans four levels of study. The Honours Commerce programme, which leads to the Honours Bachelor of Commerce (Honours B.Com.) degree, provides substantial concentration in business subjects beyond the essential core of studies. The Commerce programme, which leads to the Bachelor of Commerce (B.Com.) degree, contains essential grounding in business subjects and promotes the broadening of horizons through studies in Social Sciences, Humanities and Science. The Honours Commerce and Economics programme, which is offered in conjunction with the Department of Economics, leads to the Honours Bachelor of Commerce and Arts (Honours B.Com. & Arts) degree. No new registrants will be taken into the Bachelor of Commerce and Arts (Honours) programme after the Fall of 1993. These programmes are referred to collectively as the Commerce programmes.

In addition, the School of Business and the Faculty of Engineering offer a five-level joint programme for the Bachelor of Engineering and Management (B.Eng.Mgt.) degree. This programme provides a full course of study in Engineering and includes a complete core of business subjects. Details concerning the B.Eng.Mgt. programme and its academic regulations are given in the *Faculty of Engineering* section of this Calendar.

Also, the School of Business participates in the Committee of Instruction and offers courses for the B.A. programme in Labour Studies which is described in the Faculty of Social Sciences section of this Calendar.

## THE COMMERCE PROGRAMMES

In Level I, a student who wishes to pursue any of the Commerce programmes establishes a foundation in computer science, economics, mathematics and psychology or sociology, and takes additional elective work. While this course of study is prescribed in Business I, a student who establishes a similar background in the Level I programme of another Faculty may also be considered for admission to Level II (Commerce II). Such a student should consult with the Office of the Administrator, Undergraduate Programmes, School of Business.

A student must gain admission to Commerce II in order to proceed towards the Honours B.Com. or B.Com. degrees. In Level II a wide range of business subjects (accounting, finance, marketing, organizational behaviour, and statistical analysis for business) are introduced and further course work in economics is required. Elective work is taken from non-Commerce courses.

The Commerce programmes diverge at Level III. While the same core of required Commerce courses is completed in Levels III and IV, the mix of work taken over these levels differs. In Levels III and IV of the Honours Commerce programme, about three-quarters of

the work is in Commerce courses, with the remainder of the load coming from electives outside the Faculty. The Honours Commerce and Economics programme contains approximately equal amounts of work in Commerce and Economics over Levels III and IV, with few electives outside these disciplines. In Levels III and IV of the Commerce programme, about one-half of the course work is in each of Commerce subjects and non-Commerce electives.

### FULL-TIME/PART-TIME STUDIES

You can take Business I and the Commerce programmes on a full-time or part-time basis.

**Full-time studies:** see *Workload* below.

**Part-time studies:** A part-time student is permitted to take a maximum of 18 units in any Fall/Winter session and a maximum of 12 units in any Spring/Summer term. Progression to the next level is at the end of the successful completion of the 30 units of work that pertain to the lower level. It should be noted that only a few Level IV Commerce courses are offered in evenings or in summer sessions.

### CONTINUING STUDENTS

Graduates of McMaster's Commerce programmes or one of the Engineering and Management programmes may take as part-time students, Level III and IV Commerce courses (not previously taken, to a maximum of 18 units), excluding COMMERCE 4AG3, 4AH3, 4AI3, with permission of the Office of the Administrator, Undergraduate Programmes. Such permission will be given only if normal prerequisites are satisfied and if space permits after meeting the requirements of in-course students. Registrations will be approved after classes start. (see *Admission Requirements, Continuing and Post-Degree Students*).

\*These courses are available as CCE 500, CCE 501, CCE 502, through McMaster's Centre for Continuing Education, subject to sufficient enrolments and availability of qualified instructors.

Other than those graduates specified above, Commerce courses are not open to Continuing Students. Such students are eligible for courses designated BUSINESS.

### SECOND UNDERGRADUATE DEGREE

A student with an undergraduate degree will not be admitted or readmitted to any of the Commerce programmes. Such a student may wish to apply for admission to the M.B.A. programme.

### CREDIT TOWARDS PROFESSIONAL DESIGNATIONS

Educational requirements toward a variety of professional designations can be met in varying degrees within the Commerce programmes and the Engineering and Management programme. The professional accounting designations C.A., C.M.A. and C.G.A. are awarded by the Institute of Chartered Accountants of Ontario, the Society of Management Accountants of Ontario and the Certified General Accountants Association of Ontario, respectively, while the designation C.H.R.M. is awarded by the Human Resources Professionals Association of Ontario.

Further opportunities for meeting educational requirements for professional designations are available to students in all Commerce and Engineering and Management programmes. Additional course work may be taken as Extras (see Extra Courses below) while in the programme. Further units of credit may also be taken after graduation (see Continuing Students above).

Information concerning credit towards these professional designations can be obtained from the Office of the Administrator, Undergraduate Programmes, School of Business.

## ACADEMIC REGULATIONS

A student enrolled in any of the Commerce programmes, in addition to meeting the General Academic Regulations of the University, shall be subject to the following School of Business Regulations:

### CHANGE OF PROGRAMME

A student may transfer between Commerce programmes prior to entering Level IV, provided that, after consultation with the Office of the Administrator, Undergraduate Programmes, of the School of Business, it has been determined that the academic requirements

of the new programme have been met, and an acceptable revised programme of work can be established. This revised programme of work must be approved by the Associate Dean (Academic). Approval will not be granted for a transfer from Level III Commerce into a Level IV Honours Commerce programme.

Transfer from the Honours Commerce and Economics programme into Economics programmes should be discussed with the Department of Economics.

Students in good standing in the Engineering and Management programme may transfer to a Commerce programme with the permission of the Associate Dean (Academic). The conditions for eligibility for entrance to the Commerce programmes are the same as for students registered in the School of Business.

### WORKLOAD

A full-time student must complete a 30-unit load in each Fall/Winter session. Advance credit and credit earned during Spring/Summer session may be used to reduce this load requirement. Such reductions will be applied as late as possible in a student's programme. In any Fall/Winter session, a student may not register for more than 30 units (including Extra courses) without the approval of the Office of the Administrator, Undergraduate Programmes. Such approval will not be given to a student with a Cumulative Average below 9.0.

### REPEATED COURSES

Any failed course must be repeated if it is an explicitly required course for the programme, or must be repeated or replaced if it is not explicitly required. The grades for both the failed course and its repetition or replacement, as appropriate, will be included in the calculation of a student's CA. Voluntary repetitions of non-Commerce courses in which passing grades have been previously attained are designated as Extra courses. (See *Extra Courses* below and in the *Glossary* on page 6 of this Calendar.)

### EXTRA COURSES

Courses in addition to those which constitute the student's programme must be designated Extra at registration. Extra courses may be taken only upon successful completion of Level III of any of the Commerce programmes. No Extra courses may be scheduled in a manner which would delay completion of a student's programme. Commerce courses previously taken cannot be repeated as Extras.

### LEVEL OF REGISTRATION

A student is required to register in the lowest level for which more than six units of work is incomplete. Work of the next higher level may be undertaken only when necessary to fill a programme load. Courses must be taken in the sequence specified by the School of Business.

### READMISSION

A student in Level II, III or IV of a Commerce programme, who becomes ineligible to continue in the School of Business, may apply for readmission to the Commerce programme in a subsequent calendar year.

#### Readmission is not guaranteed.

Application for readmission must be made in writing to the Associate Dean (Academic) by April 30 of the year for which readmission is desired. This application should explain why the student would expect to succeed in the programme if readmitted.

A student who is readmitted after having become ineligible to continue in a Commerce programme must repeat all the courses of the level at which he became ineligible to continue unless specific course exemptions are granted. The earliest possible session for readmission is the session starting in September of the year following the year in which the student became ineligible to continue. The computation of a student's CA begins anew at such readmission.

### FORMER COMMERCE STUDENTS

If you were previously registered in a McMaster Commerce programme and in good standing but did not attend last year, you must write to the Office of the Administrator, Undergraduate Programmes, to seek readmission. The letter should explain your activities (academic and otherwise) since you were last registered.

If five years have passed since you were last registered at McMaster, please see Application Procedures-Former McMaster

Students section of the calendar.

Graduates of McMaster's Commerce or Engineering and Management programmes should refer to the School of Business-Continuing Students section of the calendar.

### INQUIRIES RE: ACADEMIC REGULATIONS

A student seeking relief from the School of Business regulations must apply in writing, with appropriate documentation attached. Guidelines for such requests may be obtained from the Office of the Administrator, Undergraduate Programmes, Michael G. DeGroot Building, Room 104.

## PROGRAMMES

### BUSINESS I: 30 UNITS

21-24 units COMP SCI 1BA3; ECON 1A06; STATS 1L03; MATH 1M03 or 1A06; PSYCH 1A06 or SOCIOL 1A06

6-9 units Electives (to total 30 units). Students without OAC Calculus must elect MATH 1K03. Students with credit in OAC Finite Math must substitute STATS 1L03 with an elective.

## Commerce

### ADMISSION

Admission to any of the Commerce programmes beyond Commerce Level II is not possible.

### BUSINESS LEVEL I STUDENTS

To be considered for Commerce Level II you must have a CA of at least 5.0 on your Business I courses with no failures. When calculating the CA and checking for failures only first attempts at Business I courses are considered. **However, enrolment in Commerce II is limited to a maximum of 300 students.** Therefore, being eligible for consideration for entry to Commerce II does not guarantee you entry. In 1992/93 only students with CAs of 6.0 or greater were admitted.

### TRANSFER STUDENTS

A maximum of 50 of the 300 places in Commerce Level II may be given to students from other universities or from other Faculties within McMaster University. Academic requirements for admission of transfer students may be more demanding than those for Business I students.

### LEVEL II: 30 UNITS

21 units COMMERCE 2AA3, 2BA3, 2FA3, 2MA3, 2QA3; ECON 2G03 and ECON 2H03. A student who wishes to proceed in the Honours Commerce programme or the Commerce programme and who plans to take a substantial amount of further work in Economics should take ECON 2G03 and 2GG3, and ECON 2H03 and 2HH3. A student who wishes to proceed in the Honours Commerce and Economics programme must take ECON 2G03 and 2GG3, and 2H03 and 2HH3.

9 units Electives from non-Commerce courses. A student who wishes to proceed in the Honours Commerce and Economics programme must take elective work from other than Commerce and Economics courses, and is advised to elect MATH 2L03 as preparation for ECON 3A03 in Level III.

## Honours Commerce (Honours B.Com.)

Requirements for continuation towards the Honours B.Com. degree are specified above in Academic Regulations.

### LEVEL III: 30 UNITS

24 units COMMERCE 3AA3, 3FA3, 3MA3, 3QA3, 3QB3; COMMERCE 3BA3 or 3BB3; six additional units from among COMMERCE 3AB3, 3BA3, 3BB3, 3FB3, 3MB3

6 units Electives from non-Commerce courses

### LEVEL IV: 30 UNITS

21-24 units COMMERCE 4PA3, 4QA3; 15 or 18 additional units from Groups 1 to 6 below. No more than 12 of these 15

or 18 additional units can be taken in Level IV from any one Group. (See Group listing below.)

6-9 units Electives from non-Commerce courses beyond Level I

➤ **GROUP 1 (ACCOUNTING)**

COMMERCE 3AB3, 4AA3, 4AB3, 4AC3, 4AD3, 4AE3, 4AF3, 4AG3\*, 4AH3\*, 4AI3\*

\*Available summer sessions, 1994, 1995, 1996, 1997, subject to sufficient enrolments and availability of qualified instructors.

➤ **GROUP 2 (HUMAN RESOURCES & LABOUR RELATIONS)**

COMMERCE 3BA3, 3BB3, 4BA3, 4BB3, 4BC3, 4BD3, 4BE3, 4BF3, 4BG3, 4BH3

➤ **GROUP 3 (FINANCE)**

COMMERCE 3FB3, 4FA3, 4FB3, 4FC3

➤ **GROUP 4 (MARKETING)**

COMMERCE 3MB3, 4MC3, 4MD3

➤ **GROUP 5 (ENVIRONMENT & INTERNATIONAL BUSINESS)**

COMMERCE 4PB3, 4PC3, 4PD3, 4PE3

➤ **GROUP 6 (PRODUCTION & MANAGEMENT SCIENCE)**

COMMERCE 4QB3, 4QC3

**Honours Commerce and Economics  
(Honours B.Com. & Arts)**

Requirements for continuation toward the Honours B.Com. & Arts degree are specified above in Academic Regulations. No new registrants will be taken into the Bachelor of Commerce & Arts (Honours) programme after the Fall of 1993.

**LEVEL III: 30 UNITS**

30 units COMMERCE 3AA3, 3FA3, 3MA3, 3QA3, 3QB3; COMMERCE 3BA3 or 3BB3; ECON 3A03, 3AA3; six additional units in Economics

**LEVEL IV: 30 UNITS**

24 units COMMERCE 4PA3, 4QA3; six additional units in Commerce; 12 units in Economics, including one of ECON 2K03, 3I03 or 3R03 if not taken previously.

6 units Electives from other than Commerce and Economics courses

**Commerce (B.Com.)**

Requirements for continuation towards the B.Com. degree are specified above in Academic Regulations.

**LEVEL III: 30 UNITS**

18 units COMMERCE 3AA3, 3FA3, 3MA3, 3QA3, 3QB3; COMMERCE 3BA3 or 3BB3

12 units Electives from non-Commerce courses

**LEVEL IV: 30 UNITS**

15 units COMMERCE 4PA3, 4QA3; nine additional units from Groups 1 to 6 above. No more than six of these nine additional units can be taken from any one Group.

15 units Electives from non-Commerce courses beyond Level I

# FACULTY OF ENGINEERING

## Dean of Engineering

G.R. Purdy/B.Sc., M.Sc., Ph.D., P.Eng.

## Associate Dean of Engineering (Academic Programmes)

M.A. Dokainish/B.Sc., M.A.Sc., Ph.D., P.Eng.

## Director of Engineering I

P.M. Smith/B.Eng.Mgt., M.Eng., Ph.D.

## Undergraduate Student Advisor

J. Zywna

An engineer, as originally defined, meant an ingenious person. The engineer today is concerned with the creation of devices, systems, and structures for human use. In this role of creator and of innovator, the engineer finds resourcefulness and capacity for invention at the heart of the practice of engineering. Modern society is challenged to advance from heedless exploitation of our world to an era of exercising beneficial control of the environment, and the useful management of both the products and wastes of our industries. Engineering education at McMaster provides a host of choices which lead to this creative and fulfilling role in society.

Four-year programmes are offered leading to the Bachelor of Engineering Degree in the following fields of specialization:

- Ceramic Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Engineering Physics
- Manufacturing Engineering
- Materials Engineering
- Mechanical Engineering
- Metallurgical Engineering

A five-year programme, leading to the Bachelor of Engineering and Society Degree, is offered in:

- Ceramic Engineering and Society
- Chemical Engineering and Society
- Civil Engineering and Society
- Computer Engineering and Society
- Electrical Engineering and Society
- Materials Engineering and Society
- Mechanical Engineering and Society
- Metallurgical Engineering and Society

The offering of these programmes is contingent upon approval by the Ontario Council on University Affairs.

In addition, and in conjunction with the School of Business, five-year programmes leading to the Bachelor of Engineering and Management degree are offered in:

- Ceramic Engineering and Management
- Chemical Engineering and Management
- Civil Engineering and Management
- Computer Engineering and Management
- Electrical Engineering and Management
- Engineering Physics and Management
- Materials Engineering and Management
- Mechanical Engineering and Management
- Metallurgical Engineering and Management

The Engineering and Management programme has limitations on enrolment. Students are admitted to the programme following successful completion of Level I. Admission procedures and criteria can be obtained from the Engineering and Management Programme Office.

McMaster baccalaureate degree programmes in Engineering are accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers (CEAB), except the eight new programmes in Engineering and Society which will be examined at the next accreditation. Provincial Engineering Associa-

tions accept the accreditation as a major requirement for admission to the qualification Professional Engineer.

At McMaster, Engineering students take a common Level I programme comprising Mathematics, Physics, Chemistry, Engineering Design, Computation and a complementary studies elective. The specialized programmes are entered at Level II. Students interested in one of the Engineering and Management programmes must take ECON 1A06 as their elective in Level I. Students interested in one of the Engineering and Society programmes must choose the six units complementary studies in Level I to be consistent with their chosen focus of the programme.

Programmes offered by the Faculty of Engineering include four types of elective courses, which are governed by regulations, as follows:

**Complementary Studies Electives** are broadening courses which are not in subjects that are cognate with Engineering programmes (with the exception of ECON 1A06 for Engineering and Management programmes).

A total of 21 units of complementary studies electives is required in all B.Eng. programmes. Of these, three units must be selected from courses that are designated as being above Level I.

The Associate Dean of Engineering (Academic Programmes) must authorize each student's complementary studies elective courses from an approved list. It is published each spring and is available from the Associate Dean's office.

**Technical Electives** are Engineering or Applied Science courses in subjects relevant to the particular Engineering programme.

**Commerce Electives** are required in Level V of Engineering and Management programmes.

**Engineering and Society Focus Electives** are courses offered by various departments throughout the University. These courses are selected in consultation with the Director of the Engineering and Society programme, such that they form a proper sequence of the focus electives.

*Both the appropriate Department Chair and the Associate Dean of Engineering (Academic Programmes) must approve each student's Technical, Commerce and Engineering and Society Focus Elective Courses.*

## ACADEMIC REGULATIONS

Students enrolled in Engineering programmes, in addition to meeting the General Academic Regulations of the University, shall be subject to the following Faculty Regulations:

### ENGINEERING I

A student in Engineering I whose Cumulative Average (CA) is less than 4.0 is required to withdraw from Engineering.

### SEQUENCE OF COURSES

Courses must be taken in the sequence specified in the Calendar for the programme. Students must register for all outstanding work of one level before attempting work for a higher level.

### REPEATED COURSES

All failed courses must be repeated if they are required courses for the Engineering programme or may be replaced if the courses are not explicitly required. Courses may be repeated only following failure or inability to achieve prerequisite standing for a required course or approved technical elective course.

### LEVEL OF REGISTRATION

A student is required to register in the lowest level for which more than six units of work is incomplete. Work of a higher level may be undertaken only with the permission of the Associate Dean of Engineering (Academic Programmes).

### FALL/WINTER SESSION WORKLOAD

The Faculty of Engineering has set a minimum Fall/Winter session workload of 34 units for Engineering I students. The work load for other students must be approved by the appropriate Department Chair and the Associate Dean of Engineering (Academic Programmes). In order to qualify for most scholarships, students should register in the full load of work prescribed by programme and level.

No more than 21 units in one term will be approved.

**READMISSION TO ENGINEERING**

A student who may not continue may apply for readmission to Engineering after not less than one year of practical work experience. Application for readmission must be made in writing to the Associate Dean of Engineering (Academic Programmes) in March of the year for which readmission is desired and should include a recommendation from the current employer.

**Readmission is not guaranteed.**

A student who is readmitted after being ineligible to continue at a given level must repeat all the courses of that level, unless specific course exemptions are granted explicitly in the letter of readmission. Students who are readmitted will be placed on probation.

**PROGRAMME CHANGES**

All programme changes must be made through the Office of the Associate Dean of Engineering (Academic Programmes) and will be subject to the deadline dates established by the University (see *Sessional Dates* section on page 5 of this Calendar).

**LEVEL I PROGRAMME**

**ENGINEERING I: 34 UNITS**

- 3 units CHEM 1E03
- 8 units ENGINEER 1C04, 1D04
- 11 units MATH 1H05, 1N06
- 6 units PHYSICS 1D03, 1E03
- 6 units approved complementary studies elective

**PROGRAMMES FOR THE B.ENG., B.ENG.MGT., AND B.ENG.SOC. DEGREES**

**Admission to Level II Engineering Programmes**

Admission to Level II Engineering programmes requires completion of Engineering I with a minimum CA of 4.0. A programme selection form must be submitted to the Office of the Associate Dean (Academic Programmes) by April 12, 1994. All programmes have limited enrolment; should there be more applicants than the limiting number in any programme, admission to that programme will be by selection using the Level I CA.

In addition, admission to a B.Eng.Mgt. programme is by written application and requires the completion of ECON 1A06 with a minimum grade of C; an interview may also be required.

Admission to a B.Eng.Soc. programme requires the submission of a statement indicating the educational objectives for the focus electives.

Students seeking admission to the Engineering and Management programme or the Engineering and Society programme must first be admitted to the relevant department. Thereafter, they will be considered for admission to either of these two programmes.

**Ceramic Engineering (B.Eng.)**

**ADMISSION**

See *Admission to Level II Engineering Programmes* above.

**NOTES**

1. Level II Ceramic Engineering is identical to Level II Metallurgical Engineering. Transfer to Level III Metallurgical Engineering can, therefore, be made without course deficiency.
2. Attention is drawn to MATLS 4A01, which requires a report based on experience in the summer before entering Level IV.
3. Complementary studies elective courses must comprise a significant component of analytical reading and writing practice. A list of acceptable courses is available from the Chair, Department of Materials Science and Engineering.

**LEVEL II: 36 UNITS**

- 6 units CHEM 2P06
- 8 units ENGINEER 2M04, 2P04

- 10 units MATLS 2A02, 2C04, 2H02, 2X02
- 6 units MATH 2M06
- 6 units approved complementary studies elective. (See *Note 3.*)

**LEVEL III: 38 UNITS**

- 7 units CERAMICS 3A04, 3G03
- 4 units CHEM ENG 3O04 or MECH ENG 3O04
- 3 units CHEM 2W03
- 4 units GEOLOGY 2B04
- 14 units MATLS 3D06, 3E06, 3F02
- 6 units MATH 3V06

**LEVEL IV: 36 UNITS**

- 6 units CERAMICS 4R03, 4S03
- 6 units ENGINEER 4A03 or 4H03 or equivalent; ENGINEER 4B03
- 15 units MATLS 3P03, 4A01, 4E03, 4K04, 4L04
- 3 units approved complementary studies elective
- 6 units approved Level III or IV technical elective

**Ceramic Engineering and Management (B.Eng.Mgt.)**

**ADMISSION**

See *Admission to Level II Engineering Programmes* above.

**NOTES**

1. Complementary studies elective courses must comprise a significant component of analytical reading and writing practice. A list of acceptable courses is available from the Chair, Department of Materials Science and Engineering.
2. Attention is drawn to ENGN MGT 4G01 and 5G01, the voluntary intensive courses offered in May

**LEVEL II: 38 UNITS**

- 6 units CHEM 2P06
- 6 units COMMERCE 2AA3, 2MA3
- 6 units ECON 2G03, 2H03
- 4 units ENGINEER 2M04
- 6 units MATH 2M06
- 10 units MATLS 2A02, 2C04, 2H02, 2X02

**LEVEL III: 39 UNITS (1993-94 ONLY)**

- 7 units CERAMICS 3A04, 3G03
- 6 units COMMERCE 2BA3, 2FA3
- 1 unit ENGN MGT 3A01
- 4 units ENGINEER 2P04
- 4 units GEOLOGY 2B04
- 8 units MATLS 3D06, 3F02
- 6 units MATH 3V06
- 3 units STATS 3Y03

**LEVEL IV: 38-39 UNITS**

- 3 units CERAMICS 4R03
- 4 units CHEM ENG 3O04 or MECH ENG 3O04
- 3 units CHEM 2W03
- 12 units COMMERCE 3AA3, 3BA3 or 3BB3, 3FA3, 3MA3
- 1 unit ENGN MGT 4A01
- 9 units MATLS 3E06, 3P03
- 6 units approved complementary studies electives (see *Note 1*)
- 1 unit ENGN MGT 4G01 (voluntary)

**LEVEL V: 36-37 UNITS**

- 3 units CERAMICS 4S03
- 6 units COMMERCE 4PA3, 4QA3
- 3 units ENGINEER 4A03 or 4H03 or equivalent
- 4 units ENGN MGT 5A01, 5B03
- 11 units MATLS 4E03, 4K04, 4L04
- 6 units Commerce selected from Level III and IV Commerce courses
- 3 units approved technical electives
- 1 unit ENGN MGT 5G01 (voluntary)

**CERAMIC ENGINEERING AND SOCIETY****(B.Eng.Soc.)****ADMISSION**

See *Admission to Level II Engineering Programmes* above.

**NOTE**

A minimum of 18 units of focus elective courses is required for the programme.

**LEVEL II: 35-38 UNITS**

6 units	CHEM 2P06
4 units	ENGINEER 2M04
6 units	ENGSOCTY 2X03, 2Y03
10 units	MATLS 2A02, 2C04, 2H02, 2X02
6 units	MATH 2M06
3-6 units	Engineering and Society focus electives

**LEVEL III: 38 UNITS**

7 units	CERAMICS 3A04, 3G03
4 units	ENGINEER 2P04
6 units	ENGSOCTY 3Y03, 3Z03
4 units	GEOLOGY 2B04
8 units	MATLS 3D06, 3F02
6 units	MATH 3V06
3 units	Engineering and Society focus electives

**LEVEL IV: 34 UNITS (1994-95)**

6 units	CERAMICS 4R03, 4S03
4 units	CHEM ENG 3O04 or MECH ENG 3O04
3 units	CHEM 2W03
3 units	ENGSOCTY 3X03
9 units	MATLS 3E06, 3P03
9 units	Engineering and Society focus electives

**LEVEL V: 30-33 UNITS (1995-96)**

3 units	ENGINEER 4B03
6 units	ENGSOCTY 4X03, 4Z03
12 units	MATLS 4A01, 4E03, 4K04, 4L04
6 units	approved technical electives
3-6 units	Engineering and Society focus electives

**Chemical Engineering (B.Eng.)****ADMISSION**

See *Admission to Level II Engineering Programmes* above.

For students wishing to specialize, certain option themes or streams are available in the programme.

**Process Control**

CHEM ENG 4E03, ELEC ENG 4CB3

**Polymers**

CHEM ENG 3Q03, 4B03, 4X03 and MATLS 4P03

**Environment**

CHEM ENG 4Z03, ENGINEER 4U03, CHEM 2M05 (for Management), CIV ENG 4C03

**Biomedical**

BIOCHEM 2E03, CHEM ENG 4T03, ENGINEER 4X03 or ENG PHYS 3X03

Additional enrichment for all the themes may be possible through senior year thesis (CHEM ENG 4Y04) or design project (CHEM ENG 4W04)

**LEVEL II: 36 UNITS**

16 units	CHEM ENG 2A04, 2C02, 2D04, 2F04, 2G02
8 units	CHEM 2D03, 2M05
6 units	MATH 2M06
6 units	approved complementary studies electives

**LEVEL III: 36 UNITS**

27 units	CHEM ENG 3D03, 3E04, 3G03, 3K04, 3L02, 3M04, 3O04, 3P03
3 units	STATS 3N03
6 units	Chemistry-related courses chosen from BIOCHEM 2E03, CHEM ENG 3Q03, CHEM 2W03, ENGINEER 2O03

**LEVEL IV: 35 UNITS**

13 units	CHEM ENG 4L02, 4M03, 4N04, either 4W04 or 4Y04
7 units	ENGINEER 2M04, 4A03 or 4H03 or equivalent
9 units	from CHEM ENG 4B03, 4C03, 4D03, 4E03, 4K03, 4T03, 4X03, 4Z03, ELEC ENG 4CB3, ENGINEER 4U03; one course must be CHEM ENG 4B03, 4K03 or ENGINEER 4U03
3 units	complementary studies electives
3 units	approved Level III or IV technical electives

**Chemical Engineering and Management****(B.Eng.Mgt.)****ADMISSION**

See *Admission to Level II Engineering Programmes* above.

**NOTE**

Attention is drawn to ENGN MGT 4G01 and 5G01, the voluntary intensive courses offered in May.

**LEVEL II: 34 UNITS**

16 units	CHEM ENG 2A04, 2C02, 2D04, 2F04, 2G02
3 units	CHEM 2D03
3 units	COMMERCE 2MA3
6 units	ECON 2G03, 2H03
6 units	MATH 2M06

**LEVEL III: 37 UNITS (1993-94 ONLY)**

17 units	CHEM ENG 3D03, 3E04, 3L02, 3M04, 3O04
12 units	COMMERCE 2AA3, 2BA3, 2FA3, 3AA3
4 units	ENGINEER 2M04
1 unit	ENGN MGT 3A01
3 units	STATS 3Y03

**LEVEL IV: 37-40 UNITS**

15 units	CHEM ENG 3G03, 3K04, 3P03, 4L02, 4M03
12 units	COMMERCE 3FA3, 3BA3 or 3BB3, 3MA3, 4QA3
1 unit	ENGN MGT 4A01
3 units	approved complementary studies electives
6 units	Chemistry-related courses chosen from BIOCHEM 2E03, CHEM ENG 3Q03, CHEM 2M05, 2W03, ENGINEER 2O03
1 unit	ENG MGT 4G01 (voluntary)

**LEVEL V: 36-37 UNITS**

8 units	CHEM ENG 4N04, and 4W04 or 4Y04
3 units	COMMERCE 4PA3
4 units	ENGN MGT 5A01, 5B03
9 units	from CHEM ENG 4B03, 4C03, 4D03, 4E03, 4K03, 4T03, 4X03, 4Z03, ELEC ENG 4CB3, ENGINEER 4U03, one course must be CHEM ENG 4B03, 4K03 or ENGINEER 4U03
3 units	ENGINEER 4A03 or 4H03 or equivalent
6 units	Commerce selected from Level III or IV Commerce courses
3 units	approved Level III or IV technical electives
1 unit	ENG MGT 5G01 (voluntary)

**Chemical Engineering and Society****(B.Eng.Soc.)****ADMISSION**

See *Admission to Level II Engineering Programmes* above.

**NOTE**

A minimum of 18 units of focus elective courses is required for the programme.

**LEVEL II: 34-37 UNITS**

16 units	CHEM ENG 2A04, 2C02, 2D04, 2F04, 2G02
3 units	CHEM 2D03
6 units	ENGSOCTY 2X03, 2Y03
6 units	MATH 2M06
3-6 units	Engineering and Society focus electives

**LEVEL III: 35-38 UNITS**

17 units	CHEM ENG 3D03, 3E04, 3L02, 3M04, 3O04
5 units	CHEM 2M05

- 4 units ENGINEER 2M04
- 6 units ENGSOCTY 3Y03, 3Z03
- 3-6 units Engineering and Society focus electives

**LEVEL IV: 33 UNITS (1994-95)**

- 15 units CHEM ENG 3G03, 3K04, 3P03; 4L02, 4M03
- 3 units ENGSOCTY 3X03
- 3 units STATS 3N03
- 6 units Chemistry-related courses chosen from BIOCHEM 2E03, CHEM ENG 3Q03, CHEM 2W03, ENGINEER 2O03
- 6 units Engineering and Society focus electives

**LEVEL V: 32 UNITS (1995-96)**

- 8 units CHEM ENG 4N04, and 4W04 or 4Y04
- 9 units from CHEM ENG 4B03, 4C03, 4D03, 4E03, 4K03, 4T03, 4X03, 4Z03, ELEC ENG 4CB3, ENGINEER 4U03, one course must be CHEM ENG 4B03, 4K03 or ENGINEER 4U03
- 6 units ENGSOCTY 4X03, 4Z03
- 3 units approved Level III or IV technical electives
- 6 units Engineering and Society focus electives

**Civil Engineering (B.Eng.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTE**

Level IV Civil Engineering courses must be selected in accordance with regulations which require a specified minimum content of engineering design and synthesis. Before the end of Level III, students must complete a Civil Engineering electives form, and ensure that it has been approved by the Department before completing a Level IV Registration Form.

**LEVEL II: 38 UNITS**

- 21 units CIV ENG 2A02, 2C04, 2D03, 2E03, 2I03, 2J03, 2O03
- 11 units ENGINEER 2C03, 2P04, 2Q04
- 6 units MATH 2M06

**LEVEL III: 36 UNITS (1993-94 ONLY)**

- 26 units CIV ENG 3B03, 3D03, 3G03, 3J04, 3K03, 3M04, 3Q03, 3S03
- 3 units ENGINEER 3P03
- 4 units MATH 3J04
- 3 units approved complementary studies electives

**LEVEL IV: 34-36 UNITS**

- 3 units CIV ENG 4B03
- 6 units ENGINEER 4B03; ENGINEER 4A03, 4H03 or equivalent
- 22-24 units Level IV Civil Engineering courses
- 3 units complementary studies elective

**Civil Engineering and Computer Systems (B.Eng.C.S.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTES**

1. Level IV Civil Engineering courses must be selected in accordance with regulations which require a specified minimum content of engineering design and synthesis. Before the end of Level IV, students must complete a Civil Engineering electives form, and ensure that it has been approved by the Department before completing a Level V Registration Form.
2. The Department has suspended admission to Level II of this programme for 1993-94.

**LEVEL II: 37 UNITS**

- 6 units COMP SCI 1MB3, 2MF3
- 18 units CIV ENG 2A02, 2C04, 2E03, 2I03, 2J03, 2O03
- 4 units ENGINEER 2P04
- 3 units approved complementary studies electives
- 6 units MATH 2M06

**LEVEL III: 36 UNITS**

- 6 units COMP SCI 2MC3, 2MD3
- 13 units CIV ENG 2D03, 3G03, 3K03, 3M04
- 7 units ENGINEER 2C03, 2Q04
- 7 units MATH 3J04, 3Q03
- 3 units complementary studies

**LEVEL IV: 37 UNITS (1993-94 ONLY)**

- 12 units COMP SCI 3EA3, 3MG3, 3SC3, 4EB3
- 19 units CIV ENG 3B03, 3D03, 3J04, 3Q03, 3S03, 4B03
- 6 units ENGINEER 3P03 and one of ENGINEER 4A03, 4H03 or equivalent

**LEVEL V: 34-36 UNITS**

- 9 units COMP SCI 4MP6, and three units from Computer Science Level III or IV courses
- 19-21 units Level IV Civil Engineering courses
- 6 units ENGINEER 4B03, 4C03

**Civil Engineering and Management (B.Eng.Mgt.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTES**

1. Level IV Civil Engineering courses must be selected in accordance with regulations which require a specified minimum content of engineering design and synthesis. Before the end of Level IV, students must complete a Civil Engineering electives form, and ensure that it has been approved by the Department before completing a Level V Registration Form.
2. Attention is drawn to ENGN MGT 4G01 and 5G01, the voluntary intensive courses offered in the month of May.

**LEVEL II: 37 UNITS**

- 15 units CIV ENG 2A02, 2C04, 2I03, 2J03, 2O03
- 6 units COMMERCE 2AA3, 2MA3
- 6 units ECON 2G03, 2H03
- 4 units ENGINEER 2P04
- 6 units MATH 2M06

**LEVEL III: 37 UNITS (1993-94 ONLY)**

- 13 units CIV ENG 2D03, 2E03, 3M04, 3Q03
- 9 units COMMERCE 2BA3, 2FA3, 3AA3
- 7 units ENGINEER 2C03, 2Q04
- 1 unit ENGN MGT 3A01
- 4 units MATH 3J04
- 3 units STATS 3Y03

**LEVEL IV: 38-39 UNITS (1993-94 ONLY)**

- 22 units CIV ENG 3B03, 3D03, 3G03, 3J04, 3K03, 3S03, 4B03
- 12 units COMMERCE 3FA3, 3BA3 or 3BB3, 3MA3, 4QA3
- 3 units ENGINEER 3P03
- 1 unit ENGN MGT 4A01
- 1 unit ENGN MGT 4G01 (voluntary)

**LEVEL V: 37-39 UNITS**

- 21-22 units Level IV Civil Engineering
- 3 units COMMERCE 4PA3
- 4 units ENGN MGT 5A01, 5B03
- 6 units Commerce electives selected from Level III and IV Commerce courses
- 3 units ENGINEER 4A03, 4H03 or equivalent
- 1 unit ENGN MGT 5G01 (voluntary)

**Civil Engineering and Society (B.Eng.Soc.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTES**

1. Level IV Civil Engineering courses must be selected in accordance with regulations which require a specified minimum content of engineering design and synthesis. Before the end of Level III, students must complete a Civil Engineering electives form, and ensure that it has been approved by the Department before completing a Level IV Registration Form.



2. A minimum of 18 units of focus elective courses is required for the programme.

**LEVEL II: 34-37 UNITS**

15 units CIV ENG 2A02, 2C04, 2I03, 2J03, 2O03  
 4 units ENGINEER 2P04  
 6 units MATH 2M06  
 6 units ENGSOCTY 2X03, 2Y03  
 3-6 units Engineering and Society focus elective

**LEVEL III: 33-36 UNITS**

13 units CIV ENG 2D03, 2E03, 3M04, 3Q03  
 7 units ENGINEER 2C03, 2Q04  
 4 units MATH 3J04  
 6 units ENGSOCTY 3Y03, 3Z03  
 3-6 units Engineering and Society focus elective

**LEVEL IV: 37 UNITS (1994-95)**

22 units CIV ENG 3A03, 3B03, 3G03, 3J04, 3K03, 3S03, 4B03  
 3 units ENGINEER 3P03  
 3 units ENGSOCTY 3X03  
 6 units Engineering and Society focus elective  
 3 units Level IV Civil Engineering courses

**LEVEL V: 33 UNITS (1995-96)**

3 units ENGINEER 4B03  
 6 units ENGSOCTY 4X03, 4Z03  
 6 units Engineering and Society focus elective  
 18 units Level IV Civil Engineering courses; these courses should be selected to complement the chosen focus

**Computer Engineering (B.Eng.)****ADMISSION**

See Admission to Level II Engineering Programmes above.

**LEVEL II: 35 UNITS**

9 units COMP ENG 2HA3, 2KA3, 2YA3  
 9 units ELEC ENG 2BA3, 2DA3, 2FA3  
 3 units ENGINEER 2O03  
 8 units MATH 2P04, 2Q04  
 6 units approved complementary studies electives

**LEVEL III: 36 UNITS**

12 units COMP ENG 3HB3, 3HC3, 3KB3, 3VA3  
 18 units ELEC ENG 3AA3, 3BB3, 3CA3, 3DB3, 3FB3, 3FC3  
 3 units MATH 3K03  
 3 units STATS 3X03

**LEVEL IV: 34 UNITS (1993-94 ONLY)**

16 units COMP ENG 3HC3, 4MA3, 4HD3, 4HE3, 4JA4  
 3 units ELEC ENG 4QA3  
 6 units ENGINEER 4B03, and 4A03 or 4H03 or equivalent from COMP SCI 3MG3, 3SD3, 4CB3, and Level III or IV Electrical Engineering or Engineering Physics or Level IV Computer Engineering

**Computer Engineering and Management (B.Eng.Mgt.)****ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTE**

Attention is drawn to ENGN MGT 4G01 and 5G01, the voluntary intensive courses offered in May.

**LEVEL II: 37 UNITS**

6 units COMMERCE 2AA3, 2MA3  
 6 units COMP ENG 2HA3, 2YA3  
 6 units ECON 2G03, 2H03  
 9 units ELEC ENG 2BA3, 2DA3, 2FA3  
 2 units ENGN MGT 2AA2  
 8 units MATH 2P04, 2Q04

**LEVEL III: 37 UNITS (1993-94 ONLY)**

9 units COMMERCE 2BA3, 2FA3, 3AA3  
 12 units COMP ENG 2KA3, 3HB3, 3HC3, 3VA3  
 3 units ELEC ENG 3BB3

3 units ENGINEER 2O03  
 1 unit ENGN MGT 3A01  
 3 units MATH 3K03  
 6 units STATS 3X03, 3Y03

**LEVEL IV: 37-38 UNITS (1993-94 ONLY)**

9 units COMMERCE 3FA3, 3BA3 or 3BB3, 3MA3  
 9 units COMP ENG 3HC3, 3KB3, 4HD3  
 15 units ELEC ENG 3AA3, 3CA3, 3DB3, 3FB3, 3FC3  
 1 unit ENGN MGT 4A01  
 3 units approved complementary studies electives  
 1 unit ENGN MGT 4G01 (voluntary)

**LEVEL V: 35-36 UNITS**

6 units COMMERCE 4PA3, 4QA3  
 10 units COMP ENG 4MA3, 4HE3, 4JA4  
 3 units ENGINEER 4A03 or 4H03 or equivalent  
 4 units ENGN MGT 5A01, 5B03  
 6 units Commerce electives selected from Level III and IV Commerce courses  
 6 units from COMP SCI 3MG3, 3SD3, 4CB3 and Level III or IV Electrical Engineering or Engineering Physics or Level IV Computer Engineering  
 1 unit ENGN MGT 5G01 (voluntary)

**Computer Engineering and Society (B.Eng.Soc.)****ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTE**

A minimum of 18 units of focus elective courses is required for the programme.

**LEVEL II: 35 UNITS**

6 units COMP ENG 2HA3, 2YA3  
 9 units ELEC ENG 2BA3, 2DA3, 2FA3  
 6 units ENGSOCTY 2X03, 2Y03  
 8 units MATH 2P04, 2Q04  
 6 units Engineering and Society focus electives

**LEVEL III: 33-36 UNITS**

12 units COMP ENG 2KA3, 3HB3, 3HC3, 3VA3  
 3 units ELEC ENG 3BB3  
 6 units ENGSOCTY 3Y03, 3Z03  
 3 units ENGINEER 2O03  
 3 units MATH 3K03  
 3 units STATS 3X03  
 3-6 units Engineering and Society focus electives

**LEVEL IV: 30-33 UNITS (1994-95)**

9 units COMP ENG 3KB3, 4HD3, 4WA3  
 15 units ELEC ENG 3AA3, 3CA3, 3DB3, 3FB3, 3FC3  
 3 units ENGSOCTY 3X03  
 3-6 units Engineering and Society focus electives

**LEVEL V: 34 UNITS (1995-96)**

10 units COMP ENG 4HE3, 4MA3, 4JA4  
 6 units ENGSOCTY 4Z03, 4X03  
 3 units ENGINEER 4B03  
 6 units Engineering and Society focus electives  
 9 units from COMP SCI 3MG3, 3SD3, 4CB3, and Level III or IV Electrical Engineering or Engineering Physics or Level IV Computer Engineering

**Electrical Engineering (B.Eng.)****ADMISSION**

See Admission to Level II Engineering Programmes above.

**LEVEL II: 35 UNITS**

6 units COMP ENG 2HA3, 2KA3  
 9 units ELEC ENG 2BA3, 2DA3, 2FA3  
 6 units ENGINEER 2O03, 2S03  
 8 units MATH 2P04, 2Q04  
 6 units approved complementary studies elective

**LEVEL III: 36 UNITS**

- 6 units COMP ENG 3HB3, 3KB3
- 24 units ELEC ENG 3AA3, 3BB3, 3CA3, 3DB3, 3FB3, 3FC3, 3NA3, 3SA3
- 3 units MATH 3K03
- 3 units STATS 3X03

**LEVEL IV: 34 UNITS**

- 7 units ELEC ENG 4JA4, 4QA3
- 6 units ENGINEER 4B03 and ENGINEER 4A03 or 4H03 or equivalent
- 12 units Electrical Engineering Level IV or Computer Engineering Level III or IV courses
- 9 units Level III or IV approved technical electives

**Electrical Engineering and Management (B.Eng.Mgt.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTE**

Attention is drawn to ENGN MGT 4G01 and 5G01, the voluntary intensive courses offered in May.

**LEVEL II: 37 UNITS**

- 6 units COMMERCE 2AA3, 2MA3
- 6 units COMP ENG 2HA3, 2KA3
- 6 units ECON 2G03, 2H03
- 9 units ELEC ENG 2BA3, 2DA3, 2FA3
- 2 units ENGN MGT 2AA2
- 8 units MATH 2P04, 2Q04

**LEVEL III: 37 UNITS (1993-94 ONLY)**

- 9 units COMMERCE 2BA3, 2FA3, 3AA3
- 3 units COMP ENG 3HB3
- 12 units ELEC ENG 3CA3, 3DB3, 3FB3, 3FC3
- 6 units ENGINEER 2O03, 2S03
- 1 unit ENGN MGT 3A01
- 3 units MATH 3K03
- 3 units STATS 3X03

**LEVEL IV: 34-35 UNITS**

- 9 units COMMERCE 3BA3 or 3BB3, 3FA3, 3MA3
- 3 units COMP ENG 3KB3
- 12 units ELEC ENG 3AA3, 3BB3, 3NA3, 3SA3
- 3 units ENGINEER 4A03 or 4H03 or equivalent
- 1 unit ENGN MGT 4A01
- 3 units STATS 3Y03
- 3 units approved complementary studies electives
- 1 unit ENGN MGT 4G01 (voluntary)

**LEVEL V: 35-36 UNITS**

- 6 units COMMERCE 4PA3, 4QA3
- 4 units ELEC ENG 4JA4
- 4 units ENGN MGT 5A01, 5B03
- 6 units Commerce electives selected from Level III and IV Commerce courses
- 15 units Level III or IV approved technical electives, of which at least nine units must be selected from Electrical Engineering Level IV or Computer Engineering Level III or IV courses
- 1 unit ENGN MGT 5G01 (voluntary)

**Electrical Engineering and Society (B.Eng.Soc.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTE**

A minimum of 18 units of focus elective courses is required for the programme.

**LEVEL II: 35 UNITS**

- 6 units COMP ENG 2HA3, 2KA3
- 9 units ELEC ENG 2BA3, 2DA3, 2FA3

- 6 units ENGSOCTY 2X03, 2Y03
- 8 units MATH 2P04, 2Q04
- 6 units Engineering and Society focus electives

**LEVEL III: 33-36 UNITS**

- 3 units COMP ENG 3HB3
- 9 units ELEC ENG 3DB3, 3FB3, 3FC3
- 6 units ENGSOCTY 3Y03, 3Z03
- 6 units ENGINEER 2O03, 2S03
- 3 units MATH 3K03
- 3 units STATS 3X03
- 3-6 units Engineering and Society focus electives

**LEVEL IV: 33-36 UNITS (1994-95)**

- 3 units COMP ENG 3KB3
- 15 units ELEC ENG 3AA3, 3BB3, 3CA3, 3NA3, 3SA3
- 3 units ENGSOCTY 3X03
- 3-6 units Engineering and Society focus electives
- 9 units approved Level III or IV technical electives

**LEVEL V: 31 UNITS (1995-96)**

- 4 units ELEC ENG 4JA4
- 6 units ENGSOCTY 4Z03, 4X03
- 3 units ENGINEER 4B03
- 6 units Engineering and Society focus electives
- 12 units Electrical Engineering Level IV or Computer Engineering Level III or IV courses

**Engineering Physics (B.Eng.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTE**

The following areas and courses are suggested as technical electives for Level IV:

- Computer Systems PHYSICS 4D06
- Lasers and Electro-Optics ENG PHYS 4G03, 4K03, 4S04
- Nuclear Engineering ENG PHYS 4D03, 4L03, 4N03
- Solid State Electronics ENG PHYS 4E03, 4F03, 4Z03

**LEVEL II: 38 UNITS**

- 3 units COMP ENG 2HA3
- 11 units ENGINEER 2O03, 2P04, 2V04
- 7 units ENG PHYS 2A03, 2E04
- 8 units MATH 2P04, 2Q04
- 3 units PHYSICS 2D03
- 6 units approved English literature

**LEVEL III: 37 UNITS**

- 16 units ENG PHYS 3D03, 3E03, 3F03, 3O03, 3W04
- 9 units MATH 3C03, 3D03, 4Q03
- 9 units PHYSICS 3B06, 3M03
- 3 units Complementary studies elective

**LEVEL IV: 36-38 UNITS**

- 6 units ENGINEER 4A03 or 4H03 or equivalent, 4B03
- 10 units ENG PHYS 4A04, 4H06, 4C02, 4U04
- 4 units PHYSICS 4B04
- 10 units from ENG PHYS 4D03, 4E03, 4F03, 4G03, 4N03, 4S04, PHYSICS 4D06

- 6 units Approved Level III or IV technical electives

**Engineering Physics and Management (B.Eng.Mgt.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTE**

Attention is drawn to ENGN MGT 4G01 and 5G01, the voluntary intensive courses offered in May.

**LEVEL II: 38 UNITS**

- 6 units COMMERCE 2AA3, 2MA3
- 6 units ECON 2G03, 2H03
- 11 units ENGINEER 2O03, 2P04, 2V04

7 units ENG PHYS 2A03, 2E04

8 units MATH 2P04, 2Q04

**LEVEL III: 37 UNITS (1993-94 ONLY)**

9 units COMMERCE 2BA3, 2FA3, 3AA3

3 units COMP ENG 2HA3

1 unit ENGN MGT 3A01

6 units ENG PHYS 3E03, 3F03

6 units MATH 3C03, 3D03

9 units PHYSICS 2D03, 3B06

3 units STATS 3Y03

**LEVEL IV: 37-38 UNITS**

12 units COMMERCE 3FA3, 3MA3, 4QA3, and 3BA3 or 3BB3

1 unit ENGN MGT 4A01

14 units ENG PHYS 3D03, 3O03, 3W04, 4U04

3 units MATH 4Q03

7 units PHYSICS 3M03, 4B04

1 unit ENGN MGT 4G01 (voluntary)

**LEVEL V: 38-41 UNITS**

3 units COMMERCE 4PA3

3 units ENGINEER 4A03 or 4H03 or equivalent

4 units ENGN MGT 5A01, 5B03

6 units ENG PHYS 4A04, 4C02

10 units from ENG PHYS 4D03, 4E03, 4F03, 4G03, 4N03, 4S04, PHYSICS 4D06

6 units Commerce electives selected from Level III and IV Commerce courses

3 units approved Level III or IV technical elective

3 units approved complementary studies elective

1 unit ENGN MGT 5G01 (voluntary)

**Manufacturing Engineering (B.Eng.)****ADMISSION***See Admission to Level II Engineering Programmes above.***LEVEL II: 37 UNITS**

19 units ENGINEER 2M04, 2O03, 2P04, 2Q04, 2W04

3 units MANUFACT 2C03

6 units MATH 2M06

3 units MECH ENG 2A03

6 units approved English literature

**LEVEL III: 37 UNITS**

9 units ENGINEER 3M03, 3N03, 3R03

2 units MANUFACT 3M02

6 units MATH 3V06

20 units MECH ENG 3A03, 3C03, 3E04, 3O04, 3R03, 4D03

**LEVEL IV: 39 UNITS**

12 units ENGINEER 4A03 or 4H03 or equivalent, 4B03, 4C03, 4J03

9 units MANUFACT 4A03, 4M04, 4P02

15 units MECH ENG 4C03, 4K03, 4Q03, 4R03, 4Z03

3 units complementary studies elective

**Materials Engineering (B.Eng.)****ADMISSION***See Admission to Level II Engineering Programmes above.***NOTES**

1. This programme is designed to permit choices of electives in Level IV which will allow indepth study of various types of modern engineering materials (e.g. electronic materials, amorphous solids, high performance alloys, composites and ceramics.)
2. Transfer to Level III Ceramic Engineering or Metallurgical Engineering can be made without course deficiency.
3. Attention is drawn to MATLS 4A01, which requires a report based on experience in the summer before entering Level IV.
4. Complementary studies elective courses must comprise a significant component of analytical reading and writing practice. A list of acceptable courses is available from the Chair, Department of Materials Science and Engineering.

**LEVEL II: 36-38 UNITS**

6 units CHEM 2P06

8 units ENGINEER 2M04, 2P04

10 units MATLS 2A02, 2C04, 2H02, 2X02

6-8 units MATH 2P04 and 2Q04, or MATH 2M06

6 units approved complementary studies elective (See Note 4)

**LEVEL III: 35 UNITS**

3 units CHEM 2W03

3 units ENGINEER 3Q03

17 units MATLS 3D06, 3E06, 3F02, 3G03

6 units MATH 3C03 and 3D03, or 3V06

6 units CHEM 3B03 and three units approved technical elective, or PHYSICS 3M03, 3MM3

**LEVEL IV: 36 UNITS**

6 units ENGINEER 4A03 or 4H03 or equivalent, 4B03

15 units MATLS 3P03, 4A01, 4E03, 4K04, 4L04

3 units approved complementary studies electives

12 units approved Level III or IV technical electives

**Materials Engineering and Management (B.Eng.Mgt.)****ADMISSION***See Admission to Level II Engineering Programmes above.***NOTES**

1. Complementary studies elective courses must comprise a significant component of analytical reading and writing practice. A list of acceptable courses is available from the Chair, Department of Materials Science and Engineering.
2. Attention is drawn to ENGN MGT 4G01 and 5G01, the voluntary intensive courses offered in May.

**LEVEL II: 34-36 UNITS**

6 units CHEM 2P06

6 units COMMERCE 2AA3, 2MA3

6 units ECON 2G03, 2H03

6-8 units MATH 2P04 and 2Q04, or MATH 2M06

10 units MATLS 2A02, 2C04, 2H02, 2X02

**LEVEL III: 38 UNITS (1993-94 ONLY)**

6 units COMMERCE 2BA3, 2FA3

1 unit ENGN MGT 3A01

11 units ENGINEER 2M04, 2P04, 3Q03

11 units MATLS 3D06, 3F02, 3G03

6 units MATH 3C03 and 3D03, or 3V06

3 units STATS 3Y03

**LEVEL IV: 37-38 UNITS**

3 units CHEM 2W03

6 units CHEM 3B03 and three units approved technical elective or PHYSICS 3M03, 3MM3

12 units COMMERCE 3AA3, 3BA3 or 3BB3, 3FA3, 3MA3

1 unit ENGN MGT 4A01

9 units MATLS 3E06, 3P03

6 units approved complementary studies elective (See Note 1)

1 unit ENGN MGT 4G01 (voluntary)

**LEVEL V: 36-37 UNITS**

6 units COMMERCE 4PA3, 4QA3

3 units ENGINEER 4A03 or 4H03 or equivalent

4 units ENGN MGT 5A01, 5B03

11 units MATLS 4E03, 4K04, 4L04

6 units Commerce selected from Level III and IV Commerce courses

6 units approved technical elective

1 unit ENGN MGT 5G01 (voluntary)

**Materials Engineering and Society (B.Eng.Soc.)****ADMISSION***See Admission to Level II Engineering Programmes above.***NOTE**

A minimum of 18 units of focus elective courses is required for the programme.

**LEVEL II: 31-36 UNITS**

- 6 units CHEM 2P06
- 6 units ENGSOCTY 2X03, 2Y03
- 10 units MATLS 2A02, 2C04, 2H02, 2X02
- 6-8 units MATH 2P04 and 2Q04, or MATH 2M06
- 3-6 units Engineering and Society focus electives

**LEVEL III: 37 UNITS**

- 3 units CHEM 2W03
- 8 units ENGINEER 2M04, 2P04
- 6 units ENGSOCTY 3Y03, 3Z03
- 11 units MATLS 3D06, 3F02, 3G03
- 6 units MATH 3C03 and 3D03, or 3V06
- 3 units Engineering and Society focus electives

**LEVEL IV: 33 UNITS (1994-95)**

- 6 units CHEM 3B03 and three units technical elective, or PHYSICS 3M03, 3MM3
- 3 units ENGINEER 3Q03
- 3 units ENGSOCTY 3X03
- 9 units MATLS 3E06, 3P03
- 6 units Engineering and Society focus electives
- 6 units approved technical electives

**LEVEL V: 33 UNITS (1995-96)**

- 3 units ENGINEER 4B03
- 6 units ENGSOCTY 4X03, 4Z03
- 12 units MATLS 4A01, 4E03, 4K04, 4L04
- 6 units approved technical electives
- 6 units Engineering and Society focus electives

**Mechanical Engineering (B.Eng.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**LEVEL II: 37 UNITS**

- 16 units ENGINEER 2M04, 2P04, 2Q04, 2W04
- 6 units MATH 2M06
- 9 units MECH ENG 2A03, 2B03, 2C03
- 6 units approved English literature

**LEVEL III: 37 UNITS**

- 9 units ENGINEER 2O03, 3M03, 3N03
- 6 units MATH 3V06
- 22 units MECH ENG 3A03, 3C03, 3D03, 3E04, 3M02, 3O04, 3R03

**LEVEL IV: 36 UNITS**

- 18 units MECH ENG 4G03, 4M04, 4P02, 4Q03, 4R03, 4S03
- 9 units ENGINEER 3R03, 4A03 or 4H03 or equivalent, 4B03
- 3 units complementary studies elective
- 6 units from CHEM ENG 4T03, CIV ENG 3K03, ELEC ENG 3SA3, ENGINEER 3P03, 3Q03, 4J03, 4X03, ENG PHYS 3X03, 4D03, MECH ENG 4A03, 4C03, 4D03, 4F03, 4K03, 4L03, 4T03, 4U03, 4V03, 4W03, 4X03, 4Y03, 4Z03

MANUFACT 4A03 may be substituted, with the permission of the Department.

Electives must be chosen so that no more than 21 units are taken in any one term.

**Mechanical Engineering and Management (B.Eng.Mgt.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTE**

Attention is drawn to ENGN MGT 4G01 and 5G01, the voluntary intensive courses offered in May.

**LEVEL II: 38 UNITS**

- 9 units COMMERCE 2AA3, 2BA3, 2MA3
- 6 units ECON 2G03, 2H03
- 12 units ENGINEER 2M04, 2P04, 2W04
- 6 units MATH 2M06
- 3 units MECH ENG 2A03

- 2 units ENGN MGT 2AA2

**LEVEL III: 38 UNITS (1993-94 ONLY)**

- 6 units COMMERCE 2FA3, 3AA3
- 7 units ENGINEER 2O03, 2Q04
- 1 unit ENGN MGT 3A01
- 6 units MATH 3V06
- 15 units MECH ENG 2C03, 3D03, 3M02, 3O04, 3R03
- 3 units STATS 3Y03

**LEVEL IV: 37-38 UNITS**

- 9 units COMMERCE 3MA3, 3FA3, and 3BA3 or 3BB3
- 3 units ENGINEER 3M03
- 1 unit ENGN MGT 4A01
- 18 units MECH ENG 3A03, 3C03, 3E04, 4P02, 4R03, 4S03
- 3 units Level III or IV approved technical electives
- 3 units complementary studies elective
- 1 unit ENGN MGT 4G01 (voluntary)

**LEVEL V: 35-36 UNITS**

- 3 units COMMERCE 4PA3
- 4 units ENGN MGT 5A01, 5B03
- 13 units MECH ENG 4C03, 4G03, 4M04, 4Q03
- 3 units ENGINEER 4A03 or 4H03 or equivalent
- 6 units Commerce electives selected from Level III and IV Commerce courses
- 6 units from CHEM ENG 4T03, CIV ENG 3K03, ELEC ENG 3SA3, ENGINEER 3N03, 3P03, 3Q03, 4J03, 4X03, ENG PHYS 3X03, 4D03, MECH ENG 4A03, 4D03, 4F03, 4K03, 4L03, 4T03, 4U03, 4V03, 4W03, 4X03, 4Y03, 4Z03
- 1 unit ENGN MGT 5G01 (voluntary)

**Mechanical Engineering and Society (B.Eng.Soc.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTE**

A minimum of 18 units of focus elective courses is required for the programme.

**LEVEL II: 33 UNITS**

- 12 units ENGINEER 2M04, 2P04, 2W04
- 6 units ENGSOCTY 2X03, 2Y03
- 6 units MATH 2M06
- 3 units MECH ENG 2A03
- 6 units Engineering and Society focus electives

**LEVEL III: 37 UNITS**

- 7 units ENGINEER 2O03, 2Q04
- 6 units ENGSOCTY 3Y03, 3Z03
- 6 units MATH 3V06
- 15 units MECH ENG 2C03, 3D03, 3M02, 3O04, 3R03
- 3 units Engineering and Society focus electives

**LEVEL IV: 30 UNITS (1994-95)**

- 3 units ENGSOCTY 3X03
- 18 units MECH ENG 3A03, 3C03, 3E04, 4P02, 4R03, 4S03
- 6 units Engineering and Society focus electives
- 3 units approved Level III or Level IV technical electives

**LEVEL V: 31 UNITS (1995-96)**

- 6 units ENGINEER 3M03, 4B03
- 6 units ENGSOCTY 4X03, 4Z03
- 13 units MECH ENG 4C03, 4G03, 4M04, 4Q03
- 3 units Engineering and Society focus electives
- 3 units approved Level III or Level IV technical electives

**Metallurgical Engineering (B.Eng.)**

**ADMISSION**

See Admission to Level II Engineering Programmes above.

**NOTES**

1. Level II Metallurgical Engineering is identical to Level II Ceramic Engineering. Transfer to Level III Ceramic Engineering can, therefore, be made without course deficiency.

## 44 FACULTY OF ENGINEERING

---

- Attention is drawn to MATLS 4A01, which requires a report based on experience in the summer before entering Level IV.
- Complementary studies elective courses must comprise a significant component of analytical reading and writing practice. A list of acceptable courses is available from the Chair, Department of Materials Science and Engineering.

### LEVEL II: 36 UNITS

- 6 units CHEM 2P06
- 8 units ENGINEER 2M04, 2P04
- 10 units MATLS 2A02, 2C04, 2H02, 2X02
- 6 units MATH 2M06
- 6 units approved complementary studies elective (see Note 3)

### LEVEL III: 36 UNITS

- 4 units CHEM ENG 3O04 or MECH ENG 3O04
- 3 units CHEM 2W03
- 17 units MATLS 3D06, 3E06, 3F02, 3P03
- 6 units MATH 3V06
- 6 units METALL 3C03, 3G03

### LEVEL IV: 37 UNITS

- 9 units ENGINEER 3M03 or 3N03; 4A03 or 4H03 or equivalent; 4B03
- 12 units MATLS 4A01, 4E03, 4K04, 4L04
- 4 units METALL 4C04
- 3 units complementary studies elective
- 9 units Level III or IV approved technical electives

## Metallurgical Engineering and Management (B.Eng.Mgt.)

### ADMISSION

See *Admission to Level II Engineering Programmes* above.

### NOTES

- Complementary studies elective courses must comprise a significant component of analytical reading and writing practice. A list of acceptable courses is available from the Chair, Department of Materials Science and Engineering.
- Attention is drawn to ENGN MGT 4G01 and 5G01, the voluntary intensive courses offered in May.

### LEVEL II: 38 UNITS

- 6 units CHEM 2P06
- 6 units COMMERCE 2AA3, 2MA3
- 6 units ECON 2G03, 2H03
- 4 units ENGINEER 2M04
- 6 units MATH 2M06
- 10 units MATLS 2A02, 2C04, 2H02, 2X02

### LEVEL III: 37 UNITS (1993-94 ONLY)

- 6 units COMMERCE 2BA3, 2FA3
- 1 unit ENGN MGT 3A01
- 7 units ENGINEER 2P04, 3M03 or 3N03
- 8 units MATLS 3D06, 3F02
- 6 units MATH 3V06
- 6 units METALL 3C03, 3G03
- 3 units STATS 3Y03

### LEVEL IV: 35-36 UNITS

- 4 units CHEM ENG 3O04 or MECH ENG 3O04

- 3 units CHEM 2W03
- 12 units COMMERCE 3AA3, 3BA3 or 3BB3, 3FA3, 3MA3
- 1 unit ENGN MGT 4A01
- 9 units MATLS 3E06, 3P03
- 6 units approved complementary studies elective (see Note 1)
- 1 unit ENGN MGT 4G01 (voluntary)

### LEVEL V: 37-38 UNITS

- 6 units COMMERCE 4PA3, 4QA3
- 3 units ENGINEER 4A03 or 4H03 or equivalent
- 4 units ENGN MGT 5A01, 5B03
- 11 units MATLS 4E03, 4K04, 4L04
- 4 units METALL 4C04
- 6 units Commerce selected from Level III and IV Commerce courses
- 3 units approved technical electives
- 1 unit ENGN MGT 5G01 (voluntary)

## Metallurgical Engineering and Society (B.Eng.Soc.)

### ADMISSION

See *Admission to Level II Engineering Programmes* above.

### NOTE

A minimum of 18 units of focus elective courses is required for the programme.

### LEVEL II: 35-38 UNITS

- 6 units CHEM 2P06
- 4 units ENGINEER 2M04
- 6 units ENGSOCTY 2X03, 2Y03
- 10 units MATLS 2A02, 2C04, 2H02, 2X02
- 6 units MATH 2M06
- 3-6 unit Engineering and Society focus electives

### LEVEL III: 36-39 UNITS

- 7 units ENGINEER 2P04, 3M03 or 3N03
- 6 units ENGSOCTY 3Z03, 3Y03
- 8 units MATLS 3D06, 3F02
- 6 units MATH 3V06
- 6 units METALL 3C03, 3G03
- 3-6 units Engineering and Society focus electives

### LEVEL IV: 32 UNITS (1994-95)

- 4 units CHEM ENG 3O04 or MECH ENG 3O04
- 3 units CHEM 2W03
- 3 units ENGSOCTY 3X03
- 9 units MATLS 3E06, 3P03
- 4 units METALL 4C04
- 3 units approved technical electives
- 6 units Engineering and Society focus electives

### LEVEL V: 33 UNITS (1995-96)

- 3 units ENGINEER 4B03
  - 6 units ENGSOCTY 4X03, 4Z03
  - 12 units MATLS 4A01, 4E03, 4K04, 4L04
  - 6 units approved technical electives
  - 6 units Engineering and Society focus electives
- 
-

# FACULTY OF HEALTH SCIENCES

**Dean and Vice-President**

J. Bienenstock, M.B., B.S., M.R.P., F.R.C.P(C), F.R.C.P.

**Associate Dean (Education)**

E.K.M. Smith, B.Sc., M.D. F.R.C.P., F.R.C.P.(C)

**Associate Dean (Nursing)**

A. Baumann, B.Sc.N, M.Sc.N., Ph.D.

**Associate Dean (Occupational Therapy and Physiotherapy)**

B. Cooper, Dip.P.O.T., B.A., M.H.Sc.

**Associate Dean (Health Services)**

M. Cohen, M.D.

**Associate Dean (Research Services)**

B. Underdown, Ph.D.

For information concerning Health Sciences programmes and admission requirements, contact:

**Laurel Stuart, Associate Registrar  
McMaster University  
Health Science Centre, Room 1B7  
Box 2000, Station A  
Hamilton, Ontario, L8N 3Z5  
Telephone (416) 525-9140, ext. 2114**

The concept of Health Sciences Education is based on the view that health is a broad subject encompassing not only the problems of ill health but also the impact of biology, environment and the way of life on health. Each health professional has specific educational requirements, but by learning together in shared facilities there exists an opportunity to establish effective interprofessional working relationships.

The programmes in the Faculty attempt to meet these goals through a variety of learning approaches. Emphasis is placed on problem-based, small-group learning experiences. Other approaches to learning, including interdisciplinary educational experiences, are used where appropriate.

In July 1974, the School of Nursing and the School of Medicine were brought together to form the Faculty of Health Sciences. In 1989, the new School of Physiotherapy and Occupational Therapy was added. The Faculty offers the following undergraduate degree programmes: Doctor of Medicine (M.D.), Bachelor of Science in Nursing (B.Sc.N.), Bachelor of Health Science (B.H.Sc.) in Occupational Therapy, Physiotherapy or Midwifery.

In addition to its undergraduate programmes, the Faculty of Health Sciences also has the responsibility for the Postgraduate (Internship and Residency) Education programmes.

Through the School of Graduate Studies, the Faculty offers the Medical Sciences programme leading to the M.Sc. and Ph.D. degrees in the following research areas: Cell Biology and Metabolism; Hemostasis, Thromboembolism, Atherosclerosis; Molecular Virology and Immunology; Neuroscience and Behavioural Sciences; Physiology/Pharmacology; and Reproductive Biology and Human Genetics. The M.Sc. -- Medical Sciences -- programme is available in the research area of Design, Measurement and Evaluation.

The interprofessional M.H.Sc. (Health Care Practice) programme offers a unique opportunity to experienced health professionals who wish advanced preparation as clinicians. It is designed to assist qualified individuals such as nurses, occupational therapists, physicians, and physiotherapists to extend knowledge and skills appropriate to patient care activities.

Interprofessional programmes, postprofessional in nature and leading to an academic diploma, are offered through the Continuing Health Sciences Education programme. These include: Behavioural Sciences; Occupational Health and Safety; and Child Life Studies.

The Faculty of Health Sciences collaborates with the Division of Health Sciences at Mohawk College in educational programmes for other health professions based at the College.

Research programmes encompassing the broad spectrum of health have been established, including basic and applied research and various aspects of health-care delivery. The graduate programmes in medical science are related to the various areas of health research.

The Health Sciences Centre at McMaster provides educational and research facilities for medicine, nursing and other health professions. It includes a teaching hospital (the McMaster University Medical Centre, a division of the Chedoke-McMaster Hospitals) with extensive ambulatory clinics for primary and specialized aspects of patient care. The building has been designed to bring into close proximity the programmes for the various health professions and to integrate the facilities for education, research and patient care in the Faculty of Health Sciences.

In addition to the Health Sciences Centre, education, research and clinical programmes are based at the Hamilton General Hospital, the Henderson General Hospital, the Hamilton Psychiatric Hospital, St. Joseph's Hospital, the Chedoke division of the Chedoke-McMaster Hospitals, St. Peter's Hospital and the Health Sciences Education Centre, Mohawk College. Extensive use is made of community hospitals. A satellite programme has been developed with institutions in Northwestern Ontario. In accordance with the plan to coordinate the development of specialized health services among the Hamilton and District hospitals, the Postgraduate Education programmes in medicine have been developed on a regional basis.

**ADMISSION AND REGISTRATION**

Application to any programme in the Faculty of Health Sciences implies acceptance on the part of the applicant of the admission policies and procedures, and the methods by which applicants are chosen for the Health Sciences programmes.

Registration in any programme in the Faculty of Health Sciences implies acceptance on the part of the student of the objectives of that programme and the methods by which progress toward the achievement of those objectives is evaluated.

The following describes the regulations governing admission and registration in the Health Sciences programmes, and should be considered in conjunction with specific admission requirements described on the following pages for the School of Medicine (M.D.), the School of Nursing (B.Sc.N.) and the School of Occupational Therapy and Physiotherapy (B.H.Sc.).

The following application deadlines are strictly enforced. Deadline dates are for consideration of admission to a programme in the following September.

<b>Programme</b>	<b>Deadline</b>
● Medicine (M.D.) .....	November 1
● Nursing (B.Sc.N.)	
Applicants directly from Ontario Secondary Schools .....	May 1
Diploma Registered Nurses .....	February 15
Applicants with Other Qualifications .....	February 15
Transfers from other degree Nursing programmes .....	July 1
● Occupational Therapy and Physiotherapy: (Second Degree Programme) (B.H.Sc.) .....	January 15

The University reserves the right to change the admission requirements at any time without notice.

As places in the degree programmes of the Faculty of Health Sciences are limited, admission is by selection of applicants, and possession of published minimum requirements does not guarantee admission. The University, therefore, reserves the right to grant admission to a limited number of students, and to refuse re-admission to any student whose academic performance or general conduct has been unsatisfactory, or who has withdrawn from the programme for a period in excess of one academic year.

An evaluation of Unsatisfactory in the School of Medicine signifies that the student has failed to meet these objectives and the University may require the student to withdraw from the School at any time.

The University reserves the right to require the withdrawal of a

student should his or her conduct so warrant.

#### **FALSIFICATION OF ADMISSION INFORMATION**

An applicant supplying documentation or evidence which, at the time, or subsequently, is found to be falsified will be withdrawn from consideration. Any student admitted to the programme having submitted false evidence will be withdrawn.

#### **HEALTH REGULATIONS FOR ADMISSION**

Before registration, students must file with the University evidence of a recent health examination and chest X-ray. More detailed medical information will be required upon acceptance into the programme.

#### **CLINICAL COURSE REQUIREMENTS**

Where, in the opinion of the Faculty, the performance of the student in clinical practice may jeopardize or endanger the welfare of the patient or the patient's family, the student may be removed from clinical experience any time during the academic year, until continuation in the course is reviewed.

#### **INFORMATION AND ACADEMIC COUNSELLING**

In certain programmes, a faculty member is selected for each student in the September of entry to a degree programme and provides each student with advice on evaluations, electives and other educational needs throughout the programme. In the M.D. programme, the advisor is also responsible for the collation of all evaluations and completion of the final transcript. Changes in advisors may be entertained as each student becomes acquainted with Faculty well enough to choose his or her own advisor.

The academic advisory role for B.Sc.N. students is fulfilled by the Co-ordinator of Studies (Nursing). Students are also encouraged to consult individual faculty members regarding career planning.

#### **TRANSPORTATION**

Students are responsible for expenses involved in transporting themselves to community agencies, making home visits, or in connection with clinical study.

## **THE SCHOOL OF MEDICINE**

The School of Medicine, established in 1965, offers major programmes in undergraduate, postgraduate and graduate medical education. The clinical programmes use not only the teaching hospital and extensive ambulatory care and research facilities at the McMaster University Medical Centre division of the Chedoke-McMaster Hospitals, but also the clinical teaching units at each of the major Hamilton hospitals and community health-care centres.

The undergraduate medical programme for the M.D. degree was initiated in 1969, graduating its first students in May 1972. At present, 100 students are admitted to the programme each year. The academic programme operates on an 11 months-a-year basis and students qualify for the M.D. degree at the end of the third academic year. The curriculum has been designed to involve medical students with a broad range of human health problems throughout their education and to prepare them for effective working relationships with patients, colleagues, and society.

Postgraduate training programmes currently include: Anesthesia, Community Medicine, Emergency Medicine, Family Medicine, Internal Medicine (and subspecialties), Laboratory Medicine, Obstetrics and Gynecology, Pediatrics (and subspecialties), Psychiatry, Radiology, and Surgery (and subspecialties).

More details on these postgraduate programmes are available from the Associate Registrar (Health Sciences).

The Northern Ontario Medical Programme (NOMP) has been developed in co-operation with the Thunder Bay Medical Society and physicians in towns in Northwestern Ontario. Clinical training opportunities exist in community hospitals adjacent to Hamilton. Excellent clinical experience in these settings is part of both the undergraduate and postgraduate medical programmes.

Graduate programmes leading to the M.Sc. and Ph.D. degrees are offered in Biochemistry and in Medical Sciences. An M.H.Sc. (Health Care Practice) programme is interprofessional in nature and is for experienced health professionals who wish advanced preparation

as clinicians.

## **The Medical Programme**

The three-year programme in Medicine uses an approach to learning that should apply throughout the physician's career. The components have been organized in a relevant and logical manner with early exposure to patients and case management. Flexibility is ensured to allow for the variety of student backgrounds and career goals.

#### **GENERAL OBJECTIVES**

The aim of the undergraduate medical programme is to provide students with a general professional education as physicians. The programme enables students to build on previous education and experience, using available learning resources and opportunities. The competencies achieved by graduates will qualify them to proceed to further postgraduate training. While most graduates will be involved directly with the care of individual patients, it is expected that some will choose careers concerned with the health of populations and the development of new knowledge.

The overriding objective to be achieved is the demonstrated ability to identify, analyze and manage clinical problems in order to provide effective, efficient and humane patient care.

Enabling objectives consisting of knowledge, skills and personal qualities comprise the following:

#### **Knowledge**

To acquire and put into practice concepts and information required to understand and manage health-care problems. The study of human structure, function and behaviour will be guided by an analysis of the determinants of health and illness. A spectrum of factors will be considered in both the external and internal environments of individuals when deciding on preventive, therapeutic, rehabilitative and supportive management.

#### **Skills**

To acquire and use the following skills:

- 1. Critical Appraisal Skills:** The application of certain rules of evidence to clinical, investigational and published data in order to determine their validity and applicability.
- 2. Clinical Skills:** The ability to acquire, interpret, synthesize and record clinical information in managing the health problems of patients, considering their physical, social and emotional function. Included is the use of the clinical reasoning process.
- 3. Self-Directed Learning Skills:** The ability to identify areas of deficiency in one's own performance, find appropriate educational resources, evaluate personal learning progress and use new knowledge and skills in the care of patients.

#### **Professional Qualities**

To recognize, develop and maintain the professional qualities required for a career as a health professional. Acquiring the authority to intervene in the lives of patients carries with it the obligation to act responsibly:

- 1. toward oneself:** to recognize and acknowledge personal assets, emotional reactions and limitations in one's own knowledge, skills and attitudes, to build on one's assets and to overcome areas of limitation;
- 2. toward patients and their families:** to be able, under appropriate supervision, to take responsibility for the assessment and care of patients and their families;
- 3. toward colleagues:** to contribute to productive communication and co-operation among colleagues engaged in learning, research or health care;
- 4. toward the community:** to contribute to the maintenance and improvement of the health of the general population.

#### **LEARNING METHODS**

To achieve the objectives of the undergraduate medical programme, students are introduced to patients within the first level of the curriculum. In this way, students understand the relevance of what they are learning, maintain a high degree of motivation and begin to understand the importance of responsible professional attitudes.

The students are presented with a series of health-care problems,



requiring for their solution, the understanding of underlying physical, biological and behavioural principles, the appropriate collection of data and the critical appraisal of evidence. In each problem area, the student may select the most appropriate issues to ensure the understanding and application of fundamental concepts. This flexibility provides an opportunity for early consideration of individual interests and goals. The faculty function as learning resources or guides. Learning by a process of inquiry is stressed.

The central focus of the programme is the tutorial. The class is divided into small groups, each with a tutor. In the tutorial session students develop a series of learning objectives from each health-care problem and negotiate how they will approach their learning tasks. They then acquire the knowledge and skills to meet the objectives of the unit in which they are working. They also learn to work as a team, helping and learning from peers. The study habits and sense of responsibility to self and others provides a basis for life long working and learning habits.

Students admitted to the undergraduate medical programme have the responsibility and privilege of taking an active role in the planning and evaluation of the education programme. Through representation on most policy-making and implementing committees, students can influence decisions in such areas as education, philosophy, faculty recruitment, and curriculum design. It is expected that all students will participate in the continuing reappraisal and improvement of the programme. Such participation is a hallmark of the School.

**STUDENT EVALUATION METHODS**

The evaluation format has been designed to complement learning in the undergraduate medical programme. Evaluation methods have been developed to measure how well the student achieves the stated educational objectives in the various units of the programme. Continual evaluation of the student occurs within the tutorial setting with input from students, their peers and the tutor.

Two problem-solving exercises, carried out individually with each student, are required in each unit. At the completion of the unit, the tutor is responsible for the final summary statement of student learning progress. The tutor prepares a written summary of observation of the student's performance in the tutorials and all associated activities during that unit. A copy of the evaluation summary is given to the student and to the student advisor while the original is kept in the student's evaluation file.

In addition to the tutorial-based evaluation, the accumulation of medical knowledge is assessed at regular intervals by means of the Personal Progress Index. This is a multiple-choice format. Results are given to the students for self-evaluation and, in summary form, to the student advisor. Progress testing is to supplement, not to replace, tutorial- and performance-based evaluation.

The Evaluation Working Group, a subcommittee of the Undergraduate Medical Education Committee, has the responsibility of working with the Medical programme to assist with the development and implementation of evaluation methods to provide timely and helpful information to assist students and faculty in assessing progress and performance.

**The Curriculum Plan**

The curriculum of the undergraduate medical programme comprises six units, an elective programme and revision time. The Curriculum Plan showing the relative proportion of time accorded to these units is illustrated on the chart in the next column.

There is less of a division between the preclinical parts and the clinical parts of the M.D. programme than in more traditional schools. Patient contact and clinical skills development start in Unit 1 and increase throughout the programme. The scientific background for understanding patients' problems, while more intensively studied in earlier units, continues to be applied as it is relevant to the care of patients in clinical situations.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	HOLIDAYS
								UNIT 1			HOLIDAYS	
UNIT 2		UNIT 3			ELECTIVE	HOLIDAYS	UNIT 4			ELECTIVE	HOLIDAYS	
UNIT 5			UNIT 6 THE CLERKSHIP								HOLIDAYS	
UNIT 6 THE CLERKSHIP (CONTINUED)		REVISION	Unit 6 includes 16 weeks of elective time, plus four weeks of holiday time.									GRADUATION

**PROGRAMME OUTLINE FOR UNIT 1**

The goal of Unit 1 is to provide an introduction to the undergraduate medical programme, emphasizing a global view of the determinants of health and illness. Factors from the molecular to the global environment will be considered, as they determine the clinical presentation in an individual. Concepts and information from three knowledge perspectives will be studied: the population perspective, the behavioural perspective and the biological perspective. Students will begin to acquire basic skills of critical appraisal, clinical skills and, in particular, learning skills. During this unit, students will become familiar with the health care system in the Hamilton region and the opportunities for learning which it offers.

This unit is the foundation for all the following units and not specifically preliminary to Unit 2.

**PROGRAMME OUTLINE FOR UNITS 2-4**

These units are concerned with the systematic study of human structure, function and behaviour and are organized around systems of the body, as follows:

- Unit 2 Cardiovascular, Respiratory and Renal Systems
- Unit 3 Hematologic, Gastroenterologic and Endocrine Systems
- Unit 4 Neurologic, Locomotor and Behavioural Systems

There is an emphasis on critical appraisal of evidence, on clinical skills and learning skills throughout these units.

**PROGRAMME OUTLINE FOR UNIT 5**

This unit is designed as an integrative unit and organized on the overall theme of The Life Cycle. Health-care problems from the community are studied. Major themes include reproductive health, child and adolescent health, occupational and environmental health and geriatric health.

Students have an ongoing opportunity to consolidate their clinical, learning and critical appraisal skills. There are opportunities to make field trips to a variety of health-care settings and agencies.

**PROGRAMME OUTLINE FOR UNIT 6 — THE CLERKSHIP**

In this component of the programme students participate in the direct care of patients as they learn about the management of health and illness. All prior objectives apply, but the health-care problems are real patients. Students become self-sufficient in contemporary medicine, but are able to sense when today's medicine becomes out-of-date by adopting good habits of learning and assessment.

The Clerkship programme consists of rotations in Medicine, Surgery, Family Medicine, Psychiatry, Pediatrics, Obstetrics and Gynecology, and in elective time of which one-half must be spent in clinical medicine. The compulsory components of the clerkship are carried out in teaching practices and in all the teaching hospitals in the Hamilton region. The elective experience can be spent in various activities utilizing local, regional or distant resources.

**ELECTIVES**

Electives are an integral part of the Curriculum Plan. They may be considered the epitome of self-directed learning since students must define goals for electives which are appropriate for their own learning objectives and which represent specific areas of educational need or interest. The responsibility for planning electives rests with each

student in collaboration with the student advisor.

The three types of electives in the undergraduate medical programme are:

- 1. Block Electives:** These are sections of the curriculum for full-time elective activities. Block Electives occur after Unit 3 (six weeks), after Unit 4 (four weeks), and during the Clerkship (16 weeks).
- 2. Horizontal Electives:** These are undertaken concurrently with other parts of the curriculum. Horizontal electives are entirely voluntary and are not required for completion of the programme. It is particularly important that the student's advisor be involved in all decisions concerning the selection and carrying out of horizontal electives.
- 3. Enrichment Electives:** There are arrangements in place for students from each class to devote longer periods of time (from six to 12 months) to the pursuit of special academic experiences. The intent is to encourage students to explore possible careers in special "frontier" areas of medicine and health care. Examples include: research training and experience; community health projects; international health opportunities. These experiences are often undertaken following Unit 5 or during the first half of Unit 6. Some experiences may provide partial funding (e.g. by student research fellowships).

### REGULATIONS FOR LICENCE TO PRACTISE

A degree in medicine does not in itself confer the right to practise medicine in any part of Canada. To acquire this right, university graduates in medicine must hold a certificate of the College of Physicians and Surgeons of the province in which they elect to engage in practice. Students in Ontario medical schools are not required to register as students with the College of Physicians and Surgeons of Ontario. Students intending to practise outside Ontario are urged to consult the licensing body of that province regarding registration.

Licensing requirements vary somewhat among the provinces. After completing the M.D. degree, graduates are eligible to write the Medical Council of Canada Qualifying Examination, which is required by all provinces except Quebec for licensure. After having passed this examination the graduate must provide evidence of having completed one year (two years for those graduating in May 1993 or later) of acceptable postgraduate experience in a hospital approved by the College of Physicians and Surgeons of Ontario before being licensed to practise in this province.

### CANADIAN INTERN MATCHING SERVICE

The Matching Service is a clearing-house designed to help final year Canadian medical students obtain the first post-M.D.-year programme of their choice, and to help programme directors obtain the students of their choice. It provides an orderly method for students to decide where to train and for programme directors to decide which applicants they wish to enrol. For both students and directors, it removes the factors that generate unfair pressures and premature decisions.

Further information is available from the Office of the Associate Registrar (Health Sciences).

### Admission Policy for the Medical Programme

The official admission policy for the undergraduate medical programme for September 1994 shall be as published in the 1994 Ontario Medical School Application Booklet. This booklet is available through:

**Ontario Medical School Application Service (OMSAS)**  
**PO Box 1328**  
**651 Woodlawn Road West**  
**Guelph, Ontario, M1H 7P4**

Please note that the admission policy is reviewed annually, and the admission requirements from previous year may not apply.

Because of the nature of the selection procedures, deadlines are enforced strictly. All relevant documentation must be provided by the specified deadlines. Applicants must follow the instructions precisely.

### SELECTION PROCEDURE

The intention of the McMaster Undergraduate Medical programme is to prepare students to become physicians who have the capacity and flexibility to select any area in the broad field of medicine. The applicant is selected with this goal in mind. Faculty, medical students and members of the community are normally involved in the review of applications.

Application to the medical programme implies acceptance by the applicant of the admission policies and procedures, and the methods by which candidates are chosen for the programme.

Applications must be submitted by November 2, 1993, 4:00 p.m. EST. Approximately 400 applicants will be invited for interviews in Hamilton in March or April. Invitations for interview are determined on the basis of applicants' academic performance, and an assessment of their preparedness for a career in medicine and suitability for the McMaster Undergraduate Medical programme. From this group a class of 100 is selected.

### TRANSCRIPT NOTES

It is expected that all applicants will request all transcript materials in a timely fashion, to allow adequate time for processing requests and for receipt at OMSAS by the prescribed deadline. For this reason, applicants are strongly urged to request two sets of transcripts. One must be sent by the institution directly to, and received by OMSAS by December 10, 1993; the second copy should be sent to the applicant to ensure that the request has been fulfilled. Applicants should retain all receipts and correspondence related to their transcript request. Evidence to show that applicants have requested transcripts in a timely fashion may be requested by McMaster University.

It is not normally possible to notify applicants of any outstanding transcripts before December 10, 1993. Therefore, it is totally the applicant's responsibility to ensure that all transcripts, work reports, and Registrar statements are received at OMSAS by December 10, 1993. Failure to meet this requirement will result in the disqualification of the application.

All transcripts must be submitted directly to OMSAS by the post-secondary institutions attended. McMaster requires that applicants provide transcripts of all courses/programmes attended at any post-secondary institution. This includes community colleges, CEGEPs, junior colleges, pre-university programmes, etc.

Failure by the applicant to comply with the instructions or to meet the deadlines will result in disqualification of the application.

### ACADEMIC ELIGIBILITY

Applicants must report on the Academic Record Form (pages 2 and 3 of the OMSAS Application) all grades received in the degree credit courses in which they have ever registered. Failure to report courses, programmes or grades on the Academic Record Form will result in the disqualification of the application. All grades are converted by the applicant on the Academic Record Form to a 4.0 scale according to the OMSAS Undergraduate Grading System Conversion Table. (The Conversion Table is provided with the OMSAS Application.)

All applicants must fulfill the requirements described below in both (a) and (b).

- By September 1, 1994, applicants must have completed a minimum of three years undergraduate work. Only degree credit courses taken at an accredited post-secondary institution will be considered.

Two of the three years must be above Level/Year I. A "year" is the full block of work specified for a year or level of the programme in the appropriate university calendar. If requested, applicants must provide evidence that the requirement has been met.

An applicant who has completed a diploma at a CEGEP must have completed by September 1, 1993, at least two additional years of degree credit work at an accredited post-secondary institution. One of those years must be a full programme of courses above Level/Year I.

Applicants who have satisfactorily completed the requirements for a baccalaureate degree in less than three years by November 2, 1993, are also eligible.

- b. By November 2, 1993, applicants must have achieved an overall simple average of at least second-class (B) standing in their academic work to date. A "B" average is considered to be an OMSAS overall converted average of at least 3.0 on the 4.0 scale. Graduate work will be used to establish eligibility in the following circumstance. If an applicant has not achieved the overall B standing in the OMSAS converted average, but has completed a graduate degree, the graduate degree will be taken into account to establish eligibility.

Academic Assessment will be as outlined in the Ontario Medical School Application Booklet.

#### **AUTOBIOGRAPHICAL SUBMISSION**

Applicants must provide an Autobiographical Submission which is a description about their preparedness for medicine and suitability for the McMaster Undergraduate Medical programme.

The Autobiographical Submission Booklet is included in the application kit provided by OMSAS.

The Autobiographical Submission Booklet includes detailed instructions with regard to the length and format of responses. Those instructions are considered to be part of the Admission Policy and Procedures for the McMaster Undergraduate Medical programme.

Failure to comply with the instructions for the Autobiographical Submission Package will result in disqualification of the application.

#### **GEOGRAPHICAL CONSIDERATION**

The geographical status is determined from the Autobiographic Sketch (page 4 of the OMSAS Application). Applicants may be asked to provide evidence of geographical status. In selecting applicants for interview, the bona fide place of residence will be used in the following order of priority:

1. Hamilton Health Region and Northwestern Ontario (defined as west of Wawa to the Manitoba Boundary);
2. the rest of Ontario;
3. the rest of Canada; and
4. other countries.

To qualify for 1) or 2) above, an applicant must:

- a. be a Canadian citizen or permanent resident by November 2, 1993; and
- b. have resided for at least three years in the area since the age of 14. Attendance at a university in the area for at least three years by the date of possible entry to the programme satisfies the second requirement.

Any other applicant who is a Canadian citizen or permanent resident qualifies for 3.

All other applicants qualify for 4.

#### **INTERVIEWS**

Approximately 400 applicants will be invited to Hamilton for an interview. The selection of these applicants is based on the composite score which weights equally the grade point average from the Academic Assessment and the scores from the Autobiographical Submission. Geographical consideration is applied to determine the composition of the pool of applicants that are selected for interview. While all applicants from Geographic Category 4 (other countries) are considered, they may be selected for interview only if they are judged on each criterion to be clearly superior to other applicants.

Because the interviews involve many other people, applicants must attend on the date and time specified. Applicants are responsible for their own travel expenses.

Each applicant participates in the two components of the interview: the Simulated Tutorial and the Personal Interview.

In the Simulated Tutorial a group of applicants discuss a health problem/situation. The applicant's group skills and problem-exploration skills are assessed.

In the Personal Interview, the applicant is interviewed by a team which is not involved in the assessment of the Simulated Tutorial. Before an applicant meets the interview team, the interviewers are given the candidate's Autobiographic Sketch (page 4 of the OMSAS Application). Interviewers do not have access to any other information.

The Autobiographic Sketch is not assessed but serves as a background for the interviewers. In making the overall assessment

of the applicant, the Personal Interview team considers the following areas: problem-exploration skills, self-appraisal skills, interpersonal skills, career choice, and suitability for the McMaster programme.

#### **SELECTION**

All the information resulting from the process described above, as well as the Confidential Assessments from referees, is reviewed and used in the final selection.

Successful applicants will be notified the last working day in May 1994.

#### **UNSUCCESSFUL APPLICATIONS**

Applications from one year are not held over to another year. If an unsuccessful applicant wishes to reapply, a new application package, including supporting documentation must be submitted, using the OMSAS Application, the OMSAS Instruction Booklet, and the McMaster Autobiographical Submission for the new admission selection cycle.

Unsuccessful applicants may inquire about their application for the current year. The applicants must make their requests in writing to the Chair of the Admissions Committee of the McMaster Undergraduate Medical Programme. No inquiries will be considered after June 30 of the year of application.

#### **APPLICATION FOR DEFERRAL OF REGISTRATION**

Deferred registration may be granted only under exceptional circumstances. Deferred registration applications may be requested only by those candidates offered a place in the class on the last working day in May and by those who have accepted that offer. The application must be submitted by deadlines, determined from year-to-year (normally within two weeks of the offer of admission).

Applications received in the fall of 1993 are for the academic year commencing in the fall of 1994. Applicants who will not be ready to begin studies in the fall may withdraw their applications without prejudice. Application fees cannot be refunded.

#### **SPECIAL APPLICANTS**

Candidates who believe they are eligible for this category must contact, in writing, the Associate Registrar (Health Sciences) before making a formal application. The formal application containing all relevant information and documentation must be made by October 1 to be considered for that year.

This category is designed to provide opportunities only to those who:

1. have not attended a post-secondary institution as a full-time student, or
2. have completed less than 10 full courses as a part-time student, or
3. are First Nations applicants who wish to be considered under this category.

To be eligible for consideration under this category, the candidate must demonstrate exceptional competence and motivation, and must:

1. have completed at the time of application, at least four full degree credit courses. These courses must be completed with the equivalent of an overall average of at least a B on the McMaster grading scale. A current university transcript must accompany the request for consideration;
2. have been employed or active in the community for at least seven years since leaving high school;
3. be a resident of Ontario.

Candidates who meet the above specifications will be assessed on having made an exceptional contribution to society. In this, candidates must have shown creativity, initiative and leadership.

#### **ADVANCED STANDING/TRANSFER**

Applications for Advanced Standing will be considered only under exceptional circumstances. Admission with Advanced Standing is conditional upon the availability of resources and will not affect the number of students admitted by the regular route.

Applicants for Advanced Standing must provide evidence to show that their undergraduate medical education has been or will be either terminated or delayed for at least two years by circumstances beyond their control. Those who have already completed the

educational requirements of an M.D. degree (or equivalent) will not be considered for Advanced Standing.

In addition at the time of application, applicants must have successfully completed three years of university education at an accredited post-secondary institution including a full year/level in medical school. Applicants who have enrolled in an undergraduate medical programme as their first post-secondary education, must have completed at least three years of undergraduate university education (including the years in the medical programme);

To be considered eligible because of compassionate reasons based on political grounds, all applicants who are not Canadian citizens must show, at the time of application, evidence of being admitted to Canada as a member of the Refugees and Humanitarian classes.

Those who believe that they are eligible for this category must contact, in writing, the Chair of the Admissions Committee of the Undergraduate Medical programme or the Associate Registrar (Health Sciences), before making formal application. Unless the applicants for advanced standing can demonstrate the need for urgency in the handling of their application, they are subject to the same formal application deadlines as regular applicants, and must provide all relevant documentation by October 1 to be considered for eligibility for that year's selection and admission cycle.

### Financial Information

Financial difficulties are among the most frequent problems experienced by students in undergraduate medical schools. At McMaster, these are intensified by the lack of opportunity for summer employment as well as by the relative scarcity of financial assistance funds available to the medical school.

In this situation, it is incumbent on students admitted to the M.D. programme to clarify immediately their personal financial situation and to secure or identify sufficient support to meet their financial obligations over the subsequent three years. The School of Medicine cannot assume this responsibility.

In 1992-93, the academic fees (tuition and student supplementary fees) for a student in the McMaster Undergraduate Medical programme were:

#### CANADIAN CITIZENS AND LANDED IMMIGRANTS

Year I and II .....	\$3,934
Year III .....	2,730

#### VISA STUDENTS

Year I and II .....	15,772
Year III .....	10,622

In addition, the cost of books and diagnostic equipment for a Year I student was approximately \$1,500. Students are also responsible for their transportation costs related to clinical study.

Financial assistance is available from the federal and provincial governments through the Ontario Student Assistance Program (OSAP). To be eligible a student must be a Canadian Citizen or permanent resident of Canada and fulfill certain requirements for residency in Ontario. In addition, the following sources of funding are available to undergraduate medical students.

#### ABBOTT MEMORIAL SCHOLARSHIP LOAN FUND

This fund was established by the Federation of Medical Women of Canada. Small loans are available to any female medical student or first-year intern. In special cases, a loan up to \$1,000 may be made to a student for recognized postgraduate training. Loans are payable within five years of date of issue, after which time interest will be charged at a rate of 5% compounded annually.

Information regarding these loans may be obtained from the Secretariat, Federation of Medical Women of Canada, Box 8244, Ottawa, Ontario, K1G 3H7.

#### MEDICAL OFFICER TRAINING PLAN

The Department of National Defence administers a programme for medical students known as the Canadian Forces Medical Officer Training Plan. Under this plan, students may be subsidized (tuition, plus pay) throughout their undergraduate medical studies and internship. To qualify for enrolment a student must be acceptable

without condition in a course in medicine in a Canadian university or in an accredited internship.

Further information on this programme and on the career opportunities in medicine in the Canadian Armed Forces may be obtained from local Canadian Forces Recruiting Centres. In Hamilton, the Recruiting Centre is at 150 Main Street West. Telephone (416) 523-2751.

#### FINAL YEAR CLERKSHIP STIPEND

The Ontario Hospital Services Commission will make a grant of approximately \$5,000 to each student, payable in 24 biweekly installments, for educational development within a teaching hospital.

In relation to the Ontario Student Assistance Program, the OHSC grant will be taken into account in assessing the amounts of the awards for those students who are eligible.

#### OTHER FUNDS

The School of Medicine administers a small loans and bursaries programme to assist some medical students who may be in need. Unfortunately, these funds are limited and cannot be relied on to meet a major portion of any student's financial obligations. The source of these funds includes: The Ontario Medical Association Bursaries and Loan Fund; The William Andrew Vanderburgh Sr. Memorial Fund; and the Ripley Estate Bursary and Loan Fund.

For further information, contact Helen Otrrosina, (416) 525-9140, ext. 2670.

#### ACADEMIC AWARDS

The School of Medicine has in the past indicated its preparedness to recognize students who distinguish themselves and the University by virtue of their scholarship and their contribution to the university community. At the same time, the School has indicated that the terms of reference for such awards should neither compromise the spirit of co-operative scholarship which characterizes its M.D. programme nor replace its priority of concern for financial assistance awards.

A small, but growing number of estates and agencies have donated funds to the University and the School of Medicine for purposes of recognizing scholastic merit among medical students. In order to meet the requirements of these awards within the spirit of co-operative scholarship, these funds are administered by the School's Student Financial Aid Committee to support individual students in their pursuit of specific elective projects or activities.

Students are required to submit an application through the Electives Office, outlining the nature of their work and the need for funds. For further information, contact Helen Otrrosina, (416) 525-9140, ext. 2670.

## B.H.SC. MIDWIFERY PROGRAMME

### Programme Overview

The creation of the baccalaureate programme in midwifery was announced by the Ontario government in December 1992. The programme is jointly shared by McMaster University, Laurentian University and Ryerson Polytechnical Institute and will lead to the degree Bachelor of Health Sciences (B.H.Sc.) in Midwifery. Students will enrol in one of the three post-secondary institutions. In addition to meeting all requirements of the joint programme, students must satisfy the academic regulations of the institution in which they are enrolled.

The curriculum includes courses from basic sciences, social sciences, health sciences, women's studies and electives, in addition to clinical courses. A variety of course formats will be used, with a mix of large and small group situations. Distance learning formats will be developed and used extensively. Full-time students will complete the programme in three 11-month blocks.

Each student will be assigned to a midwifery practice for an extended period. This will ensure that students will provide continuity of care to clients and obtain continuity of supervision from a clinical preceptor. As far as possible, a variety of midwifery practices and other sites will be used to locate students in their geographic areas of choice. In addition to a placement with a midwife preceptor, clinical

experience will be obtained in hospital settings and in conjunction with a family physician, an obstetrician and in elective placements. Students will be brought together for several days on three occasions during the three-year programme as a means of fostering professional identity and group support.

Ryerson Polytechnical Institute will offer the programme on a part-time basis. The sequence of courses and course load must be individually arranged. The suitability of part-time study for meeting clinical requirements must be carefully assessed. **Periods of full-time participation will likely be necessary.**

The programme will reflect the philosophy of midwifery in Ontario and its focus on women's participation in their health care. The importance of public involvement in the evolution of the profession will be evident in the ongoing participation of health-care users in programme advisory and evaluation activities and in student admission and evaluation activities. The programme will work closely with practising midwives and other maternity-care providers to ensure a high-quality clinical environment for students.

The educational programme is based on several fundamental beliefs and values:

**WE BELIEVE** that midwifery has the potential to be one of the most important components of women's health care in Ontario. Midwives' expertise in the care of normal pregnancy and childbirth arises from their understanding of childbearing as a social, cultural and biological process and from their ability to competently exercise clinical skills and decision-making. Midwifery education must provide the base for sound professional practice.

**WE BELIEVE** that midwives are the best persons to teach the professional practice of midwifery.

**WE BELIEVE** that the educational programme has a special responsibility to foster partnerships between midwives and other health-care providers for the benefit of students and women who seek midwifery care.

**WE BELIEVE** the educational programme is an **Integral** part of the evolution of the profession of midwifery in Ontario and Canada. The programme must help create future leaders and teachers. It must establish practice and teaching as a continuum so that learning environments become available across Ontario.

**WE BELIEVE** the educational programme will best assure the acquisition of knowledge, skills and values, and foster critical thinking if the academic setting is respectful of students, is committed to scholarly enquiry and emphasizes the lifelong ability to learn and change.

**WE BELIEVE** that accessible education which is both flexible and culturally sensitive, requires high-quality distance education.

**WE BELIEVE** that the collaborative model of programme development and management described herein provides both a reflection of and a model for professional practice in the field of midwifery.

## Curriculum Plan

The curriculum plan sets out the programme in a three-year timetable of full-time study. The course sequence moves from foundation courses in basic and social sciences, women's studies and health sciences to the application of knowledge in clinical practice. Students undertake some focused clinical activities in Level I to foster an understanding of the clinical basis of the profession. In Levels II and III there are extended opportunities to acquire clinical skills and to integrate theoretical material with clinical practice in addition to completing the courses necessary to acquiring the broad base of knowledge of a health professional.

While efforts will be made to place students in a geographic location of their choice for their extended clinical practice, students may be required to travel to a practice that can provide suitable clinical supervision.

### LEVEL I

#### Term 1 and 2 (September to April)

- Topics in Biological Sciences
- Social and Cultural Dimensions of Health Care
- Women's Studies

- Elective (Term 1)
- Critical Appraisal of Research Literature (Term 2)
- Introduction to Midwifery

#### Term 3 (May - July)

- Midwifery Care I ♦

♦ Course consists of placement in a practice and concurrent problem-based tutorials that span antenatal, intrapartum, postnatal and newborn care.

\* Includes a time when all students are brought together at one site.

**In September 1993, only Level I courses will be available.**

## Admissions Process and Criteria

Applicants must apply for admission to the midwifery programme and indicate their choice of institution in which to be enrolled, except that French language students must be based at Laurentian and part-time studies must be taken at Ryerson. Applicants to the programme must meet the general requirements for admission to the institution. Persons applying directly from high school must have completed OAC courses in English I or anglais I or II, physical/biological science and a social science. Applications from members of aboriginal communities are encouraged.

An application must be sent to the Ontario University Applications Centre and a supplementary application package must be sent directly to the institution. The review of applications will be done by a committee representing the three institutions, health-care providers and consumers. In addition to academic qualifications, applicants will be assessed for personal qualities, relevant experience and geographic location. The admissions committee will assess written responses to a questionnaire about the desire for midwifery as a career. Highly qualified applicants will be invited for a personal interview. Offers of admission will be made at the conclusion of this process.

The admission criteria will be weighted to favour mature students since personal maturity will be an important attribute among members of the profession, especially in the early years of its integration into the health-care system.

Applicants who are eligible for advanced credit and wish to enrol in advanced level courses (Level II and III) cannot be accommodated in the group of students entering the programme in September 1993.

### APPLICATIONS DEADLINE

The 1993 deadline for submission of completed application forms and supporting documents is April 1.

### EXPENSES

In addition to the fees described in the *Financial Information* section on page 21 of this Calendar, students should expect to pay approximately \$500 a year for books.

Students must also cover their own travel and accommodation costs for the clinical component of the programme. The programme will cover costs of bringing students together at one site at three different times during the programme.

Please consult each institution for housing policies and costs.

## Qualifying for Registration by the College of Midwives

The practice of midwifery will be regulated by the College of Midwives under the Midwifery Act, 1991 and the Regulated Health Professions Act, 1991. Although passed in 1991, the legislation is not expected to be in force until late in 1993. The educational programme in midwifery has no jurisdiction with respect to regulatory requirements and they are subject to change from time to time. The programme will maintain a close working relationship with the regulatory body so that students obtain the required clinical experiences to be eligible for registration.

The interim governing body has approved a set of core competencies for entry to practice and has recommended the following clinical requirements for midwifery students:

- attendance at a minimum of 60 births;
- the student must be involved as a primary caregiver for 40 of those births;
- student responsibility for 30 of those births must include care



throughout pregnancy, labour and the puerperium.

## THE SCHOOL OF NURSING

In 1942, McMaster University began its first programme in Nursing, which was operated co-operatively by the University and the Hamilton General Hospital. Since the establishment of McMaster University's School of Nursing in 1946, students have received a Bachelor of Science in Nursing degree upon graduation. The programme has functioned completely under the supervision of the University, while enjoying the full co-operation of community hospitals and agencies in the operation of its clinical courses. In July 1974, the Schools of Nursing and Medicine became the Faculty of Health Sciences.

In 1982, the Post Diploma RN Stream of the B.Sc.N. programme was introduced. This second category of admission is available to provide opportunities for Diploma Registered Nurses to receive a B.Sc.N. degree.

Applicants often wish to discuss the implications of embarking upon a degree programme in nursing. During the school year Health Sciences Information Sessions for high school students are presented. Details about these sessions may be obtained from the Student Liaison Office (Gilmour Hall, Room 102, (416) 525-9140, ext. 4787). Applicants not applying directly from high school may discuss aspects of the admission process by calling (416) 525-9140, ext. 2232, or writing directly to Admission and Records, HSC-1B7.

### The B.Sc.N. Programme

The B.Sc.N. programme promotes the development of nursing as a caring, client-centred, scientifically based profession. With an emphasis on problem-based, small group, self-directed learning, the programme provides a general baccalaureate education in nursing for the preparation of professional nurses who will practise in a variety of health-care settings. Central to our mission is the preparation of nurses who will work to enhance the quality of health of individuals, families, communities and society. In fulfilling its mission, the B.Sc.N. programme promotes in its graduates skills to prepare them for life-long, self-directed learning, critical thinking, advocacy and collective action.

As students progress in the B.Sc.N. programme, they will find an increasing emphasis on interpersonal skills, independent learning, and leadership qualities. Applicants should evaluate their own potential for developing abilities to interact with others and to assume leadership roles. Learning is both a process of inquiry and a skill which is developed as a life-long activity and which takes place in an environment conducive to openness and sharing among faculty and students. Emphasis on small group tutorials and self-directed learning promotes the development of self-evaluation skills and critical thinking abilities. Extensive audio-visual, laboratory and library resources support a belief in the importance of independent study. Students apply concepts from Nursing and related disciplines to their experiences in classroom and clinical settings. In addition, opportunities exist for international clinical practice experiences.

Evaluation by self, peers and faculty is part of an on-going process of assessment of the achievement of clinical, course, and programme objectives.

### BELIEFS AND GOALS

We believe that nursing is a scientific activity which seeks to describe, understand and accept reality as human beings experience it, and to provide professional care in this context.

The scientific activity of nursing involves critical appraisal, ability to selectively utilize research findings and the use of a problem-solving process.

We believe that all human beings are unique, self-interpreting individuals with potential and with freedom of choice in determining the quality of life. Both the nurse and the client (individual, group or community) are accountable for their decisions and actions.

The unique contribution of nursing is in professional caring, which has both scientific and humanistic components.

At McMaster, we believe that health care is a team responsibility and that nursing education can be offered most beneficially in an

interprofessional setting.

We believe that we can contribute to the development of nursing as a profession by producing graduates who:

1. Demonstrate personal characteristics that reflect a developing professional meaning; that is:
  - a. recognize the intrinsic dignity, worth and uniqueness of persons
  - b. demonstrate sensitivity and awareness of personal assets and limitations
  - c. demonstrate advocacy, empathy, tolerance, accountability
  - d. maintain ethical standards
  - e. think rigorously and critically
  - f. foster independent and collaborative practice
  - g. provide leadership for change.
2. Accept responsibility for life-long learning and professional growth.
3. Identify and understand internal and external influences on human health.
4. Utilize knowledge of biological, physical, verbal, emotional and spiritual factors in nurse/client situations.
5. Demonstrate knowledge of the impact of interprofessional interchange on nursing, other health disciplines and the health-care system.
6. Demonstrate nursing practice that reflects knowledge of the processes of change, caring, coping, valuing, learning and critical appraisal.
7. Demonstrate a comprehensive approach to nursing practice in a variety of settings.
8. Support and promote a humanistic and scientific approach to the care of nursing clients.

## Admission Policy and Procedure

### ADMISSION POLICY

Application to any programme in the Faculty of Health Sciences implies acceptance on the part of the applicant of the admission policies and procedures, and the methods by which applicants are chosen for the programme.

As places in the B.Sc.N. programme are limited, admission is by selection of applicants, and possession of published minimum requirements does not guarantee admission.

There are two streams of study for the completion of the B.Sc.N. degree. The Basic (A) Stream requires four years of study, and is available to: those applying directly from an Ontario secondary school, or with qualifications equivalent to OACs, and applicants with other qualifications including mature students and university students.

The Post Diploma (B) Stream requires two years of study and is available to Diploma Registered Nurses only.

The requirements and application deadlines vary depending on the applicant's background. Please note carefully the sections that follow as to procedures and requirements.

### Applicants from Ontario Secondary Schools or Equivalent

Half of the places in Level I are held by students with OACs or equivalent. The selection method is by academic qualifications. Either interim or final grades provide the academic base, calculated the first part of June.

### Applicants with Other Qualifications and Diploma RNs

The selection method is based on academic qualifications, and a personal qualities' score based on scores obtained through an autobiographical questionnaire and a personal interview. The response to the questionnaire is assessed by teams of assessors normally representing the faculty, the students or alumni, and the community. As a further selection process, applicants may be invited to a personal interview in early May.

Applicants are responsible for their own travel expenses. Failure to accept the invitation to an interview will result in cancellation of the application. The scores awarded by the assessors are final.

All applicants will be informed of the admission decision in mid-June. Where courses were in progress at the time of application, the offer of admission may be conditional upon the applicant achieving an overall B average. Failure to meet the condition will result in withdrawal of the offer of admission.

**ADMISSION PROCEDURE****Applicants from Ontario Secondary Schools**

Applicants currently completing OACs apply through the Ontario Universities' Application Centre (OUAC). Application forms are available in secondary school guidance offices. Your secondary school will forward your mid-term and final transcripts directly to OUAC in support of your application.

Applications for all studies beginning in September must be received by OUAC no later than May 1.

Return to:

**Ontario Universities' Application Centre (OUAC)**  
650 Woodlawn Road West, P.O. Box 1328  
Guelph, Ontario, N1H 7P4

**Applicants with Other****Qualifications and Diploma RN Applicants**

Such applicants should write to the Associate Registrar (Health Sciences) for an application package. Transcripts of courses either completed or in progress and the questionnaire response must be included with the application by February 15. Diploma RN applicants must also include their Certificate of Competence and the statement(s) of their nursing practice in the past five years. Applicants enrolled in diploma nursing programs at the time of application must be eligible to write the nursing registration examinations no later than June of that year.

Applications for all studies beginning in September must be received by the Associate Registrar (Health Sciences) no later than February 15 at:

**Faculty of Health Sciences (Admissions & Records)**  
McMaster University, Room HSC-1B7  
1200 Main Street West  
Hamilton, Ontario, L8N 3Z5

Students enrolled in other programmes at McMaster University wishing to be considered for the B.Sc.N. programme should also apply by this method through the Office of the Associate Registrar (Health Sciences) by February 15.

**ADMISSION REQUIREMENTS**

A student who plans to enter the Nursing Programme may qualify under one of the four categories (A to D) described below.

**A. APPLICANTS TO THE BASIC (A)****STREAM FROM SECONDARY SCHOOLS****Requirements**

1. one of OAC English I, OAC Anglais I or OAC Anglais II; OAC Chemistry;
3. one of OAC Calculus, OAC Algebra and Geometry, OAC Finite Mathematics, OAC Functions and Relations;
4. One of OAC Biology, or OAC Physics;
5. Completion of two additional OACs to total six credits.

**Note:** Application to the programme must be made within two years of completion of the OAC requirements. The admission average will be calculated on the best six OAC subjects, including the four required subjects.

**Applicants with Qualifications****Equivalent to OAC Requirements**

Applicants from other provinces and countries must achieve the equivalent to the qualifications listed above in their secondary school graduation year.

**Secondary School Semester Applicants**

Applicants who complete the programme admission requirements in January may choose to take university courses commencing in February. Nursing applications submitted in January normally will be among those considered for the following September.

**Early Admission Stream (Nursing)**

Applicants who qualify in January for early admission may be admitted directly into the B.Sc.N. programme and may begin their elective course work in February.

**B. APPLICANTS TO THE BASIC (A)****STREAM WITH OTHER QUALIFICATIONS**

Applicants who do not qualify under Category A normally should:

- 1.a be currently enrolled in first year of a University programme and a university admission average of at least 75%; or
- 1.b provide evidence of achievement of a minimum of B- in at least 12 units (or equivalent) of university degree credit courses. (These courses may be taken as a full-time or part-time student.)

**Note:** University degree credit courses completed prior to admission will be assessed for advanced credit, following admission to the programme, by the Co-ordinator of Studies.

2. submit a completed original and three copies of their response to the questionnaire provided in the application package.

Applicants will be evaluated on the basis of the material submitted above and may be invited to come to McMaster in early May for an interview. Applicants are responsible for their own travel expenses.

Failure to attend the interview will result in cancellation of the application. The scores awarded by the assessors are final.

**C. ADMISSION FROM OTHER****DEGREE NURSING PROGRAMMES**

Applicants who are currently enrolled in a Nursing degree programme at another university may wish to transfer to McMaster. Availability of space in the level requested will be determined by the Co-ordinator of Studies (B.Sc.N. programme). Even if no space is available, the applicant may choose to complete the admission process and be placed on a waiting list. Applicants normally should:

1. contact the Co-ordinator of Studies to discuss placement in the programme;
2. send a written request to the Chairperson, Undergraduate Nursing Admissions Committee outlining their request;
3. submit a completed original and three copies of their response to the Questionnaire provided in the transfer application package;
4. submit an official letter from the Dean/Director of the programme in which the applicant is currently enrolled stating that the applicant is in "good standing" in that programme (good standing is interpreted as at least a B- average in nursing courses);
5. submit a current official transcript.

The applicant may be invited to McMaster for a personal interview. Applicants are responsible for their own travel expenses.

Applications for transfer to studies above Level I beginning in September must be received by the Associate Registrar (Health Sciences) no later than July 1.

**D. DIPLOMA REGISTERED NURSES (B) STREAM**

Any nurse holding, or being eligible for, nursing registration prior to the date of entry to the programme will be considered for admission to the Diploma RN (B) Stream of the Undergraduate Bachelor of Science in Nursing programme.

Applicants currently enrolled in a diploma nursing programme must be eligible to write the registration examinations no later than June in order to be eligible to apply to the Post Diploma Stream. Applicants applying to the Basic Stream will be considered in Category B above.

Advanced credit is granted for 36 units of work to nurses who graduated from an approved diploma nursing programme and who are admitted to the B.Sc.N. programme. Those offered admission to this two-year programme enter at Level III.

Applicants in this category normally should:

1. possess a current Certificate of Competence as a Registered Nurse in Ontario, or be eligible for reciprocity, or be eligible to write and subsequently pass the Registration examinations.
2. provide evidence (transcripts) of a minimum of a B- grade in at least six units (or equivalent) of University degree credit work. University correspondence degree courses are acceptable.

University degree credit courses completed prior to admission will be assessed for advanced credit, following admission to the programme, by the Co-ordinator of Studies.

3. submit a completed original and three copies of their response to the questionnaire provided in the application package.

Applicants will be evaluated on the basis of the material submitted in 2 and 3 above. Candidates may be invited to come to McMaster in early May for an interview. Applicants are responsible for their own



travel expenses. Failure to attend the interview will result in cancellation of the application. The scores awarded by the assessors are final.

## Academic Regulations

In addition to meeting the General Academic Regulations of the University, students enrolled in the B.Sc.N. programme shall be subject to the following programme regulations.

Registration in the B.Sc.N. programme implies acceptance on the part of the student of the objectives of that programme and the methods by which progress toward the achievement of those objectives is evaluated.

Since the academic regulations are continually reviewed, we reserve the right to change the regulations in this section of the Calendar.

The University also reserves the right to cancel the academic privileges of a student at any time should the student's scholastic record or conduct warrant so doing. Where, in the opinion of faculty, the performance of the student in clinical nursing practice may jeopardize or endanger the welfare of the patient, or the patient's family, the student may be removed from clinical experience any time during the academic year until continuation in the course is reviewed. The clinical activities associated with any clinical course must be successfully achieved for attainment of a passing grade in the course.

### PART-TIME STUDENTS

Students will be permitted to enter, proceed through and graduate from the B.Sc.N. programme (A) or (B) stream, on a part-time basis. University and programme regulations governing the full-time undergraduate students will govern the part-time student.

As enrolment is limited, places reserved for part-time students at each level will be restricted. Normally, Nursing courses are available only during the day. Electives may be taken either in the day or evening.

Guidelines have been established for part-time study. Applicants are advised to seek counselling from the B.Sc.N. programme before engaging in part-time study.

### B.SC.N. PROGRAMME ACADEMIC REGULATIONS

A student must:

1. achieve a Cumulative Average (CA) of at least 3.5; and
2. achieve a grade of at least C- in the graded Nursing and required Health Sciences courses with the exception that a grade of D-, D or D+ is permissible in one Level I Health Sciences course and only once in required Health Sciences courses beyond Level I.
3. achieve a Pass designation in all clinical courses.

The following courses are designated clinical courses:

- Basic (A) Stream: NURSING 2L03, 2P03, 3X07, 3Y07, 4J07, 4K07
- Diploma Registered Nurses (B) Stream: NURSING 3L04, 3M05, 4S06, 4T06

All clinical courses above Level I are evaluated on a Pass/Fail basis. Areas of excellence in practice are noted in a detailed evaluation summary for each course.

(A course for which credit has been granted may be repeated only when approval is granted by the B.Sc.N. Programme Chair in consultation with the programme Reviewing Committee.)

### CONTINUATION IN THE PROGRAMME

To continue in the B.Sc.N. programme a student must obtain a CA of at least 3.5. A student whose CA is at least 3.0, at the discretion of the B.Sc.N. Programme Chair in consultation with the programme Reviewing Committee, may proceed in the programme and will be placed on programme probation. A student may be placed on programme probation only once during the total programme.

### FAILURE

A student whose CA is less than 3.5, and who has not been granted programme probation, may not continue at the University.

A student who fails to obtain a CA of 3.5 at the completion of the programme probation may not continue at the University.

A student may normally repeat a level of work only once.

If a student fails to meet the minimum grade requirements in the required graded Nursing and required Health Sciences courses or a Pass designation in the clinical nursing courses, the student may, at the discretion of the Programme Chair in consultation with the programme Reviewing Committee, be allowed to repeat the course in which the minimum grade or Pass requirement has not been met. If a student fails to meet the minimum grade or Pass requirements after repeating the course, he or she may not continue at the University. A student may normally be allowed to repeat only one clinical and one non-clinical Nursing or Health Sciences course during the programme.

## Curriculum for the B.Sc.N. Programme

### BASIC (A) STREAM

The Faculty has planned the curriculum so that the study of nursing, the physiological, psychological and social sciences, and the humanities are interrelated and span the entire programme. In Level I, the amount of nursing experience is relatively small; the major proportion of study is in the behavioural and natural sciences. The nursing component increases progressively through Levels II, III, and IV, as the study of natural sciences is completed. Normally, because of timetable constraints, courses must be taken in the level indicated in the curriculum.

Six units in Sociology or Anthropology are required by the end of Level II. In at least one of Levels I, II, III, or IV, six units of elective are to be chosen from the Humanities, and six additional units from one of Psychology, Sociology, or Anthropology are to be chosen at or above Level II. For some courses, the amount of duplication of required content will preclude their being used for elective credit in the B.Sc.N. programme.

#### LEVEL I: 33 UNITS

(Units graded: 33)

- 13 units HTH SCI 1A06, 1B07;
- 8 units NURSING 1F04, 1G04
- 6 units PSYCH 1A06
- 6 units Elective

#### LEVEL II: 35 UNITS

(Units graded: 29; Units pass/fail: 6)

- 8 units HTH SCI 2B08
- 12 units NURSING 2L03, 2P03, 2M03, 2N03
- 15 units Elective

#### LEVEL III: 33 UNITS

(Units graded: 19; Units pass/fail: 14)

- 8 units HTH SCI 3A04, 3B04;
- 22 units NURSING 3S04, 3T04, 3X07, 3Y07
- 3 units Elective

#### LEVEL IV: 32 UNITS

(Units graded: 18; Units pass/fail: 14)

- 4 units HTH SCI 4L04
- 22 units NURSING 4A02, 4E03, 4F03, 4J07, 4K07
- 6 units Elective

### REGISTRATION TO PRACTISE NURSING

On receiving the B.Sc.N. degree after successful completion of the (A) Stream of the B.Sc.N. programme, graduates are eligible to write the RN Licensing Examinations which are administered by the College of Nurses of Ontario. Application to write the RN Licensing Examinations is made through the Faculty of Health Sciences.

### DIPLOMA RN (B) STREAM

The programme of study for Diploma Registered Nurses is integrated with existing course offerings. The practice of nursing in diverse clinical settings will occur in all academic terms. The curriculum is designed to build on the existing knowledge and skills of the students, to prevent duplication of learning experiences and to prepare the students to function in the expanded role in community and institutional settings.

The curriculum is planned for two full calendar years if taken on a full-time basis. If taken on a part-time basis, students are normally allowed six years after the first Nursing course to complete the

programme requirements.

Each level of the programme will consist of eight months of academic study with concurrent clinical practice.

**ELECTIVES**

Thirty units of electives are to be selected from disciplines of the student's choice, of which a minimum of 12 units are to be chosen from courses designated as Level II or above. For some courses, the amount of duplication of required content will preclude their being used for elective credit in the B.Sc.N. programme.

**ADVANCED CREDIT: 36 UNITS**

**LEVEL III: 43 UNITS**

(Units graded: 38; Units pass/fail: 5)

**TERMS 1 AND 2: 31 UNITS**

14 units HTH SCI 1A06, 1ZZ4, 3A04

17 units NURSING 3L04, 3M05, 3S04, 3T04

**SPRING TERM: 6 UNITS**

6 units Elective

**SUMMER TERM: 6 UNITS**

6 units Elective

**LEVEL IV: 54 UNITS**

(Units graded: 42; Units pass/fail: 12)

**TERMS 1 AND 2: 36 UNITS**

16 units HTH SCI 2B08, 3B04, 4L04

20 units NURSING 4A02, 4E03, 4F03, 4S06, 4T06

**SPRING TERM: 6 UNITS**

6 units Elective

**SUMMER TERM: 6 UNITS**

6 units Elective

**ADDITIONAL ELECTIVES (ANY TERM): 6 UNITS**

6 units Elective

**SCHOOL OF OCCUPATIONAL THERAPY AND PHYSIOTHERAPY**

McMaster University offers two new Bachelor of Health Science (B.H.Sc.) second-degree programmes in Occupational Therapy and Physiotherapy. McMaster will no longer offer the B.H.Sc. degree completion programme for those who currently hold a diploma from Mohawk College in Occupational Therapy or Physiotherapy.

**B.H.Sc. (OT/PT) Second Degree Programmes**

The two second degree programmes, offered in collaboration with Lakehead University, have been designed to graduate therapists in two calendar years. These graduates will possess the knowledge, skills and professional behaviour to practice in a complete range of settings in either urban or rural locations. The collaboration with Lakehead University will add a further dimension, that of understanding the specific health issues unique to northern Ontario, as well as an awareness of the career opportunities available in these regions.

The content of the curricula is in accordance with accreditation. The guidelines and the scope of practice as described by each of the professions. Students are expected to achieve a sense of the influence of family, society, and culture as they explore the mechanisms of health, disease, disability, prevention and treatment.

The aim of the Bachelor of Health Sciences programmes in Occupational Therapy and Physiotherapy is to provide students with the opportunity to build on their first degree and to acquire a professional education. Upon graduation they will be able to function as competent basic-level clinicians in a variety of hospital and/or community health settings. Competence entails the integration of knowledge, skills, and professional behaviour in order to analyze and manage health problems.

**PROGRAMME GOALS**

The B.H.Sc. programmes in Occupational Therapy and Physiotherapy allow graduates to practise their disciplines with the following skills:

➤ **Knowledge**

1. understand and apply the theoretical and scientific bases of Occupational Therapy and Physiotherapy;
2. understand the biological, social, cultural and environmental determinants of health, and their relationship with one another;
3. understand the basic principles and methods of scientific inquiry and critical appraisal;
4. understand the importance of disease prevention, health maintenance, health promotion and treatment;
5. understand the factors which affect health policy and the delivery of health care;
6. understand change.

➤ **Skills**

1. demonstrate clinical reasoning while managing health-care problems;
2. demonstrate competence in assessment and treatment techniques in Occupational Therapy or Physiotherapy;
3. demonstrate effective oral and written communication skills;
4. function as members of an interdisciplinary health-care team;
5. implement programmes for prevention, health maintenance and health promotion;
6. function in advocacy roles in order to enhance quality of life;
7. demonstrate teaching and supervisory skills in professional practice;
8. demonstrate critical thinking and critical appraisal skills;
9. assess effectiveness of professional practice;
10. adapt to and initiate change.

➤ **Personal Qualities**


1. recognize, develop and maintain the personal qualities that are required for professional life:
  - a. respect for each person's individuality;
  - b. empathy in client relationships;
  - c. ethical and professional behaviour;
  - d. self-appraisal of personal attributes in order to build on strengths and overcome weaknesses.
2. function as self-directed, life-long learners and leaders in the profession.

**Curriculum Design**

**OT/PT CURRICULUM**

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
								ORIENTATION	BLOCK I Basic Skills 14 weeks		HOLIDAYS
									BLOCK II Specialty Block 8 weeks 6 weeks		
BLOCK V Specialty Block 8 weeks 6 weeks		HOLIDAYS	BLOCK VI Integration Block 14 weeks			BLOCK VII Clinical Elective 6 weeks					

 Problem-based Tutorials, Inquiry Seminars, Clinical Skill Labs, Independent Study (Block VI only)

 Six-week blocks of full-time clinical fieldwork

## Block Content

BLOCK	OCCUPATIONAL THERAPY PROGRAMME	PHYSIOTHERAPY PROGRAMME
I	BASIC SKILLS	MUSCULOSKELETAL I
II	CHILD HEALTH	MUSCULOSKELETAL II
III	ADULT PHYSICAL EDUCATION	MUSCULOSKELETAL III
IV	ADULT MENTAL HEALTH	CARDIOPULMONARY
V	AGING AND HEALTH	NEUROLOGY
VI	ADVANCED INTEGRATION OF SKILLS AND KNOWLEDGE IN PREPARATION FOR ENTRY INTO PRACTICE	
VII	SIX-WEEK FULL-TIME CLINICAL ELECTIVE	

## Curriculum

The time is divided into seven blocks of full-time study over a period of 24 months. The content of each block is profession specific; however, there are occasions when Occupational Therapy and Physiotherapy students study together. The total programme consists of 100 units of credit; 70 units of academic study and 30 units (30 weeks) of clinical practice. One of the unique features of the programmes is the integration of clinical education/fieldwork experiences with academic study. Within each of the specialty blocks, a six-week clinical placement follows eight weeks of academic study.

### NORTHERN STUDIES STREAM

Both programmes, Occupational Therapy and Physiotherapy, offer a Northern Studies Stream option. The goal of the NSS is for students to develop an awareness and appreciation of Northern health issues. Half of the students in each programme will have an opportunity to participate. Interested students apply for this option during the first term of the programme. Final selection of students for the Northern Studies Stream remains with the University.

The Northern Studies Stream encompasses either a 14-week specialty block or a six-week clinical fieldwork placement. The eight weeks of academic study occurs at Health Sciences North on the Lakehead University Campus in Thunder Bay and the clinical fieldwork placements occur in various or Northwestern Ontario communities.

Currently, the 14-week blocks offered in the NSS are Block III (Physiotherapy) and Block IV (Occupational Therapy). Limited numbers of the other six-week clinical fieldwork placements are also offered in the Northern Studies Stream.

Funded by the Ministry of Health, travel to and from McMaster and accommodation in Northwestern Ontario is provided for the Northern Studies Stream students.

### TEACHING/LEARNING METHODS

The curricula of both programmes emphasize that the process of learning is equal in importance to the content. The learning methods are, therefore, based on the philosophies of self-directed and problem-based learning:

#### Problem-Based Tutorials

Problem-based learning takes place in small groups in which a tutor acts as a facilitator of student learning. Students are presented with health-care problems that have been carefully designed and selected for each block. These problems promote the exploration of the underlying biological, psychological, and behavioral determinants of health as well as the principles of therapy. Large group interactive resource sessions may be offered to enhance access to content experts and other resources. The tutorials continue throughout each 14-week block.

Students learn and practice group skills, share knowledge, become comfortable with changing leadership positions, and give and receive feedback.

The size of tutorial groups may vary from five to seven students. Tutorial group membership is changed for each block in the

programme in order to maximize interaction among students and faculty.

Tutors are usually occupational therapists or physiotherapists who are knowledgeable in the content area of the block, and expert in tutoring in a problem-based format. The same tutor meets regularly with the group throughout the block, including the clinical education portion. Tutors also serve as role models in the professional socialization process.

### Clinical Skills Laboratories

Clinical skills laboratories use a variety of formats to help students learn the clinical skills of assessment, treatment and other aspects of clinical practice. Laboratory sessions are designed to complement the health-care problems used in problem-based tutorials. The clinical skills learned in the laboratory section of each block are applied and integrated into the clinical education component of the specialty blocks.

The focus of clinical skills laboratories changes through the blocks. Block 1 stresses basic clinical skills, Blocks 2 through 5 focus on specialty areas of practice, and Block 6 is designed to develop skills in consultation, administration, and other advanced clinical skills.

### Inquiry Seminars

These seminars are designed to provide opportunities to explore and discuss major topic areas and theoretical concepts which are central to the development and practice of the professions. Presentations by content experts, small-group problem-solving, and large-group discussion are utilized to provide the means and impetus for these investigations.

Topics chosen for inquiry seminars are used to complement the major themes in each programme block and may vary from year to year. The seminar leaders include faculty members and experts from the community.

### Clinical Education

Students spend a total of 30 weeks in full-time clinical practice. Clinical education is organized in a variety of health-care facilities including teaching hospitals, community hospitals, health-care agencies, specialized centres, private clinics, and other community facilities throughout Ontario. Students integrate academic learning into practice under the supervision of qualified therapists.

The University Co-ordinator of Clinical Education is responsible for arranging all clinical placements. No student may make her/his own arrangements with any clinical facility.

Placements are limited and subject to availability. Therefore, students will be required to complete some clinical education blocks in Northwestern Ontario or elsewhere outside of the Hamilton area.

The students are expected to provide their own means of transportation to each clinical facility and to cover costs of travel and parking. Travel to and from the cities where clinical placements will be offered in Northwestern Ontario will be arranged by the Northern Studies Stream, through funding made available through the Ontario Ministry of Health.

Occupational therapy students will be assessed an additional fee for the use of the computerized clinical placement service of the Canadian Association of Occupational Therapists.

### Independent Study

An independent study is completed during Block VI. It may consist of an extensive literature review on a selected topic, a simple research design/proposal, or participation in an ongoing research study or clinical project. Evaluation of the independent study is based on a learning contract which is negotiated by the student with a faculty member during Block V.

### Student Evaluation Methods

A variety of methods are used to assess student performance throughout the programmes, including written and oral evaluations, presentations, and tests of clinical skills.

## Admission Policy and Procedure

Enrolment in the second-degree programme in Occupational Therapy and Physiotherapy is limited to 30 in each programme. Final selection of applicants for admission is made by McMaster Univer-

sity. The admission process considers academic achievement, personal qualities and experience. Personal qualities and experience are assessed on the basis of an autobiographical submission and a personal interview. Assessment teams are composed of representatives of the faculty, the community, and students.

### ELIGIBILITY

Applicants must:

1. At the time of application, have achieved a minimum grade point average of B- or 70% over the last two years of full-time academic study or the equivalent.
2. By June 30 in the year of admission, have completed an undergraduate baccalaureate degree at a recognized university, and have achieved/maintained a minimum overall grade average of B- or 70% over the last two years of full-time academic study or the equivalent.

For those who have pursued their undergraduate degree on a part-time basis, eligibility assessment will be made using the courses equivalent to the last two years according to their programme.

No preference will be given for any specific subject area in which the degree has been obtained.

**Note:** The criteria to establish academic eligibility are currently under review. The minimum grade point average required may increase for 1994.

### APPLICATION PROCEDURE

Application packages with detailed instructions are available from:

#### Admissions and Records

#### McMaster University

Health Sciences Centre, Room HSC 1B7

PO Box 2000, Station A

Hamilton, Ontario, L8N 3Z5

or

#### Registrar's Office, Lakehead University

All application packages must be submitted directly to Admissions and Records (Health Sciences, Room 1B7) McMaster University. Deadlines will be strictly enforced.

The applicant is responsible to ensure that the following is received on or before January 15:

- a. application forms: the McMaster application, autobiographical submission, and academic record form;
- b. transcripts for all university degree credit courses and programmes in which the applicant has been enrolled;
- c. \$50 application fee.

Applicants may also be required to obtain references.

Academically eligible applicants are ranked on the basis of their autobiographical submission. Those ranked among the first (approximately) 120 applicants to each of the Occupational Therapy and Physiotherapy programmes are invited for a personal interview. Interviews are conducted between **April 1** and **May 15** in either **Hamilton** or **Thunder Bay**, according to the applicant's preference. Applicants invited to an interview are notified approximately three weeks in advance of their interview. All applicants are responsible for their own travel costs to and from the interview.

All applicants will be notified of the admission decision by June 1.

### FINANCIAL INFORMATION

In 1992-93 the academic fees (tuition and supplementary fees) for a student in the McMaster Undergraduate Occupational Therapy or Physiotherapy Second-Degree programmes are \$3,440 for three terms, September to August. It is estimated that books and supplies cost an additional \$750 annually.

Financial difficulties are frequently experienced by second degree students. For these programmes difficulties are intensified by the lack of opportunity for summer employment as well as the relative scarcity of financial assistance available to second degree students.

Financial assistance may be available from the federal and provincial governments through the Ontario Student Assistance Programme (OSAP). To be eligible a student must be a Canadian citizen or permanent resident of Canada and fulfill certain requirements for residency in Ontario.

## Academic Regulations

Students in the B.H.Sc.(OT) and B.H.Sc.(PT) programmes, in addition to meeting the general University academic regulations, must follow these specific programme requirements.

Registration in the B.H.Sc.(OT) and B.H.Sc.(PT) programmes implies acceptance on the part of the student of the objectives of that programme and the method by which progress towards those objectives is measured. The University reserves the right to cancel the academic privileges of any student at any time that the student's scholastic record or conduct warrants doing so. Where the performance of the student in a clinical setting may jeopardize or endanger the welfare or safety of a patient or a patient's family, the student may be removed from the clinical setting any time during the academic year, until continuation in the course is reviewed.

### COURSE LOAD

All courses are required. No exemptions or substitutions will be granted. All course work toward the B.H.Sc.(PT) and B.H.Sc.(OT) must be completed as McMaster University courses. A student may not take a course load consisting of a partial block. All courses within each block must be taken concurrently.

### DEANS' HONOUR LIST

Students will be evaluated for standing on the Deans' Honour List only upon completion of the programme. Students will be named to the Deans' Honour List if they receive no failing course grades throughout the programme, and achieve a minimum average of 9.5, calculated using the grades on all courses taken throughout the programme.

### CONTINUATION IN THE PROGRAMME

Students are reviewed at the end of each block, and at the end of the academic component in each of the specialty blocks (Blocks II to V). Students must achieve a grade of at least C- in every course at each review to continue in the programme. A grade of F in any course results in a student being required to withdraw from the programme.

A student who obtains a credit for a course, but achieves a grade below C-, is required to successfully complete remedial work in order to continue in the programme. Upon successful completion of the remedial work, the new grade assigned for the course is C- in all cases. The remedial work must be completed prior to the beginning of the next block unless otherwise specified by the Programme Academic Review Committee. If the remedial work is not successfully completed, the original grade will stand, and the student will be required to withdraw from the programme.

A student is allowed to do remedial work only twice during the programme. Upon the third time that credit is obtained in a course but the grade is below C-, the student is not allowed to perform remedial work, and is required to withdraw from the programme.

The first time a student becomes ineligible for continuation in the programme or voluntarily withdraws from the programme, he/she is permitted to apply for readmission in writing to the Programme Chair. The request must be made at least three months prior to the beginning of the block to which the student is requesting readmission. Normally, a student who is readmitted to the programme must repeat all courses of the block in which he/she became ineligible to continue.

A student who becomes ineligible for continuation in the programme a second time or who voluntarily withdraws from the programme a second time, may reapply only through the regular admissions process.

The latest possible date for readmission is two years from the beginning of the block from which the student withdrew.

## Programmes

### B.H.SC.(OT)

#### YEAR I: 47 UNITS

Block I OCCUP TH 1T15, 1L17, 1S13

Block II OCCUP TH 1T23, 1L24, 1S23, 1C26

Block III OCCUP TH 1T33, 1L34, 1S33, 1C36

#### YEAR II: 53 UNITS

Block IV OCCUP TH 2T43, 2L44, 2S43, 2C46

Block V OCCUP TH 2T53, 2L54, 2S53, 2C56  
 Block VI OCCUP TH 2T64, 2L63, 2I65, 2S63  
 Block VII OCCUP TH 2C76

**B.H.SC.(PT)****YEAR I: 47 UNITS**

Block I PHYSIOTH 1T15, 1L17, 1S13  
 Block II PHYSIOTH 1T23, 1L24, 1S23, 1C26  
 Block III PHYSIOTH 1T33, 1L34, 1S33, 1C36

**YEAR II: 53 UNITS**

Block IV PHYSIOTH 2T43, 2L44, 2S43, 2C46  
 Block V PHYSIOTH 2T53, 2L54, 2S53, 2C56  
 Block VI PHYSIOTH 2T64, 2L63, 2I65, 2S63  
 Block VII PHYSIOTH 2C76

**LICENSING****Occupational Therapy**

Most provinces in Canada require a licence to practise occupational therapy. Currently, there are no licensing requirements to practise occupational therapy in Ontario. However, the Regulated Health Professions Act, which was scheduled to receive Royal Assent in January 1993, requires the establishment of the new College of Occupational Therapy of Ontario (COTO). This legislation will provide regulation for the practice of occupational therapy in Ontario which will have implications, as yet unknown, for all practitioners.

**Physiotherapy**

Physiotherapists in Canada must be licensed with the appropriate provincial regulatory board in order to practice. The School of Occupational Therapy and Physiotherapy, McMaster University, has no jurisdiction in matters related to the regulatory boards and cannot accept responsibility for changes in regulations which may occur from time to time. The Canadian Alliance of Physiotherapy Regulatory Boards is developing a Physiotherapy National Examination process to be implemented as an entry level requirement to practice physiotherapy in all jurisdictions in Canada. Target date for implementation is 1993 and thus will apply to the graduating classes of that and subsequent years. Graduates may seek licensure in all provinces until the time that the National Physiotherapy Examination process is finalized.

**PROGRAMME ACCREDITATION****Occupational Therapy**

In the Spring of 1992, the B.H.Sc.(OT) programme received a three-year accreditation from the Canadian Association of Occupational Therapists.

Many employers of occupational therapists require eligibility for membership in the Canadian Association of Occupational Therapists (CAOT) as a criterion for employment. In order to be eligible for membership in the CAOT, all graduates from educational programmes in Canada must: a) graduate from an accredited occupational therapy programme and b) pass the CAOT national certification exam written in July following graduation. Details regarding eligibility for practice in any province in Canada may be obtained by writing to:

**Canadian Association of Occupational Therapists**  
 110 Eglinton Avenue West, Third Floor  
 Toronto, Ontario, M4R 1A3

**Physiotherapy**

The Physiotherapy programme at McMaster received a full seven-year accreditation from the Canadian Physiotherapy Association in February 1992. Graduates are automatically eligible for membership in the Canadian Physiotherapy Association.

Details regarding eligibility for practice in any province in Canada may be obtained by writing to:

**Canadian Physiotherapy Association**  
 890 Yonge Street, Ninth Floor  
 Toronto, Ontario, M4W 3P4

## HONOURS BIOLOGY- PHARMACOLOGY PROGRAMME

This is a joint programme between the Faculty of Health Sciences and the Faculty of Science (Department of Biology). The Pharmacology courses, which are run in a small group, problem-based format, are the responsibility of the Faculty of Health Sciences, drawn from the following departments: Biomedical Sciences, Medicine, Obstetrics and Gynecology, and Pathology.

Please see the *Faculty of Science, Department of Biology* section for admission requirements.

# FACULTY OF HUMANITIES

## Dean of Humanities

E. Simpson/A.B., Ph.D.

## Associate Dean of Humanities (Studies)

F.A. Hall/Assoc.Dipl., B.Mus., M.A., Ph.D.

## Assistant to the Associate Dean

P.A. Kalnins/B.A.

## Student Advisor

S.A. Richard/B.A.

"The humanities tell us how men and women of our own and other civilizations have grappled with life's enduring, fundamental questions: What is justice? What should be loved? What deserves to be defended? What is courage? What is noble? What is base? Why do civilizations flourish? Why do they decline?..."

"Mankind's answers to compelling questions are available to us through the written and spoken word — books, manuscripts, letters, plays, and oral traditions — and also in non-literary forms, which John Ruskin called the book of art. Within them are expressions of human greatness and of pathos and tragedy. In order to tap the consciousness and memory of civilization, one must confront these texts and works of art."

— William J. Bennett

The humanistic disciplines — philosophy, languages and literature, history, music, art and drama — are those fields of critical enquiry which help us to know ourselves through an understanding of humanity's creative and intellectual traditions, its moral and aesthetic values and its spiritual and material aspirations, and through the realization of human memory. The task of the humanistic scholar is to cultivate an appreciation for traditional learning, and to generate new ideas about the nature of human conditions; to discover, through historical perspective, the processes which link past and present; and to bring to bear on the problems of an age of rapid and often unsettling transformation perceptions informed by values which make us more, rather than less, human and civilized.

The attainment of precise knowledge and fresh insights through lectures, class discussions, reflection, analysis and writing is the essence of study in the Faculty of Humanities' nine academic departments. These are:

- Department of Art & Art History
- Department of Classics (Ancient History and Archaeology, Classical Languages and Literature)
- Department of Drama
- Department of English
- Department of French
- Department of History
- Department of Modern Languages (Chinese, German, Hispanic Studies, Italian, Japanese, Russian)
- Department of Music
- Department of Philosophy

In addition, the Faculty offers the following interdepartmental programmes:

- Honours Comparative Literature
- Honours German Area Studies
- Honours Modern Languages and Linguistics
- Honours Russian and East European Area Studies

## PROGRAMMES AND DEGREES

### A. Level I Programmes

#### ADMISSION REQUIREMENTS

Students intending to qualify, after Level I, for admission to a degree programme in one of the Humanities disciplines should complete Humanities I. Students intending to enrol in a degree programme in Music should complete Music I, although students

may enter a B.A. programme in Music from Humanities I.

The admission requirements for Humanities I and Music I are described in the Admission Requirements section of the Calendar.

#### LEVEL I PROGRAMME REQUIREMENTS

Students admitted to Humanities I must complete 30 units of work as follows:

18 units representing three of the following four areas of study:

##### 1. Literary Studies/Linguistics

CLASSICS 1B06  
COMP LIT 1A06  
ENGLISH 1D06  
LINGUIST 1A06

##### 2. Historical and Philosophical Studies

CLASSICS 1L06  
HISTORY 1C06, 1D06, 1L06  
PHILOS 1B06, 1D06

##### 3. Languages other than English

CHINESE 1Z06, 1ZZ6  
FRENCH 1A06, 1N06, 1Z06  
GERMAN 1A03, 1AA3, 1Z06, 2Z06  
GREEK 1Z06, 2A03\*, 2R03\*  
HISPANIC 1A06, 1Z06  
ITALIAN 1A06, 1Z06, 1ZZ6  
JAPANESE 1Z06  
LATIN 1Z06, 2A03\*, 2R03\*  
RUSSIAN 1Z06

##### 4. The Arts

ART 1F06\*\*  
ART HIST 1A06  
DRAMA 1A06  
MUSIC 1A06, 1B06, 1CC3, 1D03\*\*\*

12 units Elective of which at least six should be selected from courses offered by a Faculty other than Humanities

No Humanities I student may take more than six units of work in any single subject, except in the case of CLASSICS 1B06 and 1L06.

\* Students choosing GREEK or LATIN 2A03 or 2R03 will also register for an additional three units of Level II Greek or Latin to be taken in Term 2.

\*\* **Portfolio Required:** ART 1F06 is open only to students intending to pursue a degree in Honours Art or Combined Honours Art and Another Subject on a full-time basis. Applicants must present a portfolio of their work and be interviewed by the Department of Art and Art History by April 30. The portfolio should contain a variety of original works in different media, including work derived from both first-hand observation and the imagination. Late applications will be considered only if spaces remain available after the first allocations have been made. Applicants for this course should use the MHA OUAC Code.

\*\*\* Students wishing to take Music courses other than MUSIC 1A06 must make arrangements with the Music Department for qualifying tests.

Students admitted to Music I must complete 30 or 33 units of work as follows:

18-21 units MUSIC 1B06, 1CC3, 1D03, 1E03 (or 1E06), 1G03.  
(Permission of the Department is required for MUSIC 1E06.)

12 units normally representing two of the four areas of study listed above under Level I Programme Requirements for Humanities I students. Students may not use Music courses for The Arts area of study.

### B. Degree Programmes

Upon successful completion of Humanities I, a student may be admitted to a programme of study leading toward a Bachelor of Arts degree. (Completion of Music I may lead to a Bachelor of Music or Bachelor of Arts degree.) There are three ways to complete a Bachelor's degree in the Faculty of Humanities.

#### SINGLE HONOURS PROGRAMME

Three years of study, beyond Level I, concentrated in the work of a single discipline (e.g. History). After three years of Music study



beyond Music I, students receive a B.Mus. degree.

### COMBINED HONOURS PROGRAMME

Three years of study, beyond Level I, concentrated in the work of two disciplines (e.g. English and Philosophy). In fact, a student can combine study in any two Humanities disciplines, or one Humanities discipline and a subject from another Faculty where appropriate (e.g. History and Political Science, Philosophy and Biology) or one Humanities discipline with Women's Studies or Japanese Studies.

### B.A. PROGRAMME

Two years of study, beyond Level I, concentrated in the work of a single discipline.

The content and the requirements of single Honours, Combined Honours and other B.A. programmes are found further on in this Calendar under the title Programmes for the B.A., B.A. (Honours) and B.Mus. Degrees.

There are a number of Humanities courses which may be taken as electives without prerequisites. Individual course descriptions, by Department, are given under the section entitled Courses by Department.

Not only are students from other Faculties able to take individual courses which have no prerequisites, but they are also able to transfer into any of the degree programmes offered by the Faculty of Humanities. For the majority of programmes in the Faculty, admission may be gained after the successful completion of any Level I programme at the university, providing this includes the necessary programme requisites as outlined in the admission statement for each Humanities programme as described under Programmes for the B.A., B.A. (Honours) and B.Mus. Degrees.

### SECOND LANGUAGE PROFICIENCY

Students embarking on Humanities programmes should be aware that most graduate schools require, for admission, proficiency in at least one, and frequently two, languages other than English. In this Faculty, proficiency in at least one language other than English is regarded as an essential tool for students interested in English Literature, Comparative Literature, Drama and Linguistics. Generally, proficiency in more than one language is a hallmark of most highly-qualified Humanities' graduates seeking the widest range of post-graduation academic and employment opportunities.

### PART-TIME STUDY

Students wishing to enter any programme offered by the Faculty of Humanities and pursue a programme on a part-time basis should consult the appropriate Departmental Counsellor(s) before making their plans.

It is anticipated that at least the following Honours programmes in the Humanities will be available to those part-time students who are only able to take their work in the evening during the Fall/Winter session: **Art History; Drama; English; History; Philosophy.**

For part-time students who are only able to attend evening classes during the Fall/Winter session, the following B.A. programmes are available:

Art History; Classics; Drama; English; French; History; Philosophy.

## ACADEMIC REGULATIONS

Students enrolled in Humanities programmes, in addition to meeting the General Academic Regulations of the University, shall be subject to the following Faculty Regulations and Policies.

### ADMISSION AND READMISSION TO THE FACULTY OF HUMANITIES

Because of resource limitations, the University and Faculty of Humanities reserve the right to limit enrolment in any programme or course to the number which can be taught effectively. Enrolment will be by selection based on academic achievement.

Admission as a Second Bachelor's Degree student or as a Continuing Student is by selection and may be limited.

#### Admission is not guaranteed.

Students completing McMaster Level I programmes may be given preference for admission to limited enrolment programmes over students from other programmes or other universities.

Students from other Faculties are able to transfer to degree programmes offered by the Faculty of Humanities provided that they have obtained a Cumulative Average of at least 3.5 and have completed the necessary requirements for admission to a programme.

Students who do not meet these requirements must submit a Request for Special Consideration to the Associate Dean of Humanities (Studies). Such requests for transfer are not automatic or guaranteed and will be considered at the same time as applications for readmission (see below).

Applications for readmission must be made, in writing, to the Associate Dean of Humanities (Studies). Readmission requests for September must be submitted by July 15 and for January by November 30.

Applications should explain the reasons for the student's inadequate performance and should include relevant documentary evidence, for example a letter from a physician outlining any medical condition that might have affected the student's academic performance or final grades. Readmission cases will be carefully screened and the evidence considered will include the student's academic performance before and after admission to McMaster, as well as the nature of the reasons cited in the application letter and the accompanying documentation. **Readmission is not guaranteed.**

### ENGLISH AND HISTORY PROGRAMMES: ADMISSION FROM OTHER POST-SECONDARY INSTITUTIONS

Enrolment in English and History programmes is limited, with priority given to students who have completed Level I at McMaster University.

Applications, together with all supporting documents, from students from other post-secondary institutions who wish to be considered for admission to these programmes at McMaster must be received by the Registrar's Office no later than June 15. Note that English and History programmes at McMaster may be commenced only in September.

### REGISTRATION AND COURSE CHANGES

It is the responsibility of the student to ensure that the programme of work undertaken meets the requirements for the degree. In the Faculty of Humanities, students are required to preregister in March for the following Fall/Winter session. When registering or making changes to course selection, students must seek the written approval of the Associate Dean (Studies). Dates for final registration and course changes appear in the Sessional Dates at the beginning of this Calendar and are rigidly adhered to.

### CROSS-LISTED COURSES

Students wishing to take a cross-listed course which is taught by the Department offering the student's programme must register for it under that Department's listing. For example, ART HIST 2B03 is cross-listed as CLASSICS 2B03, so students in an Art History programme wishing to register for this course must register for it under the course designation of ART HIST 2B03.

### DEADLINES

The Faculty of Humanities will not consider applications for admission after the dates stated in this Calendar. Registrations after the stated deadlines will not be accepted unless documentation is provided showing good cause and including permission of instructors to enter classes late. Dropping and adding of courses will be permitted only within the periods stated in this Calendar.

### SUMMER IMMERSION PROGRAMMES IN FRENCH

You must obtain approval from the Associate Dean (Studies) prior to participating in any language immersion programme.

The government-sponsored summer language bursary programme offers university students the opportunity to take French courses at a large number of accredited institutions. Students wishing to attend another university in order to participate in a language immersion programme must: (a) petition the Associate Dean (Studies), (b) submit detailed course descriptions for assessment, and (c) obtain a Letter of Permission.

Students registered in a programme in French may take a maximum of six units of credit in this manner as elective work only. Students not registered in a programme in French may take up to 12 units of credit.



**ACADEMIC REGULATIONS  
PERTAINING TO THE DEPARTMENT OF MUSIC**

Normally, students with an undergraduate degree in Music will not be admitted to a B.Mus. degree programme as a second undergraduate degree.

**THIRD YEAR STUDY ELSEWHERE/  
HUMANITIES STUDY ABROAD**

Students registered in any Honours or Combined Honours programme in the Faculty of Humanities may apply to replace all or part of the work of their third year with an acceptable programme of study taken at a university or equivalent institution approved by the Faculty of Humanities.

To be eligible to take part in this programme, students must have completed at least 60 units of work with a Cumulative Average of at least 8.0. Individual programmes may have additional requirements. All requirements must be satisfied by the end of the Fall/Winter session (September-April) preceding the commencement of study elsewhere. Students taking part in this programme do not have the option of graduating with a three-year B.A. degree on the basis of work completed in this programme, but must return to McMaster University to complete their final 30 units of work.

No fees are payable to McMaster University for the Third Year Study Elsewhere programme, but students must pay all associated travel, study, and living expenses. For students in need of financial assistance, OSAP (the Ontario Student Aid Programme) may be available for this programme. In addition, assistance with travel expenses may be available from McMaster University bursary funds.

Students interested in applying for this programme should consult the Director, Humanities Study Abroad and their department(s) about one year before they plan to begin their study elsewhere. No later than the end of January, students must propose a programme of study for approval by their department(s) and the Director.

While they are engaged in study elsewhere, students must maintain links by correspondence with their departmental academic counsellor(s) at McMaster.

Students may receive up to 30 units of credit for a full year of study in Third Year Elsewhere programme. The awarding of all credit for work completed elsewhere may be confirmed only after departments have received transcripts and reviewed students' academic achievements following their return and after they have officially registered for Level IV. In certain cases, students may be recommended for the Deans' Honour List on the basis of work completed elsewhere.

**DEPARTMENT OF ART AND ART HISTORY**

**Honours Art**

**ADMISSION**

Enrolment in Honours Art is limited and admission is by selection on the basis of: (a) the overall average attained in the Level I programme, (b) an average of at least 7.0 in ART 1F06 and ART HIST 1A06, and (c) a grade of at least B- in ART 1F06.

**NOTES**

1. Students in Honours Art must complete ART 2A04, 2B04, 2C03, 2F04 before registering in Level III or IV Art courses.
2. Students intending to do graduate work in the field of Art History should note that most universities offering such programmes require undergraduate work in French, German or Italian for admission. These students are strongly encouraged to include one of these language courses as early as possible in their programme.

**REQUIREMENTS**

*120 units total (Levels I-IV)*

- 30 units from the Level I programme completed prior to admission into the programme
- 24 units ART 2A04, 2B04, 2C03, 2F04, 3C03, 3G06
- 12 units ART 4B12
- 12 units Level III or IV Art courses

- 9 units from ART HIST 2B03, 2C03, 2D03, 2E03, 2G03, 2M03, 2N03
- 3 units Level II, III or IV Art History
- 6 units Level III or IV Art History
- 24 units Electives, 12 of which may be from Art and Art History courses

**Combined Honours Art and Another Subject**

**ADMISSION**

Enrolment is limited and admission is by selection on the basis of: (a) the overall average attained in the Level I programme; (b) an average of at least 7.0 in 12 units of Level I work; and (c) a grade of at least B- in ART 1F06 and the successful completion of ART HIST 1A06.

**NOTE**

Students in Combined Honours Art must complete ART 2A04, 2B04, 2C03, 2F04 before registering in Level III or IV Art courses.

**REQUIREMENTS**

*120 units total (Levels I-IV)*

- 30 units from the Level I programme completed prior to admission into the programme
- 42 units ART 2A04, 2B04, 2C03, 2F04; 3C03; 3G06, and 18 units of Level III or IV Art, including 4C06 or 4B12
- 36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
- 12 units Electives to total 120 units

**Honours Art History**

**ADMISSION**

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in ART HIST 1A06.

**NOTE**

ART HIST 3J03 and 3K03 are available only as electives for students registered in an Art History programme.

**COURSE LIST 1**

ART HIST 3X03, 4AA3, 4C03, 4F03, 4N03, 4V03, 4X03

**REQUIREMENTS**

*120 units total (Levels I-IV)*

- 30 units from the Level I programme completed prior to admission into the programme
- 15 units from ART HIST 2B03, 2C03, 2D03, 2G03, 2M03, 2N03
- 3 units ART HIST 2E03
- 30 units Levels III or IV Art History
- 6 units from Course List 1
- 36 units Electives, 12 of which may be Art History courses

**Combined Honours**

**Art History and Another Subject**

**ADMISSION**

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in ART HIST 1A06.

**NOTE**

ART HIST 3J03 and 3K03 are available only as electives for students registered in an Art History programme.

**COURSE LIST 1**

ART HIST 3X03, 4AA3, 4C03, 4F03, 4N03, 4V03, 4X03

**REQUIREMENTS**

*120 units total (Levels I-IV)*

- 30 units from the Level I programme completed prior to admission into the programme
- 12 units from ART HIST 2B03, 2C03, 2D03, 2E03, 2G03, 2M03, 2N03
- 18 units Levels III or IV Art History
- 3 units from Course List 1
- 3 units Level IV Art History
- 36 units Courses specified for the other subject. (Combinations

18 units with Social Sciences may require more than 36 units.)  
Electives to total 120 units

## B.A. in Art History

### ADMISSION

Completion of any Level I programme with an average of at least 4.0 in 12 units of Level I work including a grade of at least C- in ART HIST 1A06.

### NOTE

ART HIST 3J03 and 3K03 are available only as electives for students registered in an Art History programme.

### REQUIREMENTS

90 units total (Levels I-III)

30 units from the Level I programme completed prior to admission into the programme

18 units from ART HIST 2B03, 2C03, 2D03, 2E03, 2G03, 2M03, 2N03

12 units Levels III or IV Art History

30 units Electives, 12 of which may be Art History courses

## Minor in Art History

24 units of Art History, of which no more than six units may be from Level I.

## DEPARTMENT OF CLASSICS

### NOTES

- Students in a Classics programme may choose courses from the following subfields: Ancient History and Society, Ancient Philosophy, Classical Archaeology and Art History, Classical Literature in Translation, Greek Language and Literature, Latin Language and Literature.
- With the approval of the Department of Classics, the following related courses offered by another department are also available to students in a Classics programme:  
**Ancient Religious Studies:** RELIG ST 2E06, 2F03, 2II3, 3K03, 3O03, 3X03.
- With the approval of the Department of Classics and the Associate Dean of Humanities (Studies), students who have completed 60 units of work of any Honours programme in Classics may replace all or part of their Level III work by courses of study or participation in archaeological excavations abroad.
- Students intending to do graduate work in the field of Classics should note that most universities offering such programmes require undergraduate work in Greek and Latin for admission. These students are strongly encouraged to include Greek and Latin courses as early as possible in their programme.
- Students intending to do graduate work in the field of Classics are strongly encouraged to include a thesis course (CLASSICS 4T06) in the final level of their programme.

## Honours Classics

### (PROGRAMME A: ANCIENT HISTORY AND ARCHAEOLOGY)

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in one of any Level I Classics course, GREEK 1Z06, or LATIN 1Z06. (Students with OAC Ancient Greek may substitute GREEK 2A03 and three additional units of Level II Greek; students with OAC Latin may substitute LATIN 2A03 and three additional units of Level II Latin.)

#### NOTE

When selecting their courses, students must ensure that the overall total includes at least 24 units of Levels III and IV Classics, Greek and Latin courses.

#### REQUIREMENTS

120 units total (Levels I-IV)

30 units from the Level I programme completed prior to admission into the programme

36 units from CLASSICS 2A03, 2B03, 2C03, 2G06, 2U03, 2V03, 2Z03, 3G03, 3H03, 3LL3, 3MM3, 3R03, 3S03, 3UU3, 3VV3, 3WW3, 3X03, 4D06, 4I06, 4LL6

18 units from Level II, III and IV Classics, Greek and Latin courses

36 units Electives, 12 of which may be from Classics

## Honours Classics

### (PROGRAMME B: CLASSICAL LANGUAGES AND LITERATURE)

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in one of GREEK 1Z06 or LATIN 1Z06. (Students with OAC Ancient Greek may substitute GREEK 2A03 and three additional units of Level II Greek; students with OAC Latin may substitute LATIN 2A03 and three additional units of Level II Latin.) Students are encouraged to include a Level I Classics course in their Level I programme.

#### NOTE

When selecting their courses, students must ensure that the overall total includes at least 24 units of Levels III and IV Classics, Greek and Latin courses.

#### REQUIREMENTS

120 units total (Levels I-IV)

30 units from the Level I programme completed prior to admission into the programme

9 units from CLASSICS 2D03, 2H03, 2HH3, 3C03, 3I03

24 units Greek (including GREEK 1Z06, if not completed in the Level I programme)

24 units Latin (including LATIN 1Z06, if not completed in the Level I programme)

9 units Level II, III and IV Classics, Greek and Latin courses

24 units Electives, 12 of which may be from Greek and Latin

## Combined Honours in Classics and Another Subject

### (PROGRAMME A: ANCIENT HISTORY AND ARCHAEOLOGY)

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in one of any Level I Classics course, GREEK 1Z06, or LATIN 1Z06. (Students with OAC Ancient Greek may substitute GREEK 2A03 and three additional units of Level II Greek; students with OAC Latin may substitute LATIN 2A03 and three additional units of Level II Latin.)

#### NOTE

When selecting their courses, students must ensure that the overall total includes at least 18 units of Levels III and IV Classics, Greek and Latin courses.

#### REQUIREMENTS

120 units total (Levels I-IV)

30 units from the Level I programme completed prior to admission into the programme

27 units from CLASSICS 2A03, 2B03, 2C03, 2G06, 2U03, 2V03, 2Z03, 3G03, 3H03, 3LL3, 3MM3, 3R03, 3S03, 3UU3, 3VV3, 3WW3, 3X03, 4D06, 4I06, 4LL6

9 units Levels II, III and IV Classics, Greek and Latin courses

36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)

18 units Electives to total 120 units

## Combined Honours in Classics and Another Subject

### (PROGRAMME B: CLASSICAL LANGUAGES AND LITERATURE)

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in GREEK 1Z06 or LATIN 1Z06. (Students with OAC Ancient Greek may substitute GREEK 2A03 and three additional units of Level II Greek; students with OAC Latin may substitute LATIN 2A03 and three additional units of Level II Latin.)

#### NOTE

When selecting their courses, students must ensure that the overall total includes at least 18 units of Levels III and IV Classics, Greek and Latin courses.

#### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 6 units from CLASSICS 2D03, 2H03, 2HH3, 3C03, 3I03
- 24 units Greek or Latin courses
- 6 units Levels II, III and IV Classics, Greek and Latin courses
- 36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
- 18 units Electives to total 120 units

## B.A. in Classics

#### ADMISSION

Completion of any Level I programme with an average of at least 4.0 in 12 units of Level I work, including a grade of at least C- in one of any Level I Classics course, GREEK 1Z06, or LATIN 1Z06. (Students with OAC Ancient Greek may substitute GREEK 2A03 and three additional units of Level II Greek; students with OAC Latin may substitute LATIN 2A03 and three additional units of Level II Latin.)

#### NOTES

1. Students entering the programme with six units of Greek or Latin who have not also completed a Level I Classics course are strongly encouraged to include CLASSICS 2G06 in their Level II programme.
2. Students are encouraged to include at least six units of Greek or Latin in their programme. GREEK 1Z06 and LATIN 1Z06, if not completed in the Level I programme, may be taken as elective courses.

#### REQUIREMENTS

90 units total (Levels I-III)

- 30 units from the Level I programme completed prior to admission into the programme
- 24 units Classics, Greek and Latin, including at least nine units of Level III and IV courses
- 36 units Electives, 12 of which may be from Classics

## Minor in Classics

24 units of Classics, of which no more than six units may be from Level I.

## Minor in Greek

24 units of Greek, of which no more than six units may be from Level I.

## Minor in Latin

24 units of Latin, of which no more than six units may be from Level I.

## DEPARTMENT OF DRAMA

#### NOTES

1. The Department of Drama offers a broadly based programme of study in the history, theory, and critical understanding of the dramatic text in performance. Programme requirements at Level

II are designed to expose students to the breadth of the study through four foundation courses -- in the history of performance, the structures of theatrical texts, the medium of film, and the art of acting. Level III courses offer more specific approaches to the study of performance. A limited amount of student specialization within the programme is possible at this level. The Honours Seminars at Level IV focus on independent research and are restricted to Level IV Honours Drama students.

2. A number of courses that directly pertain to the study of Drama are offered by other departments: Classics, English, French, Modern Languages, Physical Education, and Women's Studies. These are recommended as electives and are listed at the end of the Department of Drama's course descriptions. With the approval of this Department, a limited number of courses from the list may be available as substitutes for Drama courses, and counted toward the fulfillment of a programme in Drama. Students are advised that there may be restrictions on enrolment in these courses.
3. Students registered in Honours Drama are strongly urged to complete six units of non-introductory work in a language other than English. Students in Combined Honours are strongly urged to complete an introductory course in a language other than English (OAC level or equivalent).
4. Students may concentrate their Drama Minor in Film by completing the following courses: DRAMA 2X06, 3H03, 3J03, 3R03, 3RR3, 3T03, 3TT3.
5. **Practicum Courses:** Practicum courses are open only to students registered in Drama programmes. Each practicum course carries one unit of academic credit, and requires 24 hours of instruction over a six-week or a 12-week period. Students registered in an Honours or a Combined Honours programme in Drama may include up to six units of practicum courses in their programmes; students registered in a three-level programme in Drama may take up to three units of practicum courses. No student may register in more than two practicum courses in a single academic session. Practicum courses must be taken as work over and above the total number of units required for the degree programme. Details regarding the following practicum courses can be obtained from the Drama Chair.
  - DRAMA 2EE1/Mind-Body Integration (Same as PR 30)
  - DRAMA 2G01/Modern Dance I (Same as PR 21)
  - DRAMA 3GG1/Jazz Dance I (Same as PR 25)
  - DRAMA 3HH1/Social Dance (Same as PR 22)
  - DRAMA 3I01/Folk Dance (Same as PR 20)

## Honours Arts & Science and Drama

(B.Arts Sc.; See Arts & Science Programme)

## Honours Drama

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in DRAMA 1A06.

#### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 18 units Level II Drama
- 30 units Level III or IV Drama
- 6 units Level IV Drama including at least three units from DRAMA 4C03, 4CC3, 4E03, 4EE3, 4FF3
- 36 units Electives, 12 of which may be from Drama

## Combined Honours

## Drama and Another Subject

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in DRAMA 1A06.

**REQUIREMENTS***120 units total (Levels I-IV)*

- 30 units from the Level I programme completed prior to admission into the programme
- 12 units Level II Drama
- 18 units Level III or IV Drama
- 6 units Level IV Drama including at least three units from DRAMA 4C03, 4CC3, 4E03, 4EE3, 4FF3
- 36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
- 18 units Electives to total 120 units

**B.A. in Drama****ADMISSION**

Completion of any Level I programme, including 12 units from the Faculty of Humanities, and an average of at least 4.0 in 12 units of Level I work, including a grade of at least C- in DRAMA 1A06.

**REQUIREMENTS***90 units total (Levels I-III)*

- 30 units from the Level I programme completed prior to admission into the programme
- 12 units Level II Drama
- 12 units Level III or IV Drama
- 36 units Electives, 12 of which may be Drama

**Minor in Drama**

24 units of Drama, of which no more than six units may be from Level I.

**DEPARTMENT OF ENGLISH****PROGRAMMES FOR STUDENTS ENTERING IN 1993-94****Honours Arts & Science and English**

(B.Arts Sc.; See Arts and Science Programme)

**Honours English**

(Beginning in 1993-94)

**ADMISSION**

**Enrolment in this programme is limited.** Selection is based on academic achievement but requires, as a minimum, completion of any Level I programme with (a) a grade of at least B- in ENGLISH 1D06; and (b) an average of at least 7.0 in 18 units of Level I courses, including ENGLISH 1D06 and six additional units of Humanities.

**NOTES**

- When registering, students should distribute their English courses (see *Requirements* below) as follows:
  - > Level II ENGLISH 2A06; 12 additional units of Level II English
  - > Level III 18 units of Level III English
  - > Level IV Six units of Level III English; 12 units of Level IV seminars (No student may take more than 12 units of Level IV seminars.)
- In addition to the 54 units of English courses, students must successfully complete six units of non-introductory work in a language other than English, if this was not completed in Level I. The Department strongly advises students to fulfil this requirement before Level III.
- With special permission, students may substitute ENGLISH 4X03 for three units of Level IV seminar work in the second term.

**REQUIREMENTS***120 units total (Levels I-IV)*

- 30 units from the Level I programme completed prior to admission into the programme
- 6 units ENGLISH 2A06
- 12 units from ENGLISH 2B06, 2G06, 2H06, 2I06
- 6 units ENGLISH 3K06
- 6 units from ENGLISH 3C06, 3D03, 3DD3, 3I03, 3J06, 3T03, 3V06
- 6 units from ENGLISH 3G06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3

- 6 units from ENGLISH 3C06, 3D03, 3DD3, 3G06, 3I03, 3J06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3, 3T03, 3V06
- 12 units Level IV English seminars
- 36 units Electives, 12 of which may be from English (see *Note 2*)

**Combined Honours in English and Another Subject**

(Beginning in 1993-94)

**ADMISSION**

Selection is based on academic achievement, but requires, as a minimum, completion of any Level I programme with (a) a grade of at least B- in ENGLISH 1D06; and (b) an average of at least 7.0 in 18 units of Level I courses, including ENGLISH 1D06 and six additional units of Humanities.

**NOTES**

- When registering, students should distribute their English courses (see *Requirements* below) as follows:
  - > Level II ENGLISH 2A06; six additional units of Level II English
  - > Level III 12 units of Level III English
  - > Level IV Six units of Level III English and six units of Level IV seminars (No student may take more than six units of Level IV seminars.)
- In addition to the 36 units of English courses, students combining with a subject other than a language must successfully complete six units of a language other than English, if this was not completed in Level I. The Department strongly advises students to fulfil this requirement before Level III.
- With special permission, students may substitute ENGLISH 4X03 for three units of Level IV seminar work in the second term.

**REQUIREMENTS***120 units total (Levels I-IV)*

- 30 units from the Level I programme completed prior to admission into the programme
- 6 units ENGLISH 2A06
- 6 units from 2B06, 2G06, 2H06, 2I06
- 6 units ENGLISH 3K06
- 6 units from ENGLISH 3C06, 3D03, 3DD3, 3I03, 3J06, 3T03, 3V06
- 6 units from ENGLISH 3G06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3
- 6 units Level IV English seminars
- 36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
- 18 units Electives to total 120 units (see *Note 2*)

**B.A. in English**

(Beginning in 1993-94)

**ADMISSION**

**Enrolment in this programme is limited.** Selection is based on academic achievement but requires, as a minimum, completion of any Level I programme with (a) a grade of at least C- in ENGLISH 1D06 and (b) an average of at least 4.0 in 18 units of Level I courses, including ENGLISH 1D06 and six additional units of Humanities.

**NOTE**

In addition to the 30 units of English courses students must successfully complete six units of a language other than English, if this was not completed in Level I. The Department strongly advises students to fulfil the language requirement before Level III.

**REQUIREMENTS***90 units total (Levels I-III)*

- 30 units from the Level I programme completed prior to admission into the programme
- 6 units ENGLISH 2A06
- 6 units from ENGLISH 2B06, 2G06, 2H06, 2I06
- 6 units ENGLISH 3K06
- 6 units from ENGLISH 3C06, 3D03, 3DD3, 3I03, 3J06, 3T03, 3V06

6 units from ENGLISH 3G06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3  
 30 units Electives, 12 of which may be from English (see *Note*)

### Minor in English

ENGLISH 1D06 and  
 18 units of Levels II and III English, other than courses for which registration in an English programme is required.

### PROGRAMMES FOR STUDENTS ENTERING BEFORE SEPTEMBER 1993

#### NOTES

1. The department has defined six fields of study. Students should consult the Programme Notes for their specific programme to determine how many of these fields must be taken to meet graduation requirements.
2. Fields of study for students entering an English programme beginning as of September 1990.

#### I Medieval

ENGLISH 3C06, 3D03, 3DD3

#### II Renaissance

ENGLISH 3I03, 3K06, 3T03

#### III 17th and 18th Centuries

ENGLISH 3G06, 3V06

#### IV 19th and 20th Centuries

ENGLISH 3H06, 3M03, 3MM3

#### V North American

ENGLISH 2G06, 2H06

#### VI Studies in Language, Criticism and Genre

ENGLISH 2B06, 3J06, 3N06, 3Q03, 3QQ3

### Honours Arts & Science and English

(B.Arts Sc.; See Arts and Science Programme)

### Honours English

(For students who entered the programme prior to September 1993)

Students who entered this programme before September 1990 must consult the Departmental Counsellor to discuss ways of meeting their programme requirements.

#### NOTES

1. Students should plan their programmes in consultation with the Departmental Counsellor. A minimum of six units of work from Field I and from four of the other five fields in *Department Note 2* must be taken. ENGLISH 2A06, 4X03 and the Level IV seminars may not be used for field coverage.
2. When registering, students should distribute their courses as follows:
  - > Level II ENGLISH 2A06; 12 additional units of Level II English
  - > Level III 18 units of Level III English
  - > Level IV Six units of Level III English; 12 units of Level IV seminars. (No student may take more than 12 units of Level IV seminars.)
3. In addition to the 54 units of English courses, students must successfully complete six units of non-introductory work in a language other than English, if this was not completed in Level I. The Department strongly advises students to fulfil this requirement before Level III.
4. With special permission, students may substitute ENGLISH 4X03 for three units of Level IV seminar work in the second term.

#### COURSE LIST 1

ENGLISH 3C06, 3D03, 3DD3, 3G06, 3H06, 3I03, 3J06, 3K06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3, 3T03, 3V06

#### REQUIREMENTS

120 units total (Levels I-IV)

30 units from the Level I programme completed prior to admission into the programme

6 units ENGLISH 2A06

12 units ENGLISH 2B06, 2G06, 2H06

24 units from Course List 1  
 12 units Level IV English seminars  
 36 units Electives, 12 of which may be from English (see *Note 3*)

### Combined Honours in English and Another Subject

(For students who entered the programme prior to September 1993)

Students who entered this programme before September 1990 must consult the Departmental Counsellor to discuss ways of meeting their programme requirements.

#### NOTES

1. Students should plan their programmes in consultation with the Departmental Counsellor. A minimum of six units of work from four of the six fields in *Department Note 2* must be taken. ENGLISH 2A06, 4X03 and the Level IV seminars may not be used for field coverage.
2. When registering, students should distribute their courses as follows:
  - > Level II ENGLISH 2A06; six additional units of Level II Area work
  - > Level III 12 units of Level III Area work
  - > Level IV Six units of Level III Area work and six units of Level IV seminars (No student may take more than six units of Level IV seminars.)
3. In addition to the 36 units of English courses, students combining with a subject other than a language must successfully complete six units of a language other than English, if this was not completed in Level I. The Department strongly advises students to fulfil this requirement before Level III.
4. With special permission, students may substitute ENGLISH 4X03 for three units of Level IV seminar work in the second term.

#### COURSE LIST 1

ENGLISH 3C06, 3D03, 3DD3, 3G06, 3H06, 3I03, 3J06, 3K06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3, 3T03, 3V06

#### REQUIREMENTS

120 units total (Levels I-IV)

30 units from the Level I programme completed prior to admission into the programme

6 units ENGLISH 2A06

6 units from 2B06, 2G06, 2H06

18 units from Course List 1

6 units Level IV English seminars

36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)

18 units Electives to total 120 units (see *Note 3*)

### B.A. in English

(For students who entered the programme prior to September 1993)

Students who entered this programme before September 1990 must consult the Departmental Counsellor to discuss ways of meeting their programme requirements.

#### NOTES

1. Students should plan their programmes in consultation with the Departmental Counsellor, so as to take a minimum of six units of work from four of the six fields in *Department Note 2*. ENGLISH 2A06 may not be used for field coverage.
2. In addition to the 30 units of English courses students must successfully complete six units of a language other than English, if this was not completed in Level I. The Department strongly advises students to fulfil the language requirement before Level III.

#### COURSE LIST 1

ENGLISH 2A06, 2B06, 2G06, 2H06, 3C06, 3D03, 3DD3, 3G06, 3H06, 3I03, 3J06, 3K06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3, 3T03, 3V06

#### REQUIREMENTS

90 units total (Levels I-III)

30 units from the Level I programme completed prior to admission into the programme

6 units ENGLISH 2A06

6 units	from ENGLISH 2B06, 2G06, 2H06
18 units	from Course List 1
30 units	Electives, 12 of which may be from English (see Note 2)

## DEPARTMENT OF FRENCH

### Honours Arts & Science and French

(B.Arts Sc.; See Arts & Science Programme)

#### Honours French

Programme A: Language and Literature

##### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in FRENCH 1A06 or 2M06.

##### NOTES

- When selecting their courses, students must ensure that the overall total includes a minimum of 36 units of Level III and IV French courses.
- Upon completion of 60 units of work (including 18 units of required Level II French courses), and with the approval of the Department of French and the Associate Dean of Humanities (Studies), Level III of Honours French may be replaced by courses of study at a French-language university.

##### COURSE LIST 1

FRENCH 2D03, 2E03, 2F03, 2FF3, 2H03, 2J03, 2JJ3, 2W03, 2WW3, 3AA3, 3BB3, 3K03, 3KK3, 3MM3, 3Q03, 3QQ3, 3R03, 3Z03

##### COURSE LIST 2

FRENCH 3S03, 4F03, 4I03, 4J03, 4LL3, 4MM3, 4N03, 4O03, 4Q03, 4R03, 4U03, 4Y03

##### REQUIREMENTS

120 units total (Levels I-IV)

30 units	from the Level I programme completed prior to admission into the programme
9 units	FRENCH 2A03, 3C03, 4A03
6 units	from FRENCH 2C03, 2G03, 3CC3, 3F03, 4B03, 4BB3
3 units	from FRENCH 2J03, 2JJ3
3 units	from FRENCH 2W03, 2WW3
3 units	from FRENCH 2D03, 2E03, 3AA3, 3BB3, 4U03
3 units	from FRENCH 3K03, 3KK3
3 units	from FRENCH 3Q03, 3QQ3
3 units	from Course List 1
9 units	from Course List 2
12 units	Levels III and IV French
36 units	Elective, 12 of which may be French

### Honours French

Programme B: Language and Linguistics

##### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in FRENCH 1A06 or 2M06. Students who are interested in entering this programme are advised to take LINGUIST 1A06.

##### NOTE

Upon completion of 60 units of work (including 18 units of required Level II French Area courses), and with the approval of the Department of French and the Associate Dean of Humanities (Studies), Level III of Honours French may be replaced by courses of study at a French-language university.

##### COURSE LIST 1

FRENCH 3AA3, 3BB3, 3K03, 3KK3, 3Q03, 3QQ3, 3S03, 3Z03, 4F03, 4I03, 4J03, 4LL3, 4MM3, 4N03, 4O03, 4Q03, 4U03, 4Y03

##### REQUIREMENTS

120 units total (Levels I-IV)

30 units	from the Level I programme completed prior to admission into the programme
9 units	FRENCH 2A03, 2G03, 2H03

6 units	FRENCH 3C03, 3CC3
6 units	FRENCH 4A03, 4BB3
3 units	from FRENCH 2J03, 2JJ3
3 units	from FRENCH 2W03, 2WW3
3 units	from FRENCH 3AA3, 3BB3, 4U03
9 units	from Course List 1
15 units	from FRENCH 3B03, 3G03, 3I03, 4C03, 4E03, 4H03, 4S03, 4X03
12 units	Linguistics courses beyond Level I
24 units	Electives, 12 of which may be French

### Combined Honours in French and Another Subject

##### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in FRENCH 1A06 or 2M06.

##### NOTES

- When selecting their courses, students must ensure that the overall total includes a minimum of 24 units of Level III and IV French courses.
- Upon completion of 60 units of work (including at least 12 units of required Level II French courses), and with the approval of the Department of French and the Associate Dean of Humanities (Studies), up to 15 units of Level III French may be replaced by courses of study at a French-language university.

##### COURSE LIST 1

FRENCH 3S03, 4F03, 4I03, 4J03, 4LL3, 4MM3, 4N03, 4O03, 4Q03, 4R03, 4U03, 4Y03

##### REQUIREMENTS

120 units total (Levels I-IV)

30 units	from the Level I programme completed prior to admission into the programme
9 units	FRENCH 2A03, 3C03, 4A03
3 units	from FRENCH 2C03, 2G03, 3CC3, 3F03, 4BB3
3 units	from FRENCH 2J03, 2JJ3
3 units	from FRENCH 2W03, 2WW3
3 units	from FRENCH 3K03, 3KK3
3 units	from FRENCH 3Q03, 3QQ3
3 units	from FRENCH 3AA3, 3BB3, 4U03
6 units	from Course List 1
3 units	Level III or IV French
36 units	Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
18 units	Electives to total 120 units

### B.A. in French

##### ADMISSION

Completion of any Level I programme with an average of at least 4.0 in 12 units of Level I work, including a grade of at least C- in FRENCH 1A06 or 2M06.

##### REQUIREMENTS

90 units total (Levels I-III)

30 units	from the Level I programme completed prior to admission into the programme
6 units	FRENCH 2A03, 3C03
6 units	from FRENCH 2C03, 2G03, 3CC3 and 3F03
3 units	from FRENCH 2J03, 2JJ3
3 units	from FRENCH 2W03, 2WW3
3 units	from FRENCH 3K03, 3KK3, 3Q03, 3QQ3
12 units	Levels II, III or IV French
27 units	Electives, 12 of which may be French

## DEPARTMENT OF HISTORY

### Subfields

The Department has defined six fields of study. Students should consult the Programme Notes for their specific programme to determine the requirements regarding these fields. Level II and III courses are allocated to the fields as follows:

- European 2A06, 2I06, 3CC3, 3D03, 3F03, 3HH3, 3H06, 3I03, 3I16, 3J06, 3R03, 3W03
- Ancient 2L06, 3LL3, 3MM3, 3UU3, 3VV3, 3WW3
- Asian 2B06, 2E06, 3A03, 3AA3, 3B03
- Canadian 2J06, 3EE3, 3L03, 3M03, 3N03, 3P03, 3U03
- British 2N06, 3JJ3, 3NN3, 3QQ3, 3RR3, 3SS3, 3TT3
- The Americas 2H06, 3BB3, 3E06, 3X03, 3XX3, 3YY3

### Honours Arts & Science and History

(B.Arts Sc.; See Arts & Science Programme)

### Honours History

#### ADMISSION

Enrolment in this programme is limited. Selection is based on academic achievement, but requires, as a minimum, completion of any Level I programme with an average of at least 7.0 in 18 units of Level I work, including a grade of at least B- in any Level I History course.

#### NOTES

1. In selecting courses, students must ensure that they take a minimum of six units in each of three fields of History. For this purpose the Department has established the following six fields: European, Ancient, Asian, Canadian, British and the Americas (excluding Canada). This requirement must be satisfied by the end of Level III. All Level II and III History courses from the above list may be used towards this requirement. Students are permitted a maximum of 24 units of work in any one of the preceding fields. Additional History courses may be taken as electives.
2. No Level IV seminar may be taken before completion of 12 units of History beyond Level I; normally no more than 12 units of Level IV History seminars may be taken in any session (a Cumulative Average of at least 6.0 is required before exceptions will be considered.)

#### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 18 units Level II History
- 18 units Level III History
- 18 units Level IV History
- 36 units Electives, 12 of which may be from History

### Combined Honours in History and Another Subject

#### ADMISSION

Enrolment in this programme is limited. Selection is based on academic achievement, but requires, as a minimum, completion of any Level I programme with an average of at least 7.0 in 18 units of Level I work, including a grade of at least B- in any Level I History course.

#### NOTES

1. In selecting courses, students must ensure that they take a minimum of three units in each of three fields of History. For this purpose the Department has established the following six fields: European, Ancient, Asian, Canadian, British and the Americas (excluding Canada). This requirement must be satisfied by the end of Level III. All Level II and III History courses from the above list may be used toward this requirement. Students are permitted a maximum of 18 units of work in any one of the preceding fields. Additional History courses may be taken as electives.
2. No Level IV seminar may be taken before completion of 12 units of History beyond Level I.

#### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the level I programme completed prior to admission into the programme
- 12 units Level II History
- 12 units Level III History
- 12 units Level IV History
- 36 units Courses specified by the other subject. (Combinations with Social Sciences may require more than 36 units.)
- 18 units Elective to total 120 units

### B.A. in History

#### ADMISSION

Completion of any Level I programme with an average of at least 4.0 in 12 units of Level I work, including a grade of at least C- in any Level I History course.

#### NOTE

In selecting courses, students must ensure that they take a minimum of three units in each of three fields of History. For this purpose the Department has established the following six fields of History: European, Ancient, Asian, Canadian, British, and the Americas (excluding Canada). All Level II and III History courses from the above list may be used towards this requirement. Students are permitted a maximum of 12 units of work in any one of the preceding fields. Additional History courses may be taken as electives.

#### REQUIREMENTS

90 units total (Levels I-III)

- 30 units from the level I programme completed prior to admission into the programme
- 12 units Level II History
- 12 units Level III History
- 36 units Electives, 12 of which may be History courses above Level I

### Minor in History

24 units of History. Consult the *Course Listings* section for course prerequisites and limited enrolment courses.

## JAPANESE STUDIES

### Combined Honours in

### Japanese Studies and Another Subject

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work including a grade of at least B- in JAPANESE 1Z06. Students who have not fulfilled this requirement should consult the Director of the Committee of Instruction.

#### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 15 units JAPANESE 2Z06, 3ZZ6, 4Z03
- 9 units JAPAN ST 2P06, 4L03
- 12 units from JAPAN ST 3B03, 3E03, 3J03, 3JJ3, 3UU3, 4A06, HISTORY 4BB6, POL SCI 4MM6
- 36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
- 18 units Electives to total 120 units

### Minor in Japanese Studies

JAPANESE 1Z06 and

JAPAN ST 2P06 and 12 additional units of Japanese or Japanese Studies courses.



**DEPARTMENT OF MODERN LANGUAGES****Honours Comparative Literature**

*This programme provides students with a study of specially designed courses in Comparative Literature taught in English in conjunction with the study of one national literature normally taught in the original language.*

**ADMISSION**

Completion of any Level I programme, including COMP LIT 1A06 with a grade of at least B-, and six units from FRENCH 1A06, 1B06, 2M06 (see Note 2), GERMAN 1A06, 1A03 and 1AA3, 1Z06, HISPANIC 1A06, 1Z06, ITALIAN 1A06, 1ZZ6, 1Z06, RUSSIAN 1Z06 with a grade of at least B-.

**NOTES**

1. When selecting their courses, students must ensure that the overall total includes at least 36 units of Levels III and IV Comparative Literature and language courses.
2. Students entering the programme with FRENCH 1N06 must complete FRENCH 2M06 in addition to a further 36 units of French. Such students are strongly advised to take FRENCH 2M06 in the summer before Level II.

Upon completion of 60 units of work, and with the approval of the Programme Co-ordinator and of the Associate Dean of Humanities (Studies), one or both terms of Level III of this programme may be replaced by courses of study at a university or universities where the student's modern language is spoken.

**HONOURS COMPARATIVE LITERATURE (FRENCH OPTION)****REQUIREMENTS**

*120 units total (Levels I-IV)*

- |          |  |
|----------|--|
| 30 units | from the Level I programme completed prior to admission into the programme   |
| 15 units | COMP LIT 2A03, 2AA3, 3D03, 3DD3, 3QQ3  |
| 6 units  | from COMP LIT 4AA3, 4B03, 4C03, 4E03   |
| 36 units | Levels II, III and IV French: FRENCH 2A03, 3C03, 4A03; one of 2J03, 2JJ3; one of 2W03, 2WW3; one of 2C03, 2G03, 3CC3, 3F03, 4B03, 4BB3; one of 3K03, 3KK3; one of 3Q03, 3QQ3; one of 3AA3, 3BB3, 4U03; six units from 3S03, 4F03, 4I03, 4J03, 4LL3, 4MM3, 4N03, 4O03, 4Q03, 4R03, 4U03, 4Y03; and three additional units of Level III or IV French |
| 15 units | Levels II, III and IV Comparative Literature and Modern Languages courses  |
| 18 units | Electives to total 120 units   |

**HONOURS COMPARATIVE LITERATURE****(OTHER LANGUAGES)****REQUIREMENTS**

*120 units total (Levels I-IV)*

- |          |  |
|----------|--|
| 30 units | from the Level I programme completed prior to admission into the programme                                   |
| 15 units | COMP LIT 2A03, 2AA3, 3D03, 3DD3, 3QQ3  |
| 6 units  | from COMP LIT 4AA3, 4B03, 4C03, 4E03   |
| 27 units | above Level I from one of German, Hispanic Studies, Italian or Russian                                       |
| 24 units | Levels II, III and IV Comparative Literature, Modern Languages, and courses in the language of concentration |
| 18 units | Electives to total 120 units   |

**Combined Honours in Comparative Literature and Another Subject****ADMISSION**

Completion of any Level I programme, including COMP LIT 1A06 with grade of at least B-; six units from FRENCH 1A06, 1B06, 2M06 (see Note 1), GERMAN 1A06, 1A03 and 1AA3, 1Z06, HISPANIC 1A06, 1Z06, ITALIAN 1A06, 1ZZ6, 1Z06, or RUSSIAN 1Z06 with a grade of at least B-; and a grade of at least B- in the Level I course of the other subject.

**NOTES**

1. Students entering the programme with FRENCH 1N06 must

complete FRENCH 2M06, in addition to a further 36 units of French. Such students are strongly advised to take FRENCH 2M06 in the summer before Level II.

2. When selecting their courses, students must ensure that the overall total includes at least 24 units of Levels III and IV Comparative Literature and language courses.
3. Upon completion of 60 units of work and with the approval of the Programme Co-ordinator and of the Associate Dean of Humanities (Studies), one or both terms of Level III of this programme may be replaced by courses of study at a university or universities where the student's modern language is spoken.

**COMBINED HONOURS IN COMPARATIVE LITERATURE (FRENCH OPTION)****REQUIREMENTS**

*123 units total (Levels I-IV)*

- |          |   |
|----------|---|
| 30 units | from the Level I programme completed prior to admission into the programme  |
| 15 units | COMP LIT 2A03, 2AA3, 3D03, 3DD3, 3QQ3   |
| 6 units  | from COMP LIT 4AA3, 4B03, 4C03, 4E03  |
| 36 units | Levels II, III and IV French from: FRENCH 2A03, 3C03, 4A03; one of 2J03, 2JJ3; one of 2W03, 2WW3; one of 2C03, 2G03, 3CC3, 3F03, 4B03, 4BB3; one of 3K03, 3KK3; one of 3Q03, 3QQ3; one of 3AA3, 3BB3, 4U03; six units from 3S03, 4F03, 4I03, 4J03, 4LL3, 4MM3, 4N03, 4O03, 4Q03, 4R03, 4U03, 4Y03; and three additional units of Level III or IV French |
| 36 units | Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)  |

**COMBINED HONOURS IN COMPARATIVE LITERATURE (OTHER LANGUAGES)****REQUIREMENTS**

*123 units total (Levels I-IV)*

- |          |  |
|----------|--|
| 30 units | from the Level I programme completed prior to admission into the programme                                   |
| 15 units | COMP LIT 2A03, 2AA3, 3D03, 3DD3, 3QQ3  |
| 6 units  | from COMP LIT 4AA3, 4B03, 4C03, 4E03   |
| 27 units | above Level I from one of German, Hispanic Studies, Italian or Russian                                       |
| 36 units | Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.) |
| 9 units  | Electives to total 123 units   |

**Honours Modern Languages and Linguistics**

*This programme combines the study of two or more modern languages (French, German, Italian, Japanese, Russian, Spanish) with a concentration in Linguistics.*

**ADMISSION**

Completion of any Level I programme with 12 units covering two different languages from the following: FRENCH 1A06 or 1B06 or 1N06 or 2M06, GERMAN 1A03 and 1AA3 or 1A06 or 1Z06 or 2Z06, HISPANIC 1A06 or 1Z06, ITALIAN 1A06 or 1Z06 or 1ZZ6, JAPANESE 1Z06, RUSSIAN 1Z06 with grades of at least B-. Students are strongly urged to complete LINGUIST 1A06 in their Level I programmes. If not, LINGUIST 1A06 must be included in Level II of their programme.

**NOTE**

Upon completion of 60 units and with the approval of the Programme Co-ordinator and of the Associate Dean of Humanities (Studies), one or both terms of Level III of this programme may be replaced by courses of study at a university or universities where one or more of the student's modern languages is spoken. Nevertheless, students will be required to complete LINGUIST 2A03, 2AA3, 3A06 at McMaster University.

**REQUIREMENTS**

*120 units total (Levels I-IV)*

- |          |  |
|----------|--|
| 30 units | from the Level I programme completed prior to admission into the programme |
| 18 units | LINGUIST 2A03, 2AA3, 3A06, 4B03, 4C03                                      |
| 18 units | from a language other than English (above Level I)                         |

- 18 units from a second language other than English (above Level I)
- 18 units from Levels II, III and IV Linguistics and language courses
- 18 units Electives

### Honours Linguistics

*This programme is designed for students who wish to explore the theoretical foundations of linguistics while also acquiring practical skills in a number of languages.*

#### ADMISSION

Completion of any Level I with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in LINGUIST 1A06 and completion of at least six units of language study.

#### NOTE

In this programme students are required to study at least two languages. The department has defined three language groups (see below) for this purpose and students must take at least six units from two of these groups. By graduation, therefore, students will have completed at least six units of one language and 18 units of a second language, including 12 units above Level I.

##### A. Modern Indo-European

French, German, Italian, Russian, Spanish

##### B. Classical

Greek, Hebrew, Latin, Sanskrit

##### C. Modern Non-Indo-European

Chinese, Japanese

#### COURSE LIST 1

All Linguistics courses beyond Level I; all language courses; HUMAN 2C03; PHILOS 2B03; PSYCH 2H03, 2W06, 3A03, 3B03, 3G03, 3H03.

#### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 12 units from LINGUIST 2L03, 2M03, 3I03, 3M03, 4K03, 4T03
- 12 units from LINGUIST 2LL3, 2Q03, 3A06, 3P03
- 6 units from LINGUIST 2A03, 2AA3, 3Y03
- 6 units from LINGUIST 4B03, 4C03, 4L03
- 12 units from one of the languages taken in the Note above
- 18 units from Course List 1
- 24 units Electives, 12 of which may be from Course List 1

### Combined Honours in

### Literary Studies and Another Subject

*This programme offers a combination of literary theory, comparative literature and an introduction to the masterworks of world literature.*

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in COMP LIT 1A06. Students are strongly advised to include ENGLISH 1D06 and a language other than English in their Level I programme.

#### NOTES

1. Students may not combine Literary Studies with any of the Combined Honours programmes in French or a Modern Language. They should instead enrol in the Single Honours programme in Comparative Literature.
2. Students must successfully complete a non-introductory course in a language other than English. The Department strongly advises students to fulfil this requirement before Level III.

#### REQUIREMENTS

120 units total (levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 15 units COMP LIT 2A03, 2AA3, 3D03, 3DD3, 3QQ3
- 6 units from COMP LIT 4AA3, 4B03, 4C03, 4E03
- 15 units from Levels II, III and IV Comparative Literature and Modern Languages courses

- 36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
- 18 units Electives to total 120 units (See Note 2)

### Honours Modern Languages

*This programme combines the study of two modern languages and their respective literatures (German, Italian, Russian and Spanish) with literary and linguistic theory.*

#### ADMISSION

Completion of any Level I programme with 12 units covering two different languages from the following: GERMAN 1A03 and 1AA3 or 1Z06, HISPANIC 1A06, 1Z06, ITALIAN 1A06, 1Z06, 1ZZ6, RUSSIAN 1Z06 with grades of at least B-, and at least six units from COMP LIT 1A06 or LINGUIST 1A06. In the case of COMP LIT 1A06 and LINGUIST 1A06, whichever course was not taken in Level I must be included in Level II of the programme.

#### NOTES

1. When selecting their courses, students must ensure that the overall total includes at least 24 units of Level III and IV Comparative Literature, Modern Languages, Linguistics and language courses.
2. Students who wish to pursue the study of Chinese or Japanese in this programme should consult the Programme Co-ordinator, Department of Modern Languages (TSH-611).
3. Upon completion of 60 units and with the approval of the Programme Co-ordinator and the Associate Dean of Humanities (Studies), one or both terms of Level III of this programme may be replaced by courses of study at a university or universities where one or more of the student's modern languages is spoken.

#### COURSE LIST 1

All Level II, III and IV courses in Comparative Literature, Linguistics, Modern Languages, German, Hispanic Studies, Italian and Russian

#### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 3 units MOD LANG 2A03
- 6 units LINGUIST 2A03, 2AA3
- 3 units from COMP LIT 2A03, 2AA3
- 54 units 27 units above Level I in each of two languages and their literatures other than English (excluding literature courses in English translation)
- 6 units from Course List 1 (excluding the two languages chosen)
- 18 units Electives to total 120 units

### Combined Honours in

### Modern Languages and Another Subject

*This programme is designed for students who wish to combine the study of one modern language and its literature (German, Italian, Russian or Spanish) with a subject offered by another department.*

#### ADMISSION

Completion of any Level I programme with a grade of at least B- in six units from the following: GERMAN 1A03 and 1AA3 or 1Z06, HISPANIC 1A06, 1Z06, ITALIAN 1A06, 1Z06, 1ZZ6, RUSSIAN 1Z06, and at least six units from COMP LIT 1A06 or LINGUIST 1A06. In the case of COMP LIT 1A06 and LINGUIST 1A06, whichever course was not taken in Level I, must be included in the Level II programme.

#### NOTES

1. When selecting their courses, students must ensure that the overall total includes at least 18 units of Level III and IV Comparative Literature, Modern Languages, Linguistics and language courses.
2. This programme cannot be combined with another programme offered by the Department of Modern Languages.
3. Upon completion of 60 units and with the approval of the Programme Co-ordinator and the Associate Dean of Humanities (Studies), one or both terms of Level III of this programme may be replaced by courses of study at a university or universities where one or

more of the student's modern languages is spoken.

### COURSE LIST 1

All Level II, III and IV courses in Comparative Literature, Linguistics, Modern Languages, German, Hispanic Studies, Italian and Russian.

### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 3 units MOD LANG 2A03
- 6 units LINGUIST 2A03, 2AA3
- 3 units from COMP LIT 2A03, 2AA3
- 27 units above Level I from one of: German, Hispanic Studies, Italian or Russian courses
- 36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
- 15 units Electives to total 120 units

## Modern Languages: German

### Honours German Area Studies

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in GERMAN 1Z06 or 1A03 and 1AA3. Students are strongly recommended to include HISTORY 1C06 or 1D06 and POL SCI 1B03 and 1C03 in their Level I programme. If not, these courses must be taken in Level II of the programme.

#### NOTE

Upon completion of 60 units of work and with the approval of the Department of Modern Languages and the Associate Dean of Humanities (Studies), one or both terms of Level III may be replaced by courses of study at a university in Germany, Austria, or Switzerland.

### COURSE LIST 1

All German courses above Level I; MOD LANG 2H03, 3G03, 3W03; HISTORY 4JJ6; SOCIOL 2S06, 3A03; RELIG ST 2KK3, 3MM3

### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 9 units GERMAN 2E03, 3Z03, 3ZZ3
- 15 units from GERMAN 2A03, 2AA3, 2G03, 2Z06, 3A03, 3B03, 4CC3, 4G03, 4TT3
- 3 units from MOD LANG 2H03, 3G03, 3W03
- 6 units HISTORY 3J06
- 9 units POL SCI 2P06, 3PP3
- 12 units from Course List 1
- 36 units Electives to total 120 units

### Combined Honours in

### German and Another Subject

(Available only to students who entered this programme before September 1993.)

#### PROGRAMME A

(For students entering with GERMAN 1A03 and 1AA3 or GERMAN 1A06)

#### NOTES

- Upon completion of 60 units of work (including 12 units of required Level II German courses), and with the approval of the Department of Modern Languages, and of the Associate Dean of Humanities (Studies), up to 15 units of Level III German may be replaced by courses of study at a university in a German-speaking country.
- Students are strongly advised to take HISTORY 3J06 as an elective.

#### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admis-

- 12 units GERMAN 2A03, 2E03, 3Z03, 3ZZ3
- 21 units from GERMAN 2G03, 3A03, 3B03, 4CC3, 4G03, 4HH3, 4II3, 4T03, 4TT3, 4Z03
- 3 units from MOD LANG 2H03, 3G03
- 36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
- 18 units Electives to total 120 units

#### PROGRAMME B

(For students entering with GERMAN 1Z06)

#### NOTES

- Students are strongly advised to take HISTORY 3J06 as an elective.
- Upon completion of 60 units of work (including 12 units of required Level II German courses) and with the approval of the Department of Modern Languages, and of the Associate Dean of Humanities (Studies), up to 15 units of Level III German may be replaced by courses of study at a university in a German-speaking country.

#### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 24 units GERMAN 2A03, 2AA3, 2E03, 2G03, 2Z06, 3Z03, 3ZZ3
- 9 units from GERMAN 3A03, 3B03, 4CC3, 4G03, 4HH3, 4T03, 4TT3
- 3 units from MOD LANG 2H03, 3G03
- 36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
- 18 units Electives to total 120 units

### Honours Arts & Science and German

(B.Arts Sc.; See Arts and Science Programme)

(Available only to students who entered this programme before September 1993.)

### Minor in German

24 units of German, of which no more than six units may be taken from Level I.

## Modern Languages: Hispanic Studies

### Combined Honours in

### Hispanic Studies and Another Subject

(Available only to students who entered this programme before September 1993.)

#### PROGRAMME A

(For students entering with HISPANIC 1A06)

#### NOTE

Upon completion of 60 units of work (including 12 units of Level II Hispanic Studies courses), and with the approval of the Department of Modern Languages, and the Associate Dean of Humanities (Studies), up to 15 units of Level III Hispanic Studies work may be replaced by courses of study at a university in a Spanish-speaking country.

#### REQUIREMENTS

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 3 units MOD LANG 2A03
- 18 units HISPANIC 2A03, 2B03, 2C03, 3D03, 3DD3, 4DD3
- 15 units Levels II, III and IV Hispanic Studies, except 2Z06
- 36 units Courses specified for the other subject. (Combinations with Social Science may require more than 36 units.)
- 18 units Electives to total 120 units

**PROGRAMME B**

(For students entering with HISPANIC 1Z06)

**NOTE**

Upon completion of 60 units of work (including 12 units of Level II Hispanic Studies Area courses), and with the approval of the Department of Modern Languages, and the Associate Dean of Humanities (Studies), up to 15 units of Level III Hispanic Studies work may be replaced by courses of study at a university in a Spanish-speaking country.

**REQUIREMENTS**

120 units total (Levels I-IV)

30 units	from the Level I programme completed prior to admission into the programme
3 units	MOD LANG 2A03
24 units	HISPANIC 2A03, 2B03, 2C03, 2Z06, 3D03, 3DD3, 4DD3
12 units	from Levels II, III and IV Hispanic Studies courses
36 units	Courses specified for the other subject. (Combinations with Social Science may require more than 36 units.)
15 units	Electives to total 120 units

**Minor in Hispanic Studies**

24 units of Hispanic Studies, of which no more than six units may be from Level I.

**Modern Languages: Italian****Combined Honours in Italian and Another Subject**

(Available only to students who entered this programme before September 1993.)

**PROGRAMME A**

(For students entering with ITALIAN 1A06)

**NOTE**

Upon completion of 60 units of work (including 12 units of required Level II Italian courses), and with the approval of the Department of Modern Languages and the Associate Dean of Humanities (Studies), up to 15 units of Level III Italian work may be replaced by courses of study at an Italian university.

**REQUIREMENTS**

120 units total (Levels I-IV)

30 units	from the Level I programme completed prior to admission into the programme
15 units	ITALIAN 2A03, 2D03, 3D03, 3DD3, 4M03
21 units	Levels II, III and IV Italian courses, except 2Z06
36 units	Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
18 units	Electives to total 120 units

**PROGRAMME B**

(For students entering with ITALIAN 1Z06 or 1ZZ6)

**NOTE**

Upon completion of 60 units of work (including 12 units of required Level II Italian courses), and with the approval of the Department of Modern Languages and the Associate Dean of Humanities (Studies), up to 15 units of Level III Italian work may be replaced by courses of study at an Italian university.

**REQUIREMENTS**

120 units total (Levels I-IV)

30 units	from the Level I programme completed prior to admission into the programme
18 units	ITALIAN 2A03, 2D03, 2Z06, 3D03, 3DD3
18 units	Levels II, III and IV Italian courses
36 units	Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
18 units	Electives to total 120 units

**Minor in Italian**

24 units of Italian, of which no more than six units may be from Level I.

**Modern Languages: Russian****Honours Russian and East European Studies****ADMISSION**

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in RUSSIAN 1Z06. Students are strongly recommended to include HISTORY 1C06 or 1D06 and POL SCI 1B03 and 1C03 in their Level I programme. If not, these courses must be taken in Level II of the programme.

**NOTE**

Upon completion of 60 units of work and with the approval of the Department of Modern Languages and of the Associate Dean of Humanities (Studies), one or both terms of Level III may be replaced by courses of study at a university in the former Soviet Union or Eastern Europe.

**COURSE LIST 1**

All Russian courses above Level I; MOD LANG 2R03, 2RR3, 3D03, 3K03, 3KK3; HISTORY 3W03, 4O06; ANTHROP 2S03

**REQUIREMENTS**

120 units total (Levels I-IV)

30 units	from the Level I programme completed prior to admission into the programme
18 units	RUSSIAN 2C06, 3C06, 4C06
9 units	from MOD LANG 2R03, 2RR3, 3D03, 3K03, 3KK3
6 units	HISTORY 3H06
12 units	POL SCI 2K06, 3M06
9 units	from Course List 1
36 units	Electives to total 120 units

**Combined Honours in****Russian and Another Subject**

(Available only to students who entered this programme before September 1993.)

**NOTES**

1. Upon completion of 60 units of work (including 12 units of required Level II Russian courses), and with the approval of the Department of Modern Languages and of the Associate Dean of Humanities (Studies), up to 15 units of Level III Russian may be replaced by courses of study at a university in a Russian-speaking country.
2. Students are strongly advised to take MOD LANG 2A03 as an elective.

**COURSE LIST 1**

All Level II, III and IV Russian courses, MOD LANG 2R03, 2RR3, 3D03, 3K03, 3KK3.

**REQUIREMENTS**

120 units total (Levels I-IV)

30 units	from the Level I programme completed prior to admission into the programme
21 units	RUSSIAN 2B03, 2C06, 3C06, 4C06
15 units	from Course List 1
36 units	Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)
18 units	Electives to total 120 units

**Minor in Russian**

24 units of Russian, of which no more than six units may be from Level I.

**DEPARTMENT OF MUSIC**

*Completion of a Music degree requires considerable daytime attendance.*

**Honours Programmes for the B.Mus. Degree****Programme A, Alternative 1:  
Music Education****ADMISSION**

Completion of Music I with an average of at least 7.0 in MUSIC 1B06, 1CC3, 1D03; 1E03 or 1E06; and 1G03.

**NOTE**

By graduation, students must complete at least 12 units of Level IV courses from Course List 1.

**COURSE LIST 1**

MUSIC 3AA3, 3K03, 3L03, 3M03, 3N03, 3O03, 3V03, 4K03, 4L03, 4M03, 4N03, 4O03, 4P03, 4Q03, 4U03

**COURSE LIST 2**

MUSIC 3T03, 3U03, 4E03, 4G03, 4X03

**REQUIREMENTS**

120 units total (Levels I-IV)

30 units Music I programme  
36 units MUSIC 2B06, 2BB3, 2C03, 2CC3, 2D03, 2E03, 2G03, 2H03, 3E03, 3G03, 3J03  
18 units from Course List 1  
9 units from Course Lists 1 and 2  
3 units Level III or IV Music  
24 units Electives, 12 of which may be from Music

**Programme A, Alternative 2:  
Music Education/Performance**

*Alternative 2 is intended for those students in the Education stream who are able to benefit from an increased performance component in their programme.*

**ADMISSION**

Completion of Music I with an average of at least 7.0 in MUSIC 1B06, 1CC3, 1D03, 1E06, 1G03. Under exceptional circumstances, students may use MUSIC 1E03 in place of 1E06 as a prerequisite for MUSIC 2E06. Students interested in this option must request it in writing by March 15.

**NOTE**

By graduation, students must complete at least 12 units from Course List 1.

**COURSE LIST 1**

MUSIC 3AA3, 3K03, 3L03, 3M03, 3N03, 3O03, 3V03, 4K03, 4L03, 4M03, 4N03, 4O03, 4P03, 4Q03, 4U03

**COURSE LIST 2**

MUSIC 3T03, 3U03, 4X03

**REQUIREMENTS**

126 units total (Levels I-IV)

33 units Music I programme  
51 units MUSIC 2B06, 2BB3, 2C03, 2CC3, 2D03, 2E06, 2G03, 2H03, 3E06, 3G03, 3J03, 4E06, 4G03  
18 units from Course List 1  
6 units from Course Lists 1 and 2  
18 units Electives, six of which may be from Music

**Programme B, Alternative 1:  
Music History and Theory****ADMISSION**

Completion of Music I with an average of at least 7.0 in MUSIC 1B06, 1CC3, 1D03; 1E03 or 1E06; and 1G03.

**COURSE LIST 1**

MUSIC 4C03, 4H03, 4I03, 4U03

**COURSE LIST 2**

MUSIC 3T03, 3U03, 4X03

**REQUIREMENTS**

120 units total (Levels I-IV)

30 units Music I programme  
45 units MUSIC 2B06, 2BB3, 2C03, 2CC3, 2D03, 2E03, 2G03, 2H03, 3C03, 3CC3, 3E03, 3H03, 3J03, 3R03  
6 units from MUSIC 3B03, 3BB3, 4B03, 4BB3  
6 units from Course List 1  
6 units from Course Lists 1 and 2  
3 units Level III or IV Music  
24 units Electives, 12 of which may be from Music

**Programme B, Alternative 2:  
Music History and Theory/Performance**

*Alternative 2 is intended for those students in the History and Theory stream who are able to benefit from an increased performance component in their programme.*

**ADMISSION**

Completion of Music I with an average of at least 7.0 in MUSIC 1B06, 1CC3, 1D03, 1E06, 1G03. Under exceptional circumstances, students may use MUSIC 1E03 in place of 1E06 as a prerequisite for MUSIC 2E06. Students interested in this option must request it in writing by March 15.

**COURSE LIST 1**

MUSIC 4C03, 4H03, 4I03, 4U03

**COURSE LIST 2**

MUSIC 3T03, 3U03, 4X03

**REQUIREMENTS**

126 units total (Levels I-IV)

33 units Music I programme  
63 units MUSIC 2B06, 2BB3, 2C03, 2CC3, 2D03, 2E06, 2G03, 2H03, 3C03, 3CC3, 3E06, 3G03, 3H03, 3J03, 3R03, 4E06, 4G03  
6 units from MUSIC 3B03, 3BB3, 4B03, 4BB3  
6 units from Course List 1  
6 units from Course Lists 1 and 2  
12 units Electives (non-Music courses)

**Combined Honours B.A. in  
Music and Another Subject****ADMISSION**

Completion of Music I with an average of at least 7.0 in MUSIC 1B06, 1CC3, 1D03; 1E03 or 1E06; and 1G03.

**COURSE LIST 1**

All Level III and IV Music courses except MUSIC 3G03, 3T03, 3U03, 4E03, 4G03, 4X03.

**COURSE LIST 2**

MUSIC 3T03, 3U03, 4X03

**REQUIREMENTS**

120 units total (Levels I-IV)

30 units Music I programme  
27 units MUSIC 2B06, 2BB3, 2C03, 2CC3, 2D03, 2E03, 2H03, 3E03  
12 units from Course List 1  
6 units from Course Lists 1 and 2  
36 units Courses specified for the other subject. (Combinations with Social Sciences may require more than 36 units.)  
9 units Electives to total 120 units

**B.A. in Music****ALTERNATIVE A**

*(For students entering from any Level I programme other than Music I)*

**ADMISSION**

Completion of any Level I with an average of at least 4.0 in 12 units of Level I work including a grade of at least C- in MUSIC 1A06; a successful music audition.

**COURSE LIST 1**

All Level III and IV Music courses, except MUSIC 3E03, 3G03, 4E03, 4G03.

**REQUIREMENTS**

90 units total (Levels I-III)

- 30 units from the Level I programme completed prior to admission into the programme, except Music I
- 27 units MUSIC 1CC3, 1D03, 1E03, 1G03, 2B06, 2BB3, 2C03, 2H03
- 9 units from Course List 1
- 24 units Electives, 12 of which may be from Music

**ALTERNATIVE B**

(For students entering from Music I)

**ADMISSION**

Completion of Music I with an average of at least 4.0 in MUSIC 1B06, 1CC3, 1D03; 1E03 or 1E06; and 1G03.

**NOTE**

By graduation, students must complete at least six units of Level III or IV courses from Course List 1.

**COURSE LIST 1**

All Level II, III and IV Music courses, except MUSIC 2E03, 2G03, 3E03, 3G03, 4E03, 4G03.

**REQUIREMENTS**

90 units total (Levels I-III)

- 30 units Music I programme
- 15 units MUSIC 2B06, 2BB3, 2C03, 2H03
- 12 units from Course List 1
- 33 units Electives, 12 of which may be from Music

**Minor in Music**

24 units of Music, of which no more than six units may be from Level I, subject to the prerequisites and qualifying tests specified in the Calendar.

**DEPARTMENT OF PHILOSOPHY**

**Honours Arts & Science and Philosophy**

(B.Arts Sc.; See Arts and Science Programme)

**Honours Biology and Philosophy (B.Sc.)**

(See Faculty of Science, Department of Biology)

**Honours Philosophy**

**ADMISSION**

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work including a grade of at least B- in any Level I Philosophy course or, if no such course was taken, in six units of work acceptable to the Department of Philosophy.

**NOTES**

1. Students intending to do graduate work in Philosophy are advised to include PHILOS 2B03 in their programme.
2. Students are advised to note carefully the prerequisites for all courses. Students are also advised to take note which courses are offered in alternate years.
3. Upon completion of 60 units of work and with the approval of the Department of Philosophy and the Associate Dean of Humanities (Studies), one or both terms of Level III may be replaced by courses of study at a designated university abroad.

**REQUIREMENTS**

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 27 units PHILOS 2A06, 2C06, 3A06, 3G03, 3O03, 4H03
- 3 units from PHILOS 2B03, 2R03
- 3 units Levels II, III or IV Philosophy
- 15 units Levels III or IV Philosophy
- 6 units Level IV Philosophy

36 units Electives, 12 of which may be Philosophy beyond Level I

**Combined Honours in Philosophy and Another Subject**

**ADMISSION**

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in any Level I Philosophy course or, if no such course was taken, in six units of work acceptable to the Department of Philosophy.

**NOTES**

1. Students intending to do graduate work in Philosophy are advised to include PHILOS 2B03 in their programme.
2. Students are advised to note carefully the prerequisites for all courses. Students are also advised to take note which courses are offered in alternate years.

Upon completion of 60 units of work and with the approval of the Department of Philosophy and the Associate Dean of Humanities (Studies), one or both terms of Level III may be replaced by courses of study at a designated university abroad.

**REQUIREMENTS**

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 12 units PHILOS 2A06, 2C06
- 3 units from PHILOS 2B03, 2R03
- 15 units Levels III and IV Philosophy
- 6 units Level IV Philosophy
- 36 units Courses specified by the other subject. (Combinations with Social Science may require more than 36 units.)
- 18 units Electives to total 120 units

**Honours Philosophy and Biology (B.A.)**

**ADMISSION**

Completion of any Level I programme with a grade of at least B- in any Level I Philosophy course (or, if no such course was taken, in six units of work acceptable to the Department of Philosophy) and BIOLOGY 1A06 or 1G06 with a grade of at least B- and six units of Level I Mathematics. Students are cautioned to observe that CHEM 1A06 is the normal prerequisite for BIOLOGY 2B03 and BIOLOGY 2C03, which are required courses in the programme. **Enrolment in this programme is limited.**

**NOTES**

1. Students intending to do graduate work in Philosophy are advised to include PHILOS 2B03 in their programme.
2. Students are advised to note carefully the prerequisites for all courses. Students are also advised to take note which courses are offered in alternate years.
3. Upon completion of 60 units of work and with the approval of the Department of Philosophy and the Associate Dean of Humanities (Studies), one or both terms of Level III may be replaced by courses of study at a designated university abroad.

**REQUIREMENTS**

120 units total (Levels I-IV)

- 30 units from the Level I programme completed prior to admission into the programme
- 12 units BIOLOGY 2B03, 2C03, 2E03, 2F03 (CHEM 2O06 may replace six units of Biology courses)
- 24 units Level III and IV Biology courses
- 24 units PHILOS 2A06, 2C06, 2M03, 3O03, 3WW3, 4WW3
- 3 units from PHILOS 2B03, 2R03
- 3 units from PHILOS 2D03, 2F03, 2G03
- 3 units from PHILOS 3G03, 3N03
- 3 units Level IV Philosophy
- 18 units Electives to total 120 units

**Honours Philosophy and Mathematics (B.A.)**

**ADMISSION**

Completion of any Level I programme with an average of at least 7.0 in MATH 1A06 and MATH 1B03, and a grade of at least B- in any

Level I Philosophy course or, if no such course was taken, in six units of work acceptable to the Department of Philosophy.

**NOTES**

1. Students intending to do graduate work in Philosophy are advised to include PHILOS 2B03 in their programme.
2. Students are advised to note carefully the prerequisites for all courses. Students are also advised to take note which courses are offered in alternate years.
3. Upon completion of 60 units of work and with the approval of the Department of Philosophy and the Associate Dean of Humanities (Studies), one or both terms of Level III may be replaced by courses of study at a designated university abroad.

**REQUIREMENTS**

*120 units total (Levels I-IV)*

30 units	from the Level I programme completed prior to admission into the programme
27 units	MATH 2A06, 2B06, 2F03, 3A06, 3E03, 3EE3
9 units	from MATH 2C03, 3B03, 3L06, 3P03, 4B03, 4BB3
6 units	from MATH 4A06, 4E03, 4K03, 4I03
12 units	PHILOS 2A06, 2C06
3 units	from PHILOS 2B03, 2R03
21 units	Level III or Level IV Philosophy
3 units	Level IV Philosophy course
9 units	Electives

**B.A. in Philosophy****ADMISSION**

Completion of any Level I programme with an average of at least 4.0 in 12 units of Level I work, including a grade of at least C- in any Level I Philosophy course.

**NOTE**

Students are advised to note carefully the prerequisites for all courses. Students are also advised to take note which courses are offered in alternate years.

**REQUIREMENTS**

*90 units total (Levels I-III)*

30 units	from the Level I programme completed prior to admission into the programme
12 units	PHILOS 2A06, 2C06
3 units	from PHILOS 2B03, 2R03
3 units	Levels II, III or IV Philosophy
6 units	Levels III or IV Philosophy
36 units	Electives, 12 of which may be Philosophy

**Minor in Philosophy**

Any Level I Philosophy course and PHILOS 2A06 or 2C06; and 12 additional units of Philosophy

---



---



# FACULTY OF SCIENCE

## Dean of Science

R.H. McNutt/B.Sc., Ph.D.

## Associate Dean of Science (Studies)

D.E.N. Jensen/M.A., Ph.D.

## Associate Dean of Science (Studies)

A.J. Yarwood/B.Sc., Ph.D.

## Student Advisor

L. Giordano/B.A.

## Student Advisor

P.G. Henry/B.Sc.

## Programmes Assistant/Student Advisor

J. Kapshey

The Faculty of Science provides studies through the following Departments:

- Biochemistry
- Biology
- Chemistry
- Computer Science and Systems
- Geography
- Geology
- Mathematics and Statistics
- Materials Science and Engineering
- Physics and Astronomy
- Psychology

Most Departments offer four-level Honours B.Sc. programmes with a specialist option which requires concentration of studies in a specific discipline.

Many Departments offer four-level Honours B.Sc. programmes (Complementary Studies Option) which require somewhat less concentration in the discipline and 21 units of Complementary Studies (see below), 18 units of electives which include at least six units of Level III and IV courses, and six units electives.

Students registering in Honours programmes with the specialist option are strongly encouraged to select their electives from the Complementary Studies courses.

A number of Departments offer Combined Honours degrees which are academically more challenging than single Honours programmes.

Honours degrees in Molecular Biology and Biotechnology and in Biology and Pharmacology (a five-level Co-op programme) are organized by Committees of Instruction involving the Faculties of Health Sciences and Science.

Three-level B.Sc. programmes provide a science education which is less demanding than the Honours programmes. Three-level B.Sc. programmes are offered in each of the areas -- Earth Science, General Science, Life Science, Mathematical Science and Physical Science.

The Honours degree in Science (Complementary Studies Option) requires breadth of studies in science; at least one course each from chemical, earth, life, mathematical and physical science is required.

## ACADEMIC REGULATIONS

Students enrolled in Science programmes, in addition to meeting the general Academic Regulations of the University, shall be subject to the following Faculty Regulations:

### LIMITED ENROLMENT

Because of resource limitations, the University reserves the right to limit enrolment in any programme or course to the number which can be effectively taught. In the Faculty of Science, enrolment will be by selection, based on academic achievement. Students should consult with the Departments concerned if there are any questions about entry to limited enrolment programmes. In 1993-94, enrol-

ment is limited in the Honours Biology and Pharmacology co-op programme and in the Honours Biochemistry programme (Co-op option).

**Beginning in September 1993, admission to Level II is limited for all single, Combined Honours and Major four- and five-level B.A., B.Arts Sc. and B.Sc. programmes involving Biochemistry, Biology, Molecular Biology and Biotechnology, and Psychology.**

### CO-OPERATIVE EDUCATION

The Faculty of Science has instituted an Honours Biology and Pharmacology co-op programme and an Honours Biochemistry co-op programme. The Faculty will offer an Honours Geography and Environmental Science co-op programme beginning in Level III in 1994-95. Subject to resource availability, an Honours Computer Science co-op programme beginning in Level II will be offered in 1994-95. Additional Honours co-op programmes are in the planning stages and may be offered in the future.

All Honours Co-op programmes are Specialist Option programmes. They are limited enrolment and admission will be by selection. Employment must be full-time during the work term. Students must be on a full academic workload during the academic term. An additional co-op fee will be assessed on the academic terms in the various programmes.

For further information, please consult the Associate Deans of Science (Studies) or the Office of Co-operative Education for the Faculty of Science.

### INTERNATIONAL STUDY DURING LEVEL III OF HONOURS PROGRAMMES

There are two ways to undertake international studies during Level III of an Honours programme, via a Formal Exchange Programme or a Third Year Study Elsewhere programme.

#### Formal Exchange Programme

#### During Level III of Honours Programmes

See the *Academic Regulations* section on page 13 of this Calendar.

#### Third Year Study Elsewhere Honours Programme

Third Year Study Elsewhere is not available at universities with which McMaster University has a Formal Exchange Agreement.

Students registered in single or Combined Honours programmes in the Faculty of Science are encouraged to apply to study the whole of a third year at an appropriate university\*.

To be eligible to take part in this programme, students are expected to complete Level II with a Cumulative Average of at least 6.0. Students must pay all associated travel, study and living expenses. For students in need of financial assistance OSAP (Ontario Student Aid Programme) grants and loans may be available for this programme. Furthermore, McMaster University offers some bursaries to those in need of help.

Students interested in this programme should begin discussion with the Associate Deans of Science (Studies) about one year before they plan to enrol elsewhere.

Students must propose an academic programme which must be submitted to the Department for approval. Academic approval must be completed by the end of February for registration in the Fall.

Students must maintain links through correspondence with their departments at McMaster University while they are engaged in study elsewhere. All credit for work completed may only be confirmed after departments have reviewed the students' academic achievement following their return and registration in their final year of study. The maximum credit available in this way is normally 30 units for the full year of study, equivalent to Level III. In certain cases, students may be recommended for the Dean's Honour List on the basis of work undertaken in the programme.

\* Including any approved university in the following areas: Rhone-Alps (France), Baden-Wurtemberg (Germany), Lombardy (Italy) and Catalonia (Spain).

### COURSE SELECTION

It is the responsibility of the student to ensure that the selection of courses meets the degree requirements for the programme in which the student is registered and that the stated prerequisite courses were completed with a grade of at least D-.

**SEQUENCE OF COURSES**

Students in the Faculty of Science must have completed or be registered in the courses for Level I before they may register for courses beyond Level I.

**WORKLOAD**

With the exception of the Honours Biology and Pharmacology and the Honours Biochemistry (Co-op Option) programmes (which require students to be on a full academic load), all programmes in the Faculty of Science may be taken by full-time and part-time students.

Students must maintain a full academic load during the Fall/Winter session to be eligible for scholarships available to full-time students.

A full academic load in the Fall/Winter session is also required of applicants for Natural Sciences and Engineering Research Council (NSERC) Undergraduate Research Awards. To be eligible for the Deans' Honour List an academic load in the Fall/Winter session of at least 30 units is necessary.

Students are expected to avoid timetable conflicts between their courses, and students on a full academic load should ensure the number of courses is balanced in each term.

**PROGRAMME AND COURSE CHANGES**

All programme and course changes must be made through the Office of the Deans of Science (Studies) and are subject to the deadline dates established by the University. (See *Sessional Dates* section of this Calendar.)

Beyond the September deadline date, first-term courses may be cancelled up to the October deadline but may not be replaced by second-term courses; beyond the January deadline date, second-term courses may not be replaced. Students who cancel a full-year course by the January deadline date may add a second-term course provided that their second-term work load is not thereby increased.

Up to the end of Level III, students may be permitted to transfer between B.Sc. and Honours programmes on the recommendation of the Department concerned and with the approval of an Associate Dean (Studies). Students who did not meet the admission requirements to the programme will require high averages to be allowed to transfer.

**DEADLINES**

The Faculty of Science will not consider applications for admission, admission to a second degree or continuing studies, registration, deleting, cancelling, or adding of courses after the deadlines stated in this Calendar under *Sessional Dates* and *Application Procedures* pages 4 and 11, respectively, unless written documentation is provided showing good cause.

**READMISSION TO THE FACULTY OF SCIENCE**

A student who is ineligible to continue in the Faculty of Science or who "May Not Continue At The University" may normally not apply for readmission for one full academic year. Exceptions may be made only when there are extenuating circumstances which are supported by written documentation.

Application for readmission must be made in writing by **June 15** to the Chair of the Committee on Readmissions, Office of the Deans of Science (Studies), and should include an explanation of the student's previous academic performance and reasons why the student would expect to succeed in the programme if readmitted. If the student has been Required to Withdraw for one calendar year, a letter of reference from an employer may be required.

**Readmission is not guaranteed.**

**FORMER SCIENCE STUDENTS**

Students who were previously registered in a Science programme and in good standing but did not attend last year, must write to the Deans of Science (Studies) Office to seek readmission. The letter should explain activities (academic and otherwise) since the last registration.

If five years have passed since the last registration at McMaster please see the *Application Procedures* section on pages 11 and 12 of this Calendar.

**Regulations for Honours, B.Sc. and Major Programmes****ADMISSION TO HONOURS B.SC. PROGRAMMES**

The admission criteria for the Honours B.Sc. programmes are described explicitly in the individual programmes descriptions in this section.

**ADMISSION TO B.SC. PROGRAMMES**

The admission criteria for the B.Sc. programmes, in each of the areas Earth, General, Life, Mathematical and Physical Science, are listed under the heading Science in this section.

Students were not admitted to the Departmental B.Sc. degrees (described in the 1991-92 Undergraduate Calendar) after the 1991-92 academic session.

**CONTINUATION IN HONOURS B.SC. PROGRAMMES**

Students who were registered in Level II, III or IV of Honours B.Sc. programmes in 1992-93 or previously, must continue to meet the course requirements as prescribed in the 1992-93 Undergraduate Calendar or previous calendars, as applicable.

*For more information, please see Academic Regulations on page 13 of this Calendar.*

**CONTINUATION IN B.SC. PROGRAMMES**

Students who were registered in Level II or III of the Departmental B.Sc. programmes in 1992-93 or previously, must continue to meet the course requirements as prescribed in the 1992-93 Undergraduate Calendar or previous calendars, as applicable.

The programme requirements for B.Sc. programmes, in each of the areas Earth, General, Life, Mathematical and Physical Science are listed under the heading Science in this section.

Students registered in these three-level B.Sc. programmes must complete Complementary Studies Requirements A, B, and C. (see below).

*For more information, please see Academic Regulations on page 13 of this Calendar.*

**CONTINUATION IN B.SC. MAJOR PROGRAMMES**

Students are not admitted to the B.Sc. Major degrees after the 1992-93 academic session.

Students who were registered in Level II, III or IV of B.Sc. Major programmes in 1992-93 or previously, must continue to meet the course requirements as prescribed in the 1992-93 Undergraduate Calendar or previous calendars, as applicable.

Students who were previously enrolled in a B.Sc. Major programme and who do not graduate in June or November 1994 may continue in the same Major programme if they obtain a Cumulative Average of at least 4.0. Students whose CA is between 3.5 and 3.9 may continue on programme probation for one reviewing period if they previously have not been on programme probation. Students may be on programme probation only once. Students whose CA is between 3.0 and 3.4 must transfer to another programme.

**GRADUATION FROM****HONOURS B.SC. AND B.SC. PROGRAMMES**

In order to graduate from a programme, students must meet the course requirements of the Calendar in force when they enter that programme, with the exception that a later Calendar may explicitly modify such requirements.

The requirements for graduation from these programmes are described under the heading *Graduation* on page 17 in the *Academic Regulations* section of this Calendar.

**GRADUATION FROM B.SC. MAJOR PROGRAMMES**

For students who graduate with the B.Sc. Major degree in June or November 1994 the Graduation Average will be based on a minimum of 36 units of specified Level III and IV Area courses. Where the student has taken more than 36 units of such courses the Graduation Average will be computed from the best 80% of the specified Level III and IV Area courses, or on the best 36 units which ever number of units is greater. A Graduation Average of at least 5.0 must be attained for graduation.

For students who graduate with the B.Sc. Major degree after 1994 the Graduation Average will be superseded by the Cumulative

Average based on the weighted average of all area courses taken before September 1993 and on all courses taken from September 1993 onwards. A Cumulative Average of at least 4.0 must be attained for graduation.

**COMPLEMENTARY STUDIES REQUIREMENTS**

All students registered in an Honours (Complementary Studies Option) programme must complete the following four requirements.

Course units selected to meet each of these requirements cannot also be used to satisfy other degree requirements.

- A. Six units chosen from the World History, Culture and Thought Menu (see below).
- B. Three units chosen from HUMAN 2C03 (Critical Thinking), or MATH 2E03 (Introduction to Modelling).
- C. Six units chosen from courses offered by the Faculties of Business, Humanities or Social Sciences.
- D. Six units chosen from Science Inquiry courses (see below). SCIENCE 4I03 is strongly recommended.

**WORLD HISTORY, CULTURE AND THOUGHT MENU**

**Note**

Many of these courses have prerequisites. It is the student's responsibility to ensure that these have been met.

ANTHROP 2I03	History of Anthropology
ART HIST 1A06	Introduction to the Study and History of the Visual Arts
CLASSICS 1B06	Mythology and Literature of Greece and Rome
CLASSICS 1L06	History and Archaeology of the Ancient World
DRAMA 1A06	Introduction to Drama
ECON 2K03	Economic History of Canada
ECON 3R03	The International Economy Since 1945
HISTORY 1C06	The Modern World: The Era of European Primacy
HISTORY 1D06	The Civilization of the West
HISTORY 1L06	History of Archaeology of the Ancient World
HISTORY 2A06	Early Modern Europe: 1400-1715
HISTORY 2B06	China: from the Opium War to the Present
HISTORY 2E06	Introduction to the History of the Islamic World
HISTORY 2H06	United States History
HISTORY 2I06	Europe in the Middle Ages
HISTORY 2J06	The History of Canada
HISTORY 2L06	The History of Greece and Rome
HISTORY 2M06	European Society from Absolutism to Democracy
JAPAN ST 2P06	Japanese Civilization
MUSIC 1A06	Introduction to Music
PHILOS 1B06	Philosophy and Society
PHILOS 1D06	Problems in Philosophy
PHILOS 2A06	Ancient Greek Philosophy
PHILOS 2C06	Descartes to Hume
POL SCI 2O06	Introduction to Political Theory
RELIG ST 1B06	World Religions
RELIG ST 1E06	Ideas of Love
RELIG ST 1I06	Religious Themes in Modern Literature
RELIG ST 2D06	The Biblical World: An Introduction to the Background of the Old Testament
RELIG ST 2E06	Introduction to the Study of the New Testament
RELIG ST 2FF6	History of Ancient Judaism
RELIG ST 2G06	Religion and the Culture of the Twentieth Century
RELIG ST 2II3	Christianity in the Patristic Period (100-800)
RELIG ST 2J06	India: Its Culture, Social History, Religion and Philosophy
RELIG ST 2JJ3	Christianity in the Medieval Period (800-1500)
RELIG ST 2KK3	Christianity in the 16th Century
RELIG ST 2LL3	Christianity after 1600
RELIG ST 2MM6	East Asia: Religion and Thought
RELIG ST 2P06	Japanese Civilization
RELIG ST 2PP3	Indian Philosophy
RELIG ST 2R06	Divine Justice
RELIG ST 3MM3	Scepticism, Atheism, and Religious Faith
RELIG ST 3NN3	The Encounter of Science and Religion

RELIG ST 3U03	The Buddhist Tradition in India and South-East Asia
RELIG ST 3UU3	The Buddhist Tradition in East Asia
SOC SCI 2B06	Introduction to the Study of Peace
SOC SCI 2D03	Peace and Development

**SCIENCE INQUIRY**

BIOCHEM 4C03	Biochemistry Inquiry
BIOLOGY 4C09	Senior Thesis
BIOLOGY 4F06	Senior Project
CHEM 4I03	Inquiry in Chemistry
CHEM 4G06	Senior Thesis
COMP SCI 4ZP6	Project
GEOLOGY 4K06	Geology Thesis
GEOLOGY 4W03	Environmental Analysis: A Case History Approach
MATH 3G03	Problem Solving
MATH 3Z03	History of Mathematics
MATH 4W03	Directed Reading
PHYSICS 4A03	Special Topics
SCIENCE 4I03	Inquiry

**MINORS**

In addition to the University's regulations governing the designation of Minors, all Departments in the Faculty of Science require the inclusion of at least six units of Level III or IV courses for Minors in a Science subject. All work for the Minor, with the exception of the six-unit introductory course, must be completed at McMaster.

Please see *Minors* on page 15 in the *Academic Regulations* section.

**SECOND BACHELOR'S DEGREE PROGRAMMES**

In addition to the regulations in the section *Academic Regulations* on page 13 of this Calendar, the following Faculty regulations will apply, effective September 1993.

Students will be admitted to Second Degree studies only if their studies involve a significant additional component of work in the subject of concentration of a programme. Permission will not be granted to pursue Second Degrees in the following cases or subject combinations:

1. in a subject that was a title component of a first Combined Honours or Major degree. (e.g. Computer Science following Computer Science and Mathematics);
2. in a Combined Honours degree to a holder of another degree in a component subject of that degree. (e.g. Computer Science and Mathematics following Computer Science);
3. an Honours degree to the holder of a Major degree in the same subject;
4. in an Honours (Complementary Studies Option) programme following the Honours (Specialist Option) in the same subject, or vice-versa;
5. a B.Sc. in an area which encompasses the subject of a Minor. (e.g. a B.Sc. Mathematical Sciences following a Minor in Computer Science, Mathematics or Statistics);
6. a B.Sc. area degree following a departmental B.Sc. in one of the disciplines of the areas. (e.g. B.Sc. Mathematical Sciences following a B.Sc. in Mathematics or Computer Science);
7. a B.Sc. in General Science following any B.Sc. and vice-versa;
8. a B.Sc. area or B.Sc. General Science degree following a B.A. in one of the subjects encompassed by the B.Sc. (e.g. B.Sc. Life Sciences following a B.A. in Psychology).

**LEVEL I PROGRAMME****NATURAL SCIENCES I: 30 UNITS****REQUIREMENTS**

- 6 units from MATH 1A06, 1AA6, 1C06
- 6 units from CHEM 1A06, PHYSICS 1A06, 1B06, 1C06
- 12 units from Course List 1 (see below)
- 6 units from Course Lists 1, 2 and 3 (see below)

**COURSE LIST 1**

- BIOLOGY 1A06
- CHEM 1A06
- COMP SCI 1ZA3 or 1MA3, or 1ZA3 and 1MA3, or 1MA3 and 1MB3;
- ENVIR SC 1A06
- GEOG 1C03 and/or 1G03
- GEOLOGY 1C03
- MATLS 1A03, or 1A03 and 1B03
- MATH 1B03
- PHYSICS 1A06, or 1B06, or 1C06
- PSYCH 1A06

**COURSE LIST 2**

All Level I Humanities courses

**COURSE LIST 3**

All Level I Social Sciences courses and WOMEN ST 1A06

With the exception of Mathematics, no more than one full-year course may be taken from any subject.

With the permission of the Associate Dean (Studies), well-prepared students may be permitted to elect up to six additional units.

Level I students may choose many different courses. These courses should be selected carefully to meet the Level II admission requirements of a specific programme. A suitable choice of Level I options will allow successful students to enter Level II of any one of several programmes.

Students in the Faculty of Science registering in MATH 1B03 should register in MATH 1A06 or 1AA6 rather than MATH 1C06.

**DEPARTMENT OF BIOCHEMISTRY****Honours Arts & Science and Biochemistry (B.Arts Sc.)**

(See Arts & Science programme)

**Honours Biochemistry (Complementary Studies Option)****ADMISSION**

Enrolment in this programme is limited. Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I with an average of at least 6.0 in BIOLOGY 1A06, CHEM 1A06, and one of MATH 1A06 (or 1AA6 or 1C06), PHYSICS 1A06 (or 1B06 or 1C06).

The election of one of PHYSICS 1A06, 1B06, 1C06 in Level I or II is recommended.

**NOTE**

There are Level II (and III) prerequisites for many Level III (and IV) courses. The prerequisites should be considered when choosing your Level II and III programmes.

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

- 30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

- 18 units BIOCHEM 2A06; BIOLOGY 2C03; CHEM 2O06, 2R03
- 6 units from World History, Culture and Thought Menu (See *World History, Culture and Thought Menu* in this section)
- 6 units Electives, excluding Biochemistry

**LEVEL III: 30 UNITS**

- 15 units BIOCHEM 3A03, 3AA3, 3L03; BIOLOGY 2B03; CHEM 2N03
- 3 units from HUMAN 2C03, MATH 2E03
- 6 units from Business, Humanities, Social Sciences
- 6 units Electives, excluding Biochemistry (students wishing to take BIOCHEM 4I03 in Level IV must elect CHEM 3F03)

**LEVEL IV: 30 UNITS****(Beginning in 1994-95)**

- 6 units BIOCHEM 4C03, SCIENCE 4I03
- 3 units from BIOCHEM 3H03, 3N03, 4Q03
- 3 units from BIOCHEM 4D03, 4E03, 4I03, 4M03
- 3 units from Level IV Biochemistry
- 3 units from Level III, IV Biochemistry, BIOLOGY 3O03, 4I03, 4V03
- 6 units from Level III, IV courses excluding Biochemistry
- 6 units Electives

**Honours Biochemistry (Specialist Option)****ADMISSION**

Enrolment in this programme is limited. Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I with an average of at least 6.0 in BIOLOGY 1A06, CHEM 1A06, and one of MATH 1A06 (or 1AA6 or 1C06), PHYSICS 1A06 (or 1B06 or 1C06).

The election of one of PHYSICS 1A06, 1B06, 1C06 in Level I or II is recommended.

**NOTES**

1. This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.
2. In Level IV a Biochemistry and a Molecular Biology, Biotechnology and Genetic Engineering option are available.

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses.

**LEVEL I**

- 30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

- 21 units BIOCHEM 2A06; BIOLOGY 2B03, 2C03; CHEM 2N03, 2O06
- 1 course from CHEM 2R03, 2P06
- 3-6 units Electives. CHEM 2C03, COMP SCI 1ZA3 (or 1MA3) and STATS 2MA3 are suggested

**LEVEL III: 30 UNITS****(Beginning in 1994-95)**

- 12 units from BIOCHEM 3A03, 3AA3, 3L03, 3P03
- 6 units BIOLOGY 3O03; CHEM 3F03
- 6 units from Level III, IV Biochemistry, Biology, Chemistry
- 6 units Electives, excluding Biochemistry

**LEVEL IV (BIOCHEMISTRY OPTION): 30 UNITS****(Beginning in 1995-96)**

- 9 units BIOCHEM 4E03, 4I03, 4M03
- 12 units from Level III, IV Biochemistry courses which must include one of BIOCHEM 4B06, 4G03, 4L03, 4P03 (maximum of six units from BIOCHEM 4B06, 4G03, 4L03, 4P03)
- 3 units from Level III, IV Science courses, excluding Biochemistry
- 6 units Electives

**LEVEL IV (MOLECULAR BIOLOGY, BIOTECHNOLOGY AND GENETIC ENGINEERING OPTION): 30 UNITS****(Beginning in 1995-96)**

A CA of at least 6.0 on completion of Level III is required for admission.

- 12 units BIOCHEM 4D03, 4E03, 4I03, 4M03
- 9 units from Level III, IV Biochemistry courses which must include one of BIOCHEM 4B06, 4G03, 4P03 (maximum

3 units	of six units from BIOCHEM 4B06, 4G03, 4P03 from Level III, IV Science courses, excluding Biochemistry (BIOLOGY 4I03 or 4V03 is recommended)
6 units	Electives

## Honours Biochemistry Co-op

### ADMISSION

**Enrolment in this programme is limited.** Selection is based on academic and other achievement (see below) but requires, as a minimum, completion of Level II Honours Biochemistry (Specialist Option) or Honours Biochemistry and Chemistry or Honours Molecular Biology and Biotechnology with a CA of at least 6.0. Enrolment in this programme will be limited to 25 students per year. Information about the programme and the selection procedure may be obtained from the Chair of the Committee of Instruction and will be explained in the month of February in an Information Session.

### NOTES

1. This is a five-year co-op programme which includes two eight-month work terms which must be spent off-campus in Biochemistry related placements. A senior thesis will be completed as part of Level IV.
2. Students must be registered full-time and take a full academic programme.
3. Students are required to complete a Work Orientation Course prior to beginning the first work placement.
4. There are Level II and III prerequisites for many Level III and IV courses. The prerequisites should be considered when choosing your Level II and III courses.

### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses.

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II

30 units from Honours Biochemistry (Specialist Option), Honours Biochemistry and Chemistry, Honours Molecular Biology and Biotechnology

### YEAR 3

15 units from Academic Level III, Term 1, plus Work Orientation course and first work term of eight months' duration

#### TERM 1

9 units BIOCHEM 3A03, 3L03; BIOLOGY 3O03  
 3 units from Level III, IV Biochemistry, Biology, Chemistry  
 3 units Electives  
 → Work Orientation Course

#### TERM 2 AND SUMMER

First work term of eight months duration

### YEAR 4

#### (Beginning in 1994-95)

30 units from Academic Level IV, Term I, and Academic Level III, Term 2, plus beginning of second work term.

#### (BIOCHEMISTRY OPTION)

##### TERM 1

6 units BIOCHEM 4I03, 4M03  
 6 units from Level III, IV Biochemistry, Biology, Chemistry  
 3 units Electives

##### TERM 2

9 units BIOCHEM 3AA3, 3P03; Chemistry 3F03  
 3 units from Level III, IV Biochemistry, Biology, Chemistry  
 3 units Electives

#### SUMMER

Beginning of second eight-month work term

OR

#### (MOLECULAR BIOLOGY, BIOTECHNOLOGY AND GENETIC ENGINEERING OPTION)

##### TERM 1

9 units BIOCHEM 4I03, 4M03, 4D03  
 3 units from Level III, IV Biochemistry, Biology, Chemistry  
 3 units Electives

##### TERM 2

9 units BIOCHEM 3AA3, 3P03; CHEM 3F03  
 3 units from Level III, IV Biochemistry, Biology, Chemistry  
 3 units Electives

#### SUMMER

Beginning of second eight-month work term

### YEAR 5

#### (Beginning in 1995-96)

Completion of second work term and 15 units from Academic Level IV, Term 2

#### (BIOCHEMISTRY OPTION)

##### TERM 1

Completion of second work term

##### TERM 2

6 units BIOCHEM 4E03, 4P03  
 3 units from Level III, IV Biochemistry  
 3 units from Level III, IV Science courses, excluding Biochemistry  
 3 units Electives

OR

#### (MOLECULAR BIOLOGY, BIOTECHNOLOGY AND GENETIC ENGINEERING OPTION)

##### TERM 1

Completion of second work term

##### TERM 2

3 units BIOCHEM 4E03  
 3 units from BIOCHEM 4G03, 4P03  
 3 units from Levels III, IV Biochemistry  
 3 units from Levels III, IV Science courses, excluding Biochemistry  
 3 units Electives

## Honours Biochemistry and Chemistry

### ADMISSION

**Enrolment in this programme is limited.** Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I, including BIOLOGY 1A06, CHEM 1A06, MATH 1B03, 1A06 (or 1AA6 or 1C06) and one of PHYSICS 1A06, 1B06, 1C06, with a grade of at least C+ in each of BIOLOGY 1A06, CHEM 1A06 and MATH 1A06 (or 1AA6 or 1C06).

### NOTES

1. This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.
2. Students should seek counselling for this programme in the Department of Chemistry.

### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 30 UNITS

24 units BIOCHEM 2A06; CHEM 2A03, 2B06, 2C03, 2P06  
 3-6 units from MATH 2N03, or both MATH 2G03 and 2O03  
 0-3 units Electives. Students considering Level III Honours Biochemistry (Specialist Option) should elect BIOLOGY 2C03. Students considering Level III Honours Chemistry (Specialist Option) should elect PHYSICS 2A03.

**LEVEL III: 30 UNITS**

- 12 units BIOCHEM 3A03, 3AA3, 3L03, 3P03  
 6 units CHEM 3B03, 3D03  
 1 course from CHEM 3A03, 3Q03, 3E06  
 6-9 units Electives

**LEVEL IV: 30 UNITS**

- 9 units BIOCHEM 4E03, 4I03, 4M03  
 3 units from BIOCHEM 4D03, 4Q03  
 6 units from BIOCHEM 4B06 or CHEM 4G06, or both BIOCHEM 4P03 and either CHEM 4TA3 or 4TB3  
 1 course from CHEM 4A03, 4D03, 3C03, 3KK6  
 3 units from Level III, IV Chemistry  
 3-6 units Electives

**Minor in Biochemistry**

- 6 units CHEM 1A06  
 6 units from CHEM 2O06 or 2B06  
 6 units from BIOCHEM 3G06, or 3G03 and 3GG3, or 3A03 and 3AA3  
 6 units from Level IV Biochemistry

**DEPARTMENT OF BIOLOGY****Honours Philosophy and Biology**

(B.A.; See Faculty of Humanities, Department of Philosophy)

**Honours Arts & Science and Biology**

(B.Arts Sc; See Arts & Science programme)

**Honours Molecular****Biology and Biotechnology**

(See Molecular Biology and Biotechnology)

**Honours Biology****(Complementary Studies Option)****ADMISSION**

**Enrolment in this programme is limited.** Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I with an average of at least 5.0 in BIOLOGY 1A06, CHEM 1A06, and one of MATH 1A06 (or 1AA6 or 1C06), PHYSICS 1A06 (or 1B06 or 1C06) with a grade of at least C+ in BIOLOGY 1A06.

The election of one PHYSICS 1A06, 1B06, 1C06 in Level I or II is recommended.

**NOTES**

- Students in Levels III and IV of this programme should select courses in consultation with the Chair of the Department of Biology.
- COMP SCI 1ZA3 is recommended.
- In some cases there are Level II (and III) prerequisites for Level III (and IV) courses. The prerequisites should be considered when choosing your Level II (III) programme.

**COURSE LIST**

All Level III and IV Biology courses, except BIOLOGY 4C09 and 4L09; BIOCHEM 3A03, 3AA3, 3G03, 3GG3, 3G06, 4D03, 4E03, 4M03; ENGINEER 4X03; GEOG 3P03, 4P03; GEOLOGY 2J03, 3J03, 4D03; MOL BIOL 4F03, 4H03, PHARMAC 4B03; PSYCH 3F03, 3FF3, 3R03, 3S03, 3T03

**REQUIREMENTS**

*120 units total (Levels I to IV), of which no more than 48 units may be Level I courses*

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

12 units from BIOLOGY 2B03, 2C03, 2D03, 2E03, 2F03  
 6 units from CHEM 2O06, or both CHEM 2D03 and BIOCHEM 2E03

6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 6 units Electives, including at least three units which exclude Biochemistry and Biology

**LEVEL III: 30 UNITS**

3 units from BIOLOGY 2B03, 2C03, 2D03, 2E03, 2F03 (whichever is not completed)  
 6 units from Level III, IV Biology  
 6 units from the Course List (see above)  
 3 units from HUMAN 2C03, MATH 2E03  
 6 units from Business, Humanities, Social Sciences  
 6 units Electives, excluding Biology

**LEVEL IV: 30 UNITS****(Beginning in 1994-95)**

6 units from Science Inquiry  
 6 units from Level III, IV Biology  
 6 units from the Course List (see above)  
 6 units from Level III, IV courses, excluding Biology  
 6 units Electives

**Honours Biology (Specialist Option)****ADMISSION**

**Enrolment in this programme is limited.** Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I with an average of at least 5.0 in BIOLOGY 1A06, CHEM 1A06, and one of MATH 1A06 (or 1AA6 or 1C06), PHYSICS 1A06 (or 1B06 or 1C06) with a grade of at least C+ in BIOLOGY 1A06. The election of one PHYSICS 1A06, 1B06, 1C06 in Level I or II is recommended.

**NOTES**

- Students are advised to note carefully the prerequisites for all Levels III and IV courses listed in the following programme, particularly BIOCHEM 3G03 and 3GG3.
- Students interested in Honours Biology and Pharmacology must elect CHEM 2R03 in Level II.
- The Department of Biology has the following areas of specialization: a) Animal Physiology, b) Cell, Developmental, Molecular Biology and Biotechnology, c) Ecology, d) Genetics and Evolution, e) Microbiology, f) Plant Biology.

**COURSE LIST**

All Levels III and IV Biology courses; BIOCHEM 3A03, 3AA3, 3G03, 3GG3, 3G06, 4D03, 4E03, 4M03; ENGINEER 4X03; GEOG 3P03, 4P03; GEOLOGY 2J03, 3D06, 3J03, 4D03; MOL BIOL 4F03, 4H03; PHARMAC 4B03; PSYCH 3F03, 3FF3, 3R03, 3S03, 3T03.

**REQUIREMENTS**

*120 units total (Levels I to IV), of which no more than 48 units may be Level I courses*

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

21 units BIOLOGY 2B03, 2C03, 2D03, 2E03, 2F03; CHEM 2O06  
 1 course from STATS 2MA3, 2R06  
 3-6 units Electives, excluding Biochemistry and Biology. CHEM 2R03 is recommended

If not completed: COMP SCI 1ZA3 or 1MA3

**LEVEL III: 30 UNITS****(Beginning in 1994-95)**

18 units from Levels III, IV Biology  
 6 units from the Course List (see above)  
 6 units Electives, including at least three units which exclude Biochemistry and Biology

**LEVEL IV: 30 UNITS****(Beginning in 1995-96)**

1 course from BIOLOGY 4C09, 4F06  
 9-12 units from Levels III, IV Biology  
 6 units from the Course List (see above)  
 6 units Electives

## Honours Biology and Mathematics

### ADMISSION

**Enrolment in this programme is limited.** Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I with an average of at least 5.0 in MATH 1A06 (or 1AA6 or 1C06), BIOLOGY 1A06 and CHEM 1A06 with a grade of at least C+ in BIOLOGY 1A06.

### NOTE

Students should seek counselling for this programme in the Department of Mathematics and Statistics.

### REQUIREMENTS

*120 units total (Levels I to IV), of which no more than 48 units may be Level I courses*

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 30 UNITS

9 units BIOLOGY 2B03, 2C03, 2F03

9 units MATH 2E03, 2G03, 2O03

3 units from BIOLOGY 2D03, 2E03

9 units Electives

If not completed: MATH 1B03

#### LEVEL III: 30 UNITS

6 units MATH 2B06, 2J06

6 units MATH 3F03, 3N03

6 units STATS 2D03, 2MB3

12 units from Level III, IV Biology

#### LEVEL IV: 30 UNITS

##### (Beginning in 1994-95)

18 units from Level III, IV Biology, Mathematics, Statistics, MOL BIOL 4F03, 4H03, PHARMAC 4B03, PSYCH 4F03, 4I03

12 units Electives

## Honours Biology and Pharmacology (Co-op)

### ADMISSION

**Enrolment in this programme is limited.** Selection is based on academic and other achievement (see below) but requires, as a minimum, completion of Level II Honours Biology including CHEM 2R03 with a weighted average of at least 6.0 in 18 units of BIOLOGY 2B03, 2C03, 2D03, 2E03, 2F03, CHEM 2O06 and 2R03 (or 2Q06). COMP SCI 1ZA3 (or 1MA3) is required.

**The student enrolment in this programme will be limited to 25 per year.** Information about this programme and the selection procedure can be obtained from the Chair of the Committee of Instruction and will also be explained in the month of February in an Information Session. It is highly recommended that students interested in enrolling in the programme attend the Information Session. Students wishing to apply must submit a formal written application to the Office of the Dean of Science Studies in the first week of March. The selection will be based on interviews and/or tutorial sessions to be held the first weekend in March, as well as on academic performance. Successful candidates will be notified in writing.

### NOTES

1. This is a five-year co-op programme, three terms of which must be spent off-campus in work related to pharmacology, toxicology or pharmaceuticals. These three terms will include the summer term following the completion of Level III, the second term of Level IV and the first term of the fifth year. Level IV continues through the fourth and fifth year of the programme. A senior thesis will be completed during the summer of the fourth year. PHARMAC 3A06, 3B06, 4A03, 4AA3, 4C03, 4D03 and 4E03 will be based on a self-directed problem based learning approach. PHARMAC 4B03 may be taught in a lecture format in some years.
2. New students must be registered full-time and take a full academic workload.
3. Students are required to complete a Work Orientation Course prior to beginning the first work placements.

### COURSE LIST

BIOCHEM 3H03, 3N03; BIOLOGY 3B03, 3BB3, 3C03, 3E03, 3H03, 3HH3, 3I03, 3K03, 3N03, 3NN3, 3O03, 3Q03, 3R03, 3SS3, 3TT3, 3V03, 3Y03, 4D03, 4E03, 4I13, 4J03, 4M03, 4MM3, 4N03, 4P03, 4PP3, 4R03, 4S03, 4V03, 4X03, 4Y03; GEOG 2U03, 3J03, 3P03, 3U03, 3W03, 4P03; MOL BIOL 4F03, 4H03; PSYCH 4F03

### REQUIREMENTS

*129 units total (Levels I to IV), of which no more than 48 units may be Level I courses*

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 30 UNITS

15 units BIOLOGY 2B03, 2C03, 2D03, 2E03, 2F03

12 units CHEM 2O06, 2R03; STATS 2MA3

3 units Electives

If not completed: COMP SCI 1ZA3 or 1MA3

#### LEVEL III: 30 UNITS

21 units BIOLOGY 3P03, 3U03, 3UU3; PHARMAC 3A06, 3B06

6 units from BIOCHEM 3G03 and 3GG3 (or 3G06), or BIOCHEM 3A03 and 3AA3

3 units Electives. BIOCHEM 3H03, BIOLOGY 3O03 or CHEM 2N03 is recommended.

→ Work Orientation Course

#### LEVEL IV: 39 UNITS

9 units from PHARMAC 4F09, BIOLOGY 4L09 to be taken in the summer term

9 units BIOLOGY 4I03; PHARMAC 4A03, 4AA3

6 units from PHARMAC 4B03, 4C03, 4D03, 4E03

9 units from the Course List (see above), including at least three units from Biology

6 units Electives

## Honours Biology and Philosophy

### ADMISSION

**Enrolment in this programme is limited.** Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I with a weighted average of at least 5.0 in BIOLOGY 1A06, CHEM 1A06 and six other units from Natural Sciences with a grade of at least C+ in BIOLOGY 1A06 and a grade of at least B- in a course acceptable to the Department of Philosophy.

### NOTES

1. Students are advised to note carefully the prerequisites for all courses in this programme.
2. The Philosophy courses need not necessarily be taken in the sequence specified in the levels of the programme, although course prerequisites must be met.
3. Students should seek counselling in the Department of Philosophy.

### REQUIREMENTS

*120 units total (Levels I to IV), of which no more than 48 units may be Level I courses*

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 30 UNITS

12 units BIOLOGY 2B03, 2C03, 2E03, 2F03

1 course from CHEM 2D03, 2O06

9 units PHILOS 2A06, 2M03

3 units PHILOS 2B03, 2R03

0-3 units Electives

#### LEVEL III: 30 UNITS

12 units from BIOCHEM 3G06, 3G03, 3GG3, Level III Biology

9 units PHILOS 2C06, 3WW3

3 units from PHILOS 2D03, 2F03, 2G03

6 units Electives

#### LEVEL IV: 30 UNITS

12 units from Levels III, IV Biology, MOL BIOL 4F03, 4H03, PHARMAC 4B03



6 units	PHILOS 3O03, 4WW3
1 course	from PHILOS 3G03, 3N06
3 units	from PHILOS 3M03 or three units from Level IV Philosophy
3-6 units	Electives

## Honours Biology and Psychology

### ADMISSION

Enrolment in this programme is limited. Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I including one of PHYSICS 1A06, 1B06, 1C06, with a grade of at least C+ in each of BIOLOGY 1A06, CHEM 1A06 and PSYCH 1A06.

### NOTES

1. Students should seek counselling for this programme in the Department of Psychology.
2. In Level III or IV students must complete at least one laboratory course in Psychology (see Course List 4). Enrolment is limited for the Psychology laboratory courses and permission of the department must be obtained by March 1.
3. Students who hope to obtain scholarships should complete all 33 units of Levels II and III in the fall and winter terms.

### COURSE LIST 1

All Level III Biology courses and BIOLOGY 2D03, 2E03, 2F03; BIOCHEM 3A03, 3AA3, 3G03, 3GG3, 3G06

### COURSE LIST 2

All Level IV Biology courses; BIOCHEM 4D03, 4E03, 4M03; MOL BIOL 4F03, 4H03; PHARMAC 4B03

### COURSE LIST 3

All Level III and IV Psychology courses except PSYCH 3C06, 3D03, 3DD3

### COURSE LIST 4

PSYCH 3E03, 3L03, 3QQ3, 3S03, 3V03, 4G03, 4QQ3

### REQUIREMENTS

126 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 33 UNITS

12 units BIOLOGY 2B03, 2C03; CHEM 2O06  
 6 units from PSYCH 2E03, 2F03, 2H03, 2T03  
 6 units from STATS 2R06 or both PSYCH 2R03 and 2RR3  
 9 units Electives. CHEM 2R03 is recommended

#### LEVEL III: 33 UNITS

6 units BIOCHEM 3G06, or 3G03 and 3GG3  
 12 units from Course List 1 (see above)  
 12 units from PSYCH 2E03, 2F03, 2H03, 2T03, 3A03, 3E03, 3F03, 3FF3, 3G03, 3H03, 3K03, 3L03, 3N06, 3P03, 3Q03, 3QQ3, 3R03, 3S03, 3T03, 3U03, 3V03, 3W06, 3X03, 3Y03, 3Z03. (See Note 2)  
 3 units Electives

#### LEVEL IV: 30 UNITS

24 units from Course Lists 1, 2 and 3 (see above), including at least nine units from Course Lists 1 and 2, and at least nine units from Course List 3. One of BIOLOGY 4C09, 4F06 or PSYCH 4D06 is strongly recommended.

6 units Electives

If not completed: three units from Course List 4 (See Note 2)

## B.Sc. Three-Level Degree

A three-level programme with a Biology Orientation is available through the B.Sc. in Life Sciences programme which is listed under the heading Science in this section.

## Minor in Biology

6 units BIOLOGY 1A06  
 18 units from Level II, III, IV Biology courses, including at least

six units from Level III, IV Biology courses

## DEPARTMENT OF CHEMISTRY

### PROGRAMME NOTES

1. Students in all Chemistry programmes are required to complete three units of Computer Science before completion of Level II. Students are expected to have basic skills in the use of personal computers, word processing software and spreadsheet software. Those without these skills should enrol in COMP SCI 1ZA3. Students with these skills should select COMP SCI 1MA3. Students are strongly recommended to complete this Computer Science requirement in Level I.
2. Students are advised that joint Honours programmes are more challenging than single Honours programmes.

## Honours Biochemistry and Chemistry

(See Department of Biochemistry)

## Honours Chemistry

### (Complementary Studies Option)

#### ADMISSION

Completion of Natural Sciences I, including CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06) and 1B03, with a weighted average of at least 5.0 in CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06), and six other units of Level I Science. A grade of at least C+ must be achieved in CHEM 1A06.

One of PHYSICS 1A06, 1B06, 1C06 must be completed by the end of Level II; its election in Natural Sciences I is strongly recommended.

COMP SCI 1MA3 (or 1ZA3) must be completed by the end of Level II.

MATH 1A06 (or 1AA6) is strongly recommended over MATH 1C06.

#### NOTES

1. This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.
2. COMP SCI 2MF3 and PHYSICS 2A03 or 2B06 are recommended electives.
3. For those considering postgraduate studies in Chemistry, it should be noted that 18 units of Level IV Chemistry are required for consideration for admission at McMaster.
4. In some cases there are Level II (and III) prerequisites for Level III (and Level IV) courses. The prerequisites should be considered when choosing your Level II (III) programme.

#### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 30 UNITS

18 units CHEM 2A03, 2B06, 2C03, 2P06  
 3-6 units from MATH 2N03 or both MATH 2G03 and 2O03  
 6 units from World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section)

0-3 units Electives, excluding Chemistry

If not completed: COMP SCI 1MA3 (or 1ZA3) and one of PHYSICS 1A06, 1B06, 1C06

#### LEVEL III: 30 UNITS

15 units CHEM 3A03, 3B03, 3C03, 3D03, 3Q03  
 3 units from HUMAN 2C03, MATH 2E03  
 6 units from Business, Humanities, Social Sciences  
 6 units Electives, excluding Chemistry

#### LEVEL IV: 30 UNITS

##### (Beginning in 1994-95)

6 units from Science Inquiry  
 6 units CHEM 4T06  
 6 units from Level IV Chemistry

6 units Electives from Level III, IV excluding Chemistry  
6 units Electives

## Honours Chemistry (Specialist Option)

### ADMISSION

Completion of Natural Sciences I, including CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06) and 1B03, with a weighted average of at least 5.0 in CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06), and six other units of Level I Science. A grade of at least C+ must be achieved in CHEM 1A06.

One of PHYSICS 1A06, 1B06, 1C06 must be completed by the end of Level II; its election in Natural Sciences I is strongly recommended.

COMP SCI 1MA3 (or 1ZA3) must be completed by the end of Level II.

MATH 1A06 (or 1AA6) is strongly recommended over MATH 1C06.

### NOTES

1. This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.
2. For students interested in physical chemistry recommended electives throughout the programme include both MATH 2G03 and 2O03 (which may replace MATH 2N03), STATS 2MA3 and MATH 3C03, 3D03.

### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirement

#### LEVEL II: 30 UNITS

18 units CHEM 2A03, 2B06, 2C03, 2P06  
3-6 units from MATH 2N03 or both MATH 2G03 and 2O03  
1 course from PHYSICS 2A03, 2B06  
0-6 units Electives, excluding Chemistry  
If not completed: COMP SCI 1MA3 (or 1ZA3) and one of PHYSICS 1A06, 1B06, 1C06

#### LEVEL III: 30 UNITS

(Beginning in 1994-95)

21 units CHEM 3A03, 3B03, 3D03, 3E06, 3KK6  
6 units Electives, excluding Chemistry  
3 units Electives

#### LEVEL IV: 30 UNITS

(Beginning in 1995-96)

3 units CHEM 4L03  
6 units from CHEM 4G06, 4T06  
9 units from Level IV Chemistry  
6 units from Level III, IV Science, Engineering  
6 units Electives

## Honours Applied Chemistry

### ADMISSION

Completion of Natural Sciences I, including CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06) and 1B03, with a weighted average of at least 5.0 in CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06) and six other units of Level I Science. A grade of at least C+ must be achieved in each of CHEM 1A06 and MATH 1A06 (or 1AA6 or 1C06).

One of PHYSICS 1A06, 1B06, 1C06 must be completed by the end of Level II; its election in Natural Sciences I is strongly recommended.

COMP SCI 1MA3 (or 1ZA3) must be completed by the end of Level II.

MATH 1A06 (or 1AA6) is strongly recommended over MATH 1C06.

### NOTES

1. This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.
2. Recommended electives throughout the programme include ENGINEER 2O03; MATLS 2C04, 4D03, 4E03; METALL 3C03,

4C04, 4N03; CHEM ENG 3D03, 3P03, 3Q03, 4C03, 4K03, 4N04; BUSINESS 3W06, 3X03, 3Y03, 3Z03; PHYSICS 2A03.

### REQUIREMENTS

123-24 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 32 UNITS

12 units CHEM 2A03, 2B06, 2C03  
8 units CHEM ENG 2D04, 2F04  
3-6 units from MATH 2N03 or both MATH 2G03 and 2O03  
6-9 units Electives, excluding Chemistry  
If not completed: COMP SCI 1MA3 (or 1ZA3)

#### LEVEL III: 31 UNITS

19 units CHEM 3B03, 3D03, 3E06, 3I03; CHEM ENG 3M04  
1 course from CHEM 3C03, 3KK6  
6-9 units Electives, excluding Chemistry

#### LEVEL IV: 30-31 UNITS

3 units CHEM 3A03  
6 units from CHEM 4G06, 4T06  
3-4 units from CHEM 4L03, CHEM ENG 3K04  
6 units from Level IV Chemistry, Chemical Engineering  
3 units from Level III, IV Science, Engineering  
9 units Electives

## Honours Biological Chemistry

### ADMISSION

Completion of Natural Sciences I, including CHEM 1A06, BIOLOGY 1A06, MATH 1A06 (or 1AA6 or 1C06) and 1B03, with a weighted average of at least 5.0 in CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06) and BIOLOGY 1A06. A grade of at least C+ must be achieved in CHEM 1A06.

One of PHYSICS 1A06, 1B06, 1C06 must be completed by the end of Level II; its election in Natural Sciences I is strongly recommended.

COMP SCI 1MA3 (or 1ZA3) must be completed by the end of Level II. MATH 1A06 (or 1AA6) is strongly recommended over MATH 1C06.

### NOTES

1. This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.
2. COMP SCI 1MA3 (or 1ZA3) must be completed by the end of Level II.

### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 30 UNITS

3 units BIOLOGY 2B03  
18 units CHEM 2A03, 2B06, 2C03, 2P06  
3-6 units from MATH 2N03 or both MATH 2G03 and 2O03  
3-6 units Electives, excluding Chemistry. No more than three units from Biology may be taken.

If not completed: COMP SCI 1MA3 (or 1ZA3) and one of PHYSICS 1A06, 1B06, 1C06

#### LEVEL III: 30 UNITS

12 units BIOCHEM 3G03, 3GG3; BIOLOGY 2C03; CHEM 3A03  
3 units from CHEM 3B03, 3C03  
3 units from CHEM 3D03, 3F03  
1 course from CHEM 3E06, 3Q03  
6-9 units Electives. No more than three units from Biology may be taken.

#### LEVEL IV: 30 UNITS

9 units BIOCHEM 4I03; CHEM 4D03, 4DD3  
3 units from CHEM 3B03, 3C03.  
6 units from CHEM 4G06, 4T06  
3 units from Level IV Biochemistry

3 units from Level III, IV Biology  
6 units Electives. No more than three units from Biology may be taken.

## Honours Chemistry and Geology

### ADMISSION

Completion of Natural Sciences I, including CHEM 1A06, GEOLOGY 1C03, MATH 1A06 (or 1AA6 or 1C06), and MATH 1B03, with a weighted average of at least 5.0 in CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06), GEOLOGY 1C03 and three other units of Level I Science. A grade of at least C+ must be achieved in each of CHEM 1A06 and Geology 1C03.

The election of PHYSICS 1A06 is recommended.

MATH 1A06 (or 1AA6) is strongly recommended over MATH 1C06.

### NOTES

1. This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.
2. GEOLOGY 3E02 is normally taken at the end of Level II and is scheduled outside the regular term. GEOLOGY 2E01 is taken during the regular term of Level II.
3. Counselling for this programme is done by the Department of Chemistry.

### REQUIREMENTS

126 units total (Levels I to IV) of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 34 UNITS

15 units CHEM 2B06, 2C03, 2P06  
13 units GEOLOGY 2E01, 2B06, 2C03, 2D03  
3-6 units from MATH 2N03 or both MATH 2G03 and 2O03  
0-3 units Electives, excluding Chemistry and Geology

#### LEVEL III: 32 UNITS

12 units CHEM 2A03, 3B03, 3E06  
14 units GEOLOGY 3CC6, 3E02, 3G03, 3Q03  
3 units from GEOLOGY 2I03, 2J03  
3 units Electives

#### LEVEL IV: 30 UNITS

3 units CHEM 3A03  
6 units from Level III, IV Chemistry  
6 units from Level III, IV Geology  
6 units from Level III, IV Chemistry, Geology  
9 units Electives

## Honours Chemistry and Physics

### ADMISSION

Completion of Natural Sciences I, including CHEM 1A06, MATH 1A06 (or 1AA6) and 1B03, and PHYSICS 1A06. A grade of at least C+ must be achieved in each of CHEM 1A06, PHYSICS 1A06 (or 1B06 or 1C06), and MATH 1A06 (or 1AA6).

COMP SCI 1MA3 (or 1ZA3) must be completed by the end of Level II.

Students will be considered for admission if they have completed PHYSICS 1B06 (or 1C06) instead of 1A06. However, PHYSICS 1A06 is strongly recommended.

### NOTE

1. This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.
2. Counselling for this programme is done by the Department of Chemistry.
3. COMP SCI 1MA3 (or 1ZA3) must be completed by the end of Level II.

### REQUIREMENTS

127 to 131 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 33 UNITS

15 units CHEM 2B06, 2C03, 2P06  
6 units MATH 2G03, 2O03  
9 units PHYSICS 2B06, 2D03  
3 units Electives

If not completed: COMP SCI 1MA3 (or 1ZA3)

#### LEVEL III: 33-34 UNITS

6 units CHEM 2A03, 3Q03  
1 course from CHEM 3C03, 3KK6  
6 units MATH 3C03, 3D03  
6 units PHYSICS 3M03, 3MM3  
6-10 units from PHYSICS 3B06, 3K04, 3N03  
0-7 units Electives. (Courses which are prerequisites for desired Level IV courses should be considered.)

#### LEVEL IV: 31-34 UNITS

9 units CHEM 4B03, 4L03; PHYSICS 4F03  
16-19 units from Level III, Level IV Chemistry, Physics, which must include: CHEM 4G06 or PHYSICS 4J04 or PHYSICS 4Q04; if not completed: CHEM 4Y03 or PHYSICS 3K04  
6 units Electives

## B.Sc. Three-Level Degree

A three-level programme with a Chemistry orientation is available through the B.Sc. in Physical Science which is listed under the heading Science in this section.

## DEPARTMENT OF COMPUTER SCIENCE AND SYSTEMS

### DEPARTMENT NOTES

1. Students in Level III and IV of Honours Computer Science in 1993-94 may substitute the following courses for the Level IV requirements stated in the 1991-92 and the 1992-93 Calendar:

6 units COMP SCI 4ZP6  
9 units from Level IV Computer Science.  
9 units from Level III, IV Area courses, including COMP SCI 3EA3 if not already completed  
6 units Electives

2. Students in Level IV of the Computer Science Major programme in 1993-94 may substitute the following for the Level IV requirements stated in the 1991-92 and the 1992-93 Calendar:

6 units COMP SCI 4ZP6  
9 units from Level IV Computer Science  
6 units from Level III, IV Area courses, including COMP SCI 3EA3 if not already completed  
9 units Electives

## Honours Economics and Computer Science

(B.A.; See Faculty of Social Sciences, Department of Economics)

## Honours Arts & Science and Computer Science

(B.Arts Sc.; See Arts & Science programme)

## Honours Computer Science (Complementary Studies Option)

### ADMISSION

Completion of any Level I programme, with a weighted average of at least 5.0 in COMP SCI 1MA3, 1MB3, MATH 1B03, 1A06 (or 1AA6 or 1C06) and one other course.

MATH 1A06 (or 1AA6) is recommended.

### NOTES

1. Students may choose their electives to complete a Minor or some other coherent set of courses, such as:
  - Numerical Analysis: MATH 3Q03, 4Q03, 4QQ3 and 4RR3
  - Hardware: PHYSICS 2B06, 3B06, 4D06
2. COMP SCI 3EA3 is listed as required in Level IV but may be taken in Level III.

3. In some cases there are Level II (and III) prerequisites for Level III (and IV) courses. The prerequisites should be considered when choosing your Level II (III) programme.

#### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from any Level I programme, including COMP SCI 1MA3, 1MB3, MATH 1B03 and 1A06 (or 1AA6 or 1C06)

#### LEVEL II: 30 UNITS

12 units COMP SCI 2MC3, 2MD3, 2MF3, 2MJ3  
 6 units from MATH 2B06, 2J06  
 6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 6 units Electives, excluding Computer Science

#### LEVEL III: 30 UNITS

6 units COMP SCI 3MG3, 3MH3  
 6 units from COMP SCI 3CA3, 3GA3, 3IA3, 3TA3  
 3 units from COMP SCI 2ME3, MATH 2G03, 3B03  
 3 units from HUMAN 2C03, MATH 2E03  
 6 units from Business, Humanities, Social Sciences  
 6 units Electives, excluding Computer Science

#### LEVEL IV: 30 UNITS

(Beginning in 1994-95)  
 6 units COMP SCI 4ZP6  
 6 units COMP SCI 3EA3, 3MI3  
 6 units from Level IV Computer Science  
 6 units Electives from Level III, IV, excluding Computer Science  
 6 units Electives

### Honours Computer Science (Specialist Option)

#### ADMISSION

Completion of any Level I programme, with a weighted average of at least 5.0 in COMP SCI 1MA3, 1MB3, MATH 1B03, 1A06 (or 1AA6 or 1C06) and one other course.

MATH 1A06 (or 1AA6) is recommended.

#### NOTES

- Students entering from another Faculty must complete the requirements of the Natural Sciences I programme before entry to Level IV.
- Students may choose their electives to complete a Minor or some other coherent set of courses, such as:
  - Numerical Analysis: MATH 3Q03, 4Q03, 4QQ3 and 4RR3
  - Hardware: PHYSICS 2B06, 3B06, 4D06
- COMP SCI 3EA3 is listed as required in Level III but may be taken in Level IV.
- Level III courses should be selected carefully so that prerequisites for the Level IV courses in the desired area of specialization are satisfied.
- Students are encouraged to specialize in Level IV by choosing one of the following sets of courses:
  - Computer Systems: three of COMP SCI 4CB3, 4CC3, 4CD3, 4TB3
  - Software Engineering: three of COMP SCI 4EB3, 4EC3, 4ED3, 4TB3
  - Artificial Intelligence: three of COMP SCI 4IB3, 4IC3, 4ID3, 4EB3; MATH 4C03, 4J03
  - Theory of Computation: three of COMP SCI 4TB3, 4TC3, 4TD3, 4GB3; MATH 4C03, 4J03

#### COURSE LIST

All Level III and IV Computer Science, Mathematics and Statistics courses and PHYSICS 3B06, 4D06

#### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 30 UNITS

12 units COMP SCI 2MC3, 2MD3, 2MF3, 2MJ3  
 1 course from MATH 2A06, 2G03  
 6 units from MATH 2B06, 2J06  
 6-9 units Electives

#### LEVEL III: 30 UNITS

(Beginning in 1994-95)

12 units COMP SCI 3EA3, 3MG3, 3MH3, 3MI3  
 3 units from COMP SCI 3CA3, 3IA3, 3TA3  
 6 units from Level III, IV Mathematics, Statistics  
 6 units Electives, excluding Computer Science, Mathematics, Statistics  
 3 units Electives

#### LEVEL IV: 30 UNITS

(Beginning in 1995-96)

6 units COMP SCI 4ZP6  
 18 units from the Course List (see above) which must include at least nine units of Level IV Computer Science (See *Note 5* above)  
 6 units Electives

### Honours Computer Science and Mathematics

#### ADMISSION

Completion of any Level I programme, with a weighted average of at least 5.0 in COMP SCI 1MA3, 1MB3, MATH 1A06 (or 1AA6 or 1C06), 1B03 and one other course.

MATH 1A06 (or 1AA6) is recommended.

#### COURSE LIST

All Level III and IV Computer Science, Mathematics and Statistics courses; MATH 2E03; PHYSICS 2C03, 2D03; STATS 2D03, 2MA3, 2MB3

#### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from any Level I programme including COMP SCI 1MA3, 1MB3, MATH 1B03 and 1A06 (or 1AA6 or 1C06)

#### LEVEL II: 30 UNITS

9 units COMP SCI 2MC3, 2MD3, 2MF3  
 12 units MATH 2A06, 2B06  
 3 units from MATH 2C03, 2O03  
 6 units Electives

#### LEVEL III: 30 UNITS

12 units COMP SCI 2ME3, 3MG3, 3MH3, 3MI3  
 3 units from COMP SCI 3CA3, 3EA3, 3GA3, 3IA3, 3TA3  
 3 units from Level III, IV Mathematics, Statistics  
 6 units MATH 3A06  
 6 units Electives

#### LEVEL IV: 30 UNITS

6 units COMP SCI 4MP6  
 1 course from MATH 4A06, 4C03, 4J03, 4Q03, 4S03  
 6 units from Level III, IV Mathematics, Statistics  
 3 units from the Course List (see above)  
 6 units Electives, excluding Computer Science, Mathematics, Statistics  
 3-6 units Electives

### Honours Computer Science and Psychology

#### ADMISSION

Enrolment in this programme is limited. Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I, including MATH 1B03 with a grade of at least C+ in each of COMP SCI 1MA3, 1MB3, MATH 1A06 (or 1AA6, or 1C06) and PSYCH 1A06.

MATH 1A06 or 1AA6 is recommended.

**NOTE**

In Level III or IV students must complete at least one laboratory course in Psychology (see the Course List). Enrolment is limited in the laboratory courses, and permission of the department must be obtained by March 1.

**COURSE LIST**

PSYCH 3C06, 3E03, 3L03, 3QQ3, 3S03, 3V03, 4G03, 4QQ3

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

9 units COMP SCI 2MC3, 2MD3, 2MF3  
 9 units from PSYCH 2E03, 2F03, 2H03, 2T03  
 3-6 units from either one of STATS 2MA3, 2MB3, 2R06, or both PSYCH 2R03 and 2RR3  
 6 units MATH 2B06, 2J06  
 0-3 units Electives

**LEVEL III: 30 UNITS**

9 units COMP SCI 3MG3, 3MH3, 3MI3  
 3 units from COMP SCI 3CA3, 3EA3, 3IA3, 3TA3  
 3 units from COMP SCI 2ME3, 2MJ3, Level III, IV Computer Science  
 12 units from Level III Psychology, including at least three units from the Course List (see above)  
 3 units Electives

**LEVEL IV: 30 UNITS**

6 units from COMP SCI 4MP6 or PSYCH 4D06 (the project or thesis must be approved by the Chairs of both departments)  
 12 units from Level III, IV Computer Science  
 9 units from Level III, IV Psychology  
 3 units Electives

**Honours Computer Science and Statistics****ADMISSION**

Completion of any Level I programme, with a weighted average of at least 5.0 in COMP SCI 1MA3, 1MB3, MATH 1A06 (or 1AA6 or 1C06), 1B03 and one other course.

MATH 1A06 or 1AA6 is recommended.

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from any Level I programme, including COMP SCI 1MA3, 1MB3, MATH 1B03 and 1A06 (or 1AA6 or 1C06)

**LEVEL II: 30 UNITS**

9 units COMP SCI 2MC3, 2MD3, 2MF3  
 15 units MATH 2A06, 2B06; STATS 2D03  
 6 units Electives

**LEVEL III: 30 UNITS**

12 units COMP SCI 2ME3, 3MG3, 3MH3, 3MI3  
 3 units from MATH 2C03, 2O03  
 9 units STATS 2MB3, 3D06  
 6 units Electives, including at least three units which exclude Computer Science, Mathematics, Statistics

**LEVEL IV: 30 UNITS**

6 units COMP SCI 4MP6  
 3 units from COMP SCI 3CA3, 3EA3, 3GA3, 3IA3, 3TA3  
 3 units MATH 3T03  
 6 units from Level III, IV Mathematics  
 6 units from Level III, IV Statistics  
 3 units from Level III, IV Computer Science, Mathematics, Statistics  
 3 units Electives, excluding Computer Science, Mathematics, Statistics

**B.SC. THREE-LEVEL DEGREE**

A three-level programme with a Computer Science orientation is available through the B.Sc. in Mathematical Science which is listed under the heading Science in this section.

**MINOR IN COMPUTER SCIENCE**

9 units COMP SCI 1MA3, 1MB3, 2MC3  
 15 units from Level III, III, IV Computer Science, including at least six units from Level III, IV Computer Science

**DEPARTMENT OF GEOGRAPHY****Honours Geography (B.A.) and****B.A. in Geography and****Honours Geography and Geology (B.A.)**

(See B.A. programmes in Geography, Faculty of Social Sciences, Department of Geography)

**Honours Economics and Geography (B.A.)**

(B.A.; See Faculty of Social Sciences, Department of Economics)

**Honours Arts & Science and Geography**

(B.Arts Sc.; See Arts & Science programme)

**Honours Geography (B.Sc.)****ADMISSION**

Completion of Natural Sciences I, with a weighted average of at least 5.0 in GEOG 1C03 and 1G03, and 12 units from BIOLOGY 1A06, CHEM 1A06, ENVIR SC 1A06, GEOLOGY 1C03, MATH 1A06, 1AA6, 1C06, PHYSICS 1A06, 1B06, 1C06.

**COURSE LIST**

GEOG 3C03, 3E03, 3F03, 3G03, 3I03, 3J03, 3K03, 3L03, 3M03, 3N03, 3NN3, 3O03, 3P03, 3U03, 3UU3, 3W03, 4A03, 4CC3, 4C06, 4D03, 4E03, 4H03, 4K03, 4KK3, 4NN3, 4P03, 4Q03, 4R03, 4S03, 4T03, 4W03

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

15 units GEOG 2F03, 2K03, 2LL3, 2T03, 2W03  
 3 units from GEOG 2N03, 2NN3  
 12 units Electives

**LEVELS III: 30 UNITS**

6 units GEOG 3E03, 3O03  
 12 units from the Course List (see above)  
 6 units Electives, excluding Geography  
 6 units Electives

**LEVEL IV: 30 UNITS**

1 course from GEOG 4C06, 4CC3  
 12-15 units from the Course List (see above), including at least nine units from Level IV courses  
 6 units Electives, excluding Geography  
 6 units Electives

**Honours Geography and Environmental Science (B.Sc.)****ADMISSION**

Completion of Natural Sciences I, including CHEM 1A06, with a weighted average of at least 5.0 in BIOLOGY 1A06, ENVIR SC 1A06, GEOG 1C03 or 1G03, and one other course.

Students must complete GEOG 1C03 and 1G03 by the end of Level II.

**COURSE LIST 1**

GEOG 3F03, 3G03, 3K03, 3M03, 3N03, 3NN3, 3P03, 3W03, 4A03, 4D03, 4E03, 4K03, 4KK3, 4NN3, 4P03, 4Q03, 4R03, 4S03, 4T03,

4W03; GEOLOGY 4S03, 4U03

#### COURSE LIST 2

BIOLOGY 3A06, 3SS3, 3TT3, 4D03, 4Y03

#### COURSE LIST 3

BIOLOGY 2D03, 2E03, 2F03, GEOLOGY 2C03

#### REQUIREMENTS

120 units total (Level I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II

30 units from Level II Honours Geography and Environmental Science (B.Sc.)

#### LEVEL III: 30 UNITS

18 units GEOG 3C03, 3E03, 3J03, 3O03, 3U03, 3UU3

3 units from Course Lists 1 and 2 (see above)

3 units from Course Lists 2 and 3 (see above)

6 units Electives

#### LEVEL IV: 30 UNITS

6 units GEOG 4V6

9 units from Course Lists 1 and 2 (see above)

9 units from Course Lists 2 and 3 (see above)

6 units Electives

## Honours Geography and Environmental Science Co-op (B.Sc.)

#### ADMISSION

Enrolment in this programme is limited. Selection is based on academic and other achievement (see below) but requires, as a minimum, completion of Level II Honours Geography and Environmental Science with a CA of at least 6.0.

In 1994-95, enrolment in this programme will be limited to 10 students per year. Information about the programme and the selection procedure may be obtained from the Chair of the Committee of Instruction and will be explained in the month of February in an Information Session.

#### NOTES

1. This is a five-year co-op programme which includes three four-month work terms which must be spent off-campus in placements related to Environmental Science. A senior thesis will be completed as part of Level IV.
2. Students must be registered full-time and take a full academic programme.
3. Students are required to complete a Work Orientation Course prior to beginning the first work placement.

#### COURSE LIST 1

GEOG 3F03, 3G03, 3K03, 3M03, 3N03, 3NN3, 3P03, 3W03, 4A03, 4D03, 4E03, 4K03, 4KK3, 4NN3, 4P03, 4Q03, 4R03, 4S03, 4T03, 4VV6, 4W03; GEOLOGY 4S03, 4U03

#### COURSE LIST 2

BIOLOGY 3B03, 3BB3, 3SS3, 3TT3, 4D03, 4Y03

#### COURSE LIST 3

BIOLOGY 2D03, 2E03, 2F03, GEOLOGY 2C03

#### REQUIREMENTS

129 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II

30 units from Level II Honours Geography and Environmental Science (B.Sc.)

#### LEVEL III: 30 UNITS

(Beginning in 1994-95)

18 units GEOG 3C03, 3E03, 3J03, 3O03, 3U03, 3UU3

3 units from Course Lists 1 and 2 (see above)

3 units from Course Lists 2 and 3 (see above)

6 units Electives

→ Work Orientation Course

#### LEVEL IV: 39 UNITS

(Beginning in 1995-96)

12 units GEOG 4CC3, 4B09

12 units from Course Lists 1 and 2 (see above)

9 units from Course Lists 2 and 3 (see above)

6 units Electives

## Honours Geography and Geology (B.Sc.)

#### ADMISSION

Completion of Natural Sciences I, with a weighted average of at least 5.0 in GEOG 1C03, 1G03, GEOLOGY 1C03 and 9 to 12 units from CHEM 1A06, MATH 1B03, 1A06 (or 1AA6 or 1C06), PHYSICS 1A06 (or 1B06 or 1C06). CHEM 1A06 must be completed by the end of Level II.

ENVIR SC 1A06 is strongly recommended.

#### NOTE

GEOLOGY 3E02 is normally taken at the end of Level II. This course is scheduled outside of the regular term.

#### COURSE LIST 1

GEOG 4A03, 4C06 or 4CC3, 4D03, 4E03, 4K03, 4KK3, 4NN3, 4P03, 4Q03, 4R03, 4W03

#### COURSE LIST 2

All Level IV Geology courses

#### COURSE LIST 3

GEOG 3C03, 3F03, 3I03, 3K03, 3L03, 3NN3, 3N03, 3P03, 3U03, 3UU3, 3V03, 3W03

#### COURSE LIST 4

All Level III Geology courses

#### REQUIREMENTS

123 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 31 UNITS

6 units GEOG 2LL3, 2T03

3 units from GEOG 2N03, 2NN3

3 units from GEOG 2F03, 2K03, 2W03

13 units GEOLOGY 2B06, 2C03, 2D03, 2E01

3-6 units from Science, Engineering

0-3 units Electives, excluding Geography, Geology

If not completed: CHEM 1A06

#### LEVEL III: 32 UNITS

9 units GEOG 3E03, 3M03, 3O03

3 units from GEOG 3F03, 3K03, 3N03, 3NN3, 3P03, 3U03, 3UU3, 3W03

8 units GEOLOGY 3CC6, 3E02

3 units from GEOLOGY 2I03, 2J03, 3DD3, 3F03

9 units Electives, including at least three units which exclude Geography, Geology

#### LEVEL IV: 30 UNITS

3 units GEOLOGY 3S03

6 units from Course List 1 (see above)

6 units from Course List 2 (see above)

6 units from Course Lists 1, 2, 3 and 4 (see above)

9 units Electives

## B.Sc. Three-Level Degree

A three-level programme with a Geography orientation is available through the B.Sc. in Earth Science which is listed under the heading Science in this section.

## Minor in Geography

6 units from Level I Geography

18 units from Level II, III, IV Geography courses, including at least six units of Level III, IV courses

No more than six units may come from GEOG 2C03, 2E03, 2P03,

3JJ3 and 3R03.

**DEPARTMENT OF GEOLOGY****Honours Chemistry and Geology**

(See Department of Chemistry)

**Honours Geography and Geology (B.Sc.)**

(See Department of Geography)

**Honours Geography and Geology (B.A.)**

(See Faculty of Social Sciences, Department of Geography)

**Honours Geology****(Complementary Studies Option)****ADMISSION**

Completion of Natural Sciences I, including one of GEOLOGY 1C03 and/or ENVIR SC 1A06, and CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06) and one of PHYSICS 1A06, 1B06, 1C06 with a weighted average of at least 5.0 in 18 units, including GEOLOGY 1C03, or ENVIR SC 1A06 if GEOLOGY 1C03 was not completed, and 12 to 15 units of Science and Mathematics.

A grade of at least C must be achieved in GEOLOGY 1C03 or ENVIR SC 1A06.

**NOTES**

- GEOLOGY 3E02 is normally taken at the end of Level II, and is scheduled outside of the regular term.
- In some cases there are Level II (and III) prerequisites for Level III and (Level IV) courses. These should be considered when choosing your Level II (III) programme.

**REQUIREMENTS**

123 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 31 UNITS**

13 units GEOLOGY 2B06, 2C03, 2D03, 2E01  
 3 units from GEOLOGY 2I03, 2J03  
 6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 3 units from HUMAN 2C03, MATH 2E03  
 6 units Electives, excluding Geology

**LEVEL III: 32 UNITS**

2 units GEOLOGY 3E02  
 12 units from Level III, IV Geology  
 6 units from Business, Humanities, Social Sciences  
 6 units Electives, excluding Geology  
 6 units Electives

**LEVEL IV: 30 UNITS****(Beginning in 1994-95)**

6 units from Science Inquiry  
 15 units from Level III, IV Geology  
 6 units from Level III, IV courses, excluding Geology  
 3 units Electives

**Honours Geology (Specialist Option)****ADMISSION**

Completion of Natural Sciences I, including one of GEOLOGY 1C03 and/or ENVIR SC 1A06, and CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06) and one of PHYSICS 1A06, 1B06, 1C06 with a weighted average of at least 5.0 in 18 units, including GEOLOGY 1C03, or ENVIR SC 1A06 if GEOLOGY 1C03 was not completed, and 12 to 15 units of Science and Mathematics.

A grade of at least C must be achieved in GEOLOGY 1C03 or ENVIR SC 1A06.

**NOTE**

GEOLOGY 3E02 is normally taken at the end of Level II and is

scheduled outside of the regular term.

**REQUIREMENTS**

123 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 31 UNITS**

6 units CHEM 2P06  
 13 units GEOLOGY 2B06, 2C03, 2D03, 2E01  
 9 units GEOLOGY 2H03, 2I03, 2J03  
 3 units Electives, excluding Geology

**LEVEL III: 32 UNITS****(Beginning in 1994-95)**

14 units GEOLOGY 3CC6, 3E02, 3F03, 3G03  
 9 units GEOLOGY 3J03, 3Q03, 3S03  
 9 units Electives, including at least three units which exclude Geology

**LEVEL IV: 30 UNITS****(Beginning in 1995-96)**

3 units GEOLOGY 4T03  
 12 units from Level IV Geology  
 15 units Electives

**Honours Geology and Physics****ADMISSION**

Completion of Natural Sciences I, including one of GEOLOGY 1C03 and/or ENVIR SC 1A06, PHYSICS 1A06, CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06), 1B03. A weighted average of at least 5.0 must be obtained in 18 to 21 units consisting of GEOLOGY 1C03, or ENVIR SC 1A06 if GEOLOGY 1C03 was not completed, PHYSICS 1A06, MATH 1A06 (or 1AA6 or 1C06), MATH 1B03. A grade of at least C+ must be achieved in PHYSICS 1A06 or MATH 1A06 (or 1AA6 or 1C06) and either GEOLOGY 1C03 or ENVIR SC 1A06.

Students will also be considered for admission if they have completed PHYSICS 1B06 (or 1C06) instead of PHYSICS 1A06. However, PHYSICS 1A06 is strongly recommended.

The election of COMP SCI 1MA3 is strongly recommended. MATH 1A06 (or 1AA6) is preferred.

**NOTES**

- GEOLOGY 3E02 is normally taken at the end of Level II and is scheduled outside of the regular term.
- PHYSICS 3G03 and 3S03 are listed as requirements in Level III. One of these courses may be taken in Level IV.

**REQUIREMENTS**

124 units total (Levels I to IV), of which no more than 48 units may not be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 31 UNITS**

16 units GEOLOGY 2B06, 2C03, 2D03, 2E01, 2I03  
 6 units MATH 2G03, 2O03  
 9 units PHYSICS 2B06, 2D03

**LEVEL III: 32 UNITS**

8 units GEOLOGY 3CC6, 3E02  
 6 units MATH 3C03, 3D03  
 1 course from PHYSICS 2H03, CHEM 2P06  
 12 units PHYSICS 3G03, 3M03, 3MM3, 3S03  
 0-3 units Electives. GEOLOGY 3A03 or 3B03 is strongly recommended.

**LEVEL IV: 31 UNITS**

13 units GEOLOGY 4J03, 4T03, PHYSICS 4B04, 4K03  
 3 units from GEOLOGY 3F03, 3S03  
 6 units from Level III, IV Geology, Physics  
 9 units Electives. GEOLOGY 3A03 or 3B03 is strongly recommended



## B.Sc. Three-Level Degree

A three-level programme with a Geology orientation is available through the B.Sc. in Earth Science which is listed under the heading Science in this section.

### Minor in Geology

ENVIR SC 1A06 or GEOLOGY 1C03 and Level II, III and IV Geology courses to make a total of 24 units with at least six units from Level III and IV Geology courses.

An emphasis on environmental geology can be obtained by selection of GEOLOGY 2K03, 4QQ3, 4J03 and 4W03.

## MATERIALS SCIENCE AND ENGINEERING

### Honours Materials Science (Complementary Studies Option)

#### ADMISSION

Completion of Natural Sciences I, including MATH 1B03, with an average of at least 5.0 in CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06) and PHYSICS 1A06 (or 1B06 or 1C06).

COMP SCI 1MA3 must be completed by the end of Level II. PHYSICS 1A06 and MATH 1A06 (or 1AA6) are recommended.

#### NOTE

Attention is drawn to MATLS 4A01, which requires a report based on employment in the summer between Levels III and IV. If suitable employment is not available, a report based on library research may be substituted with the approval of the Chair of the Department.

#### REQUIREMENTS

119-120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 31 UNITS

9 units CHEM 2P06; MATH 2N03  
 2 units MATLS 2A02 (if MATLS 1B03 not completed).  
 8 units MATLS 2C04, 2H02, 2X02  
 6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 6 units Electives

If not completed: COMP SCI 1MA3

#### LEVEL III: 29 UNITS

##### (Beginning in 1994-95)

14 units Materials 3D06, 3E06, 3F02  
 3 units from Ceramics 3G03, MATLS 3G03, METALL 3G03  
 3 units from HUMAN 2C03, MATH 2E03  
 6 units from Business, Humanities, Social Sciences  
 3 units Electives, excluding Ceramics, Materials, Metallurgy

#### LEVEL IV: 29-30 UNITS

##### (Beginning in 1995-96)

8 units MATLS 4A01, 4E03, 4L04  
 3-4 units from Level III, IV Ceramics, Materials, Metallurgy  
 6 units from Science Inquiry  
 6 units from Level III, IV courses, excluding Ceramics, Materials and Metallurgy  
 6 units Electives

### Honours Materials Science (Specialist Option)

#### ADMISSION

Completion of Natural Sciences I, including MATH 1B03, with an average of at least 5.0 in CHEM 1A06, MATH 1A06 (or 1AA6 or 1C06) and PHYSICS 1A06 (or 1B06 or 1C06).

COMP SCI 1MA3 must be completed by the end of Level II. PHYSICS 1A06 and MATH 1A06 (or 1AA6) are recommended.

#### NOTE

Attention is drawn to MATLS 4A01, which requires a report based on employment in the summer between Levels III and IV. If suitable employment is not available, a report based on library research may be substituted, with the approval of the Chair of the Department.

#### COURSE LIST

All Level III and IV Ceramics, Materials and Metallurgy courses; ENGINEER 3Q03, and 4J03; CHEM ENG 3Q03; ENG PHYS 3E03, 4F03, 4Z03; MECH ENG 3O04; PHYSICS 4K03; STATS 2MA3, 3N03

#### REQUIREMENTS

124-125 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from the Natural Sciences I requirements

#### LEVEL II: 32 UNITS

12 units CHEM 2P06; MATH 2G03, 2O03  
 4 units from ENGINEER 2P04, 2R04  
 2 units MATLS 2A02 (if MATLS 1B03 not completed)  
 14 units MATLS 2C04, 2H02, 2X02; PHYSICS 2B06  
 If not completed: COMP SCI 1MA3

#### LEVEL III: 32 UNITS

##### (Beginning in 1994-95)

3-6 units from CHEM 3B03 or both PHYSICS 3M03 and 3MM3  
 14 units MATLS 3D06, 3E06, 3F02  
 3 units from Ceramics 3G03, MATLS 3G03, METALL 3G03  
 6 units MATH 3C03, 3D03  
 3-6 units Electives

#### LEVEL IV: 30-31 UNITS

##### (Beginning in 1995-96)

12 units MATLS 4A01, 4E03, 4K04, 4L04  
 12-13 units from the Course List (see above)  
 6 units Electives, excluding Ceramics, Chemistry, Computer Science, Engineering, Engineering Physics, Materials, Mathematics, Metallurgy, Physics, Statistics

### Minor in Materials Science

16 units MATLS 2A02, 2X02, 3D03, 3E06, 4E03  
 3-9 units from MATH 2N03 (or 2G03 and 2O03, or 2A06 and 2C03)  
 1 course from CHEM 2P06, PHYSICS 2H03  
 3 units from Ceramics, Materials, Metallurgy courses

## DEPARTMENT OF MATHEMATICS AND STATISTICS

### Honours Biology and Mathematics

(See Department of Biology)

### Honours Computer Science and Mathematics

(See Department of Computer Science and Systems)

### Honours Computer Science and Statistics

(See Department of Computer Science and Systems)

### Honours Economics and Mathematics

(B.A.; See Faculty of Social Sciences, Department of Economics)

### Honours Philosophy and Mathematics

(B.A.; See Faculty of Humanities, Department of Philosophy)

### Honours Arts & Science and Mathematics

(B.Arts Sc.; See Arts & Science programme)

### Honours Arts & Science and Statistics

(B.Arts Sc.; See Arts & Science programme)

## Honours Mathematics (Complementary Studies Option)

### ADMISSION

Completion of any Level I programme, with a weighted average of at least 5.0 in MATH 1A06 (or 1AA6 or 1C06) and 1B03, and nine to 12 other Level I units.

MATH 1A06 (or 1AA6) is strongly recommended.

### NOTES

1. Students contemplating graduate studies in Mathematics should consider Honours Mathematics (Specialist Option).
2. In some cases there are Level II (and III) prerequisites for Level III (and IV) courses. These should be considered when choosing your Level II (and III) programme.

### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses.

#### LEVEL I

30 units from any Level I programme including MATH 1B03 and MATH 1A06 (or 1AA6 or 1C06)

#### LEVEL II: 30 UNITS

15 units MATH 2G03, 2J06, 2O03, STATS 2D03  
6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
3 units from HUMAN 2C03, MATH 2D03, 2E03  
6 units Electives, excluding Mathematics, Statistics

#### LEVEL III: 30 UNITS

9 units from MATH 3B03, 3E03, 3F03, 3H03, 3O06, 3T03  
6 units from Level III, IV Mathematics, Statistics  
6 units from Business, Humanities, Social Sciences  
6 units Electives, excluding Mathematics, Statistics  
3 units Electives

#### LEVEL IV: 30 UNITS

(Beginning in 1994-95)  
6 units from Science Inquiry  
6 units from MATH 3B03, 3E03, 3F03, 3H03, 3O06, 3T03  
9 units from Level III, IV Mathematics, Statistics  
6 units from Level III, IV courses, excluding Mathematics, Statistics  
3 units Electives

## Honours Mathematics (Specialist Option)

### ADMISSION

Completion of any Level I programme, with a weighted average of at least 5.0 in MATH 1A06 (or 1AA6 or 1C06) and 1B03, and nine to 12 other Level I units.

MATH 1A06 (or 1AA6) is strongly recommended.

### NOTES

1. The Department of Mathematics and Statistics requires that all Honours (Specialist Option) students entering Level III or IV have their programmes approved by the Chair or designate.
2. By electing STATS 2D03 and STATS 2MB3 in Level II of this programme, a student can also complete Level II Honours Statistics (Specialist Option) or Level II Honours Mathematics and Statistics (Specialist Option).

### COURSE LIST 1

MATH 2D03, 2E03, STATS 2D03, 2MA3, 2MB3

### COURSE LIST 2

All Level III and IV Mathematics and Statistics courses

### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from any Level I programme, including MATH 1B03 and MATH 1A06 (or 1AA6 or 1C06)

#### LEVEL II: 30 UNITS

15 units MATH 2A06, 2B06, 2C03

6 units from Course List 1 (see above)  
9 units Electives

#### LEVEL III: 30 UNITS

(Beginning in 1994-95)

15 units MATH 3A06, 3B03, 3E03, 3EE3  
6 units from Course Lists 1 and 2 (see above)  
9 units Electives

#### LEVEL IV: 30 UNITS

(Beginning in 1995-96)

6 units MATH 4A06  
15 units from Course List 2 (see above)  
9 units Electives

## Honours Mathematics (Applied Option)

*The offering of this programme is contingent upon approval by the Ministry of Colleges and Universities.*

### ADMISSION

Completion of any Level I programme, with a weighted average of at least 5.0 in MATH 1A06 (or 1AA6 or 1C06) and 1B03, and nine to 12 other Level I units.

MATH 1A06 or 1AA6 is strongly recommended.

### NOTE

Students will acquire a strong mathematical background and a solid background in at least one area of engineering and applied science by selecting courses from the course list.

### COURSE LIST

CHEM 2P06, 3C03; CHEM ENG 3O04; CIV ENG 2C04, 2F03, 3B03, 3Q03; COMP SCI 2SB3, 4GB3; ELEC ENG 3CA3, 4CB3; ENGINEER 2P04, 2Q04, 2V04, 3P03; ENG PHYS 3O03; GEOLOGY 4J03; MATLS 3P03; MECH ENG 3O04, 4S03; PHYSICS 2B06, 3C03, 3K04, 3M03, 3MM3, 4B04

### REQUIREMENTS

120-126 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I

30 units from any Level I programme, including MATH 1B03 and MATH 1A06 (or 1AA6 or 1C06)

#### LEVEL II: 30-32 UNITS

21 units MATH 2A06, 2B06, 2C03, 2E03, STATS 2D03  
9-11 units Electives. (Courses which are prerequisites for desired Level III and IV courses should be considered)

#### LEVEL III: 30-32 UNITS

(Beginning in 1994-95)

18 units MATH 3A06, 3E03, 3F03, 3FF3, 3Q03  
12-14 units from the Course List (see above)

#### LEVEL IV: 30-32 UNITS

(Beginning in 1995-96)

18 units MATH 4A06, 4QQ3, 4Q03, 4V03; STATS 3U03  
12-14 units from the Course List (see above)

## Honours Mathematics and Physics

### ADMISSION

Completion of Natural Sciences I, including MATH 1A06 (or 1AA6 or 1C06) and 1B03, PHYSICS 1A06 and CHEM 1A06, with a weighted average of at least 5.0 in the Physics and Mathematics courses and one other Level I course.

It is recommended that COMP SCI 1MA3 be taken in Level I.

MATH 1A06 (or 1AA6) is strongly recommended.

### NOTES

1. Students who complete Level II of Honours Mathematics and Physics are eligible to proceed to any Level III Honours (Specialist Option) programme in Mathematics or Physics.
2. PHYSICS 3C03 is listed in Level III but is offered in alternate years, and may be taken in Level IV.

### COURSE LIST

COMP SCI 2MC3, 2MD3; MATH 2E03; STATS 2D03, 2MB3; all Level III and IV Mathematics and Statistics courses; all Level III and

IV Physics courses except PHYSICS 3G03, 3S03, 3T03, 4R03 and 4T03

**REQUIREMENTS**

124-126 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 33 UNITS**

15 units MATH 2A06, 2B06, 2C03  
 15 units PHYSICS 2B06, 2C03, 2D03, 2H03  
 3 units Electives

**LEVEL III: 31-32 UNITS**

9 units MATH 3A06, 3F03  
 13 units PHYSICS 3C03, 3K04, 3M03, 3MM3  
 3-4 units from the Course List (see above)  
 6 units Electives

**LEVEL IV: 30-31 UNITS**

6 units MATH 4A06  
 4 units PHYSICS 4B04  
 14-15 units from the Course List (see above)  
 6 units Electives

**Honours Mathematics and Statistics  
 (Complementary Studies Option)**

**ADMISSION**

Completion of any Level I programme, with a weighted average of at least 5.0 in MATH 1A06 (or 1AA6 or 1C06) and 1B03, and 9 to 12 other Level I units.

**NOTES**

1. Students contemplating graduate studies in Mathematics or Statistics should consider Honours Mathematics and Statistics (Specialist Option).
2. In some cases there are Level II (and III) prerequisites for Level III (and IV) courses. These should be considered when choosing your Level II (and III) programme.

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from any Level I programme, including MATH 1B03 and MATH 1A06 (or 1AA6 or 1C06)

**LEVEL II: 30 UNITS**

15 units MATH 2G03, 2J06; STATS 2D03, 2MB3  
 from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 6 units from HUMAN 2C03, MATH 2D03, 2E03  
 6 units Electives, excluding Mathematics, Statistics

**LEVEL III: 30 UNITS**

9 units MATH 3T03; STATS 3D06  
 6 units from MATH 3B03, 3E03, 3F03, 3H03, 3O06  
 3 units from Level III, IV Statistics  
 6 units from Business, Humanities, Social Sciences  
 6 units Electives, excluding Mathematics, Statistics

**LEVEL IV: 30 UNITS**

**(Beginning in 1994-95)**  
 6 units from Science Inquiry  
 6 units from MATH 3B03, 3E03, 3F03, 3H03, 3O06  
 3 units from Level III, IV Mathematics courses  
 9 units from Level III, IV Statistics courses  
 6 units from Level III, IV courses, excluding Mathematics, Statistics

**Honours Mathematics and Statistics  
 (Specialist Option)**

**ADMISSION**

Completion of any Level I programme, with a weighted average of at least 5.0 in MATH 1A06 (or 1AA6 or 1C06) and 1B03, and nine to

12 other Level I units.

MATH 1A06 (or 1AA6) is strongly recommended.

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be from Level I courses

**LEVEL I**

30 units from any Level I programme including MATH 1B03 and MATH 1A06 (or 1AA6 or 1C06)

**LEVEL II: 30 UNITS**

15 units MATH 2A06, 2B06, 2C03  
 6 units STATS 2D03, 2MB3  
 9 units Electives

**LEVEL III: 30 UNITS**

**(Beginning in 1994-95)**  
 18 units MATH 3A06, 3E03, 3EE3; STATS 3D06  
 6 units from Level III, IV Statistics  
 6 units Electives

**LEVEL IV: 30 UNITS**

**(Beginning in 1995-96)**  
 9 units MATH 4A06; STATS 4M03  
 6 units from Level III, IV Mathematics  
 9 units from Level III, IV Statistics  
 6 units Electives

**Honours Statistics**

**(Complementary Studies Option)**

**ADMISSION**

Completion of any Level I programme, with a weighted average of at least 5.0 in MATH 1A06 (or 1AA6 or 1C06) and 1B03, and nine to 12 other Level I units.

MATH 1A06 (or 1AA6) is strongly recommended.

**NOTES**

1. Students contemplating graduate studies in Statistics should consider Honours Statistics (Specialist Option).
2. In some cases there are Level II (and III) prerequisites for Level III (and IV) courses. These should be considered when choosing your Level II (and III) programme.

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from any Level I programme, including MATH 1B03 and MATH 1A06 (or 1AA6 or 1C06)

**LEVEL II: 30 UNITS**

15 units MATH 2G03, 2J06; STATS 2D03, 2MB3  
 6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 3 units from HUMAN 2C03, MATH 2D03, 2E03  
 6 units Electives, excluding Mathematics, Statistics

**LEVEL III: 30 UNITS**

9 units MATH 3T03; STATS 3D06  
 6 units from Level III, IV Mathematics, Statistics  
 6 units from Business, Humanities, Social Sciences  
 6 units Electives, excluding Mathematics, Statistics  
 3 units Electives

**LEVEL IV: 30 UNITS**

**(Beginning in 1994-95)**  
 6 units from Science Inquiry  
 12 units from Level III, IV Statistics  
 3 units from Level III, IV Mathematics, Statistics  
 6 units from Level III, IV courses excluding Mathematics, Statistics  
 3 units Electives

**Honours Statistics (Specialist Option)****ADMISSION**

Completion of any Level I programme, with a weighted average of at least 5.0 in MATH 1A06 (or 1AA6 or 1C06) and 1B03, and nine to 12 other Level I units.

MATH 1A06 (or 1AA6) is strongly recommended.

**COURSE LIST 1**

COMP SCI 2MC3, 2MD3, 2ME3, 2SB3; MATH 2D03, 2E03

**COURSE LIST 2**

All Level III and IV Statistics courses

**COURSE LIST 3**

COMP SCI 3IA3, 3SC3, MATH 3E03, 3EE3, 3F03, 3FF3, 3O06, 3Q03, 3R03, 4A06, 4C03, 4J03, 4K03, 4Q03, 4QQ3, 4RR3, 4W03

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I:**

30 units from any Level I programme, including MATH 1B03 and MATH 1A06 (or 1AA6 or 1C06)

**LEVEL II: 30 UNITS**

15 units MATH 2A06, 2B06, 2C03

6 units STATS 2D03, 2MB3

9 units Electives

**LEVEL III: 30 UNITS**

(Beginning in 1994-95)

9 units MATH 3T03, STATS 3D06

6 units from MATH 3A06, 3O06

6 units from Course Lists 1, 2 and 3 (see above)

9 units Electives

**LEVEL IV: 30 UNITS**

(Beginning in 1995-96)

3 units STATS 4M03

9 units from Course List 2 (see above)

9 units from Course Lists 2 and 3 (see above)

9 units Electives

**B.Sc. Three-Level Degree**

A three-level programme with a Mathematics or Statistics orientation is available through the B.Sc. in Mathematical Science which is listed under the heading Science in this section.

**Minor in Mathematics**

9 units MATH 1A06 (or 1AA6 or 1C06), 1B03

18 units from Level II, III, IV Mathematics, including at least six units from Level III, IV Mathematics

**Minor in Statistics**

9 units MATH 1A06 (or 1AA6 or 1C06), 1B03

18 units from Level II, III, IV Statistics, including at least six units from Level III, IV Statistics

**NOTE**

Due to Mathematics prerequisites for Statistics courses, a Minor in Statistics cannot be completed without at least three units of Mathematics beyond Level I.

**MOLECULAR BIOLOGY AND BIOTECHNOLOGY****Honours Molecular Biology and Biotechnology****ADMISSION**

Enrolment in this programme is limited. Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I, including BIOLOGY 1A06, CHEM 1A06, one of PHYSICS 1A06, 1B06, or 1C06, with an average of at least 6.0 in

BIOLOGY 1A06, CHEM 1A06, and one of MATH 1A06, 1AA6, 1C06, PHYSICS 1A06, 1B06, 1C06.

The inclusion of COMP SCI 1ZA3 (or 1MA3) in Level I is strongly recommended.

**NOTE**

This Honours degree programme is administered within the Faculty of Science, jointly by the Departments of Biochemistry and Biology, through a Committee of Instruction and also draws on the Department of Pathology and the McMaster Institute for Molecular Biology and Biotechnology. Information and counselling may be obtained from the Departments of Biology and Biochemistry.

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

21 units BIOCHEM 2A06; BIOLOGY 2B03, 2C03; CHEM 2O06, 2R03

3 units from BIOLOGY 2D03, 2E03, CHEM 2N03

6 units Electives. BIOLOGY 2D03, 2E03, CHEM 2N03 are recommended

If not completed: COMP SCI 1ZA3 (or 1MA3)

**LEVEL III: 30 UNITS**

6 units from BIOCHEM 3A06 or both 3A03 and 3AA3

3 units BIOCHEM 3L03

15 units BIOLOGY 3H03, 3NN3, 3O03, 3V03; CHEM 3F03

6 units Electives

**LEVEL IV: 30 UNITS**

6-9 units from either BIOCHEM 4G03 and BIOCHEM 4P03, or one of BIOLOGY 4F06, BIOCHEM 4B06, BIOLOGY 4C09

9 units BIOCHEM 4D03, 4E03; BIOLOGY 4M03

9 units from BIOCHEM 4I03, 4M03, 4Q03, BIOLOGY 4I03, 4I13, 4V03, MOL BIOL 4F03, 4H03

3-6 units Electives

Students who have opted in either BIOCHEM 4B06 or BIOLOGY 4F06 or 4C09 for a topic which is outside the Molecular Biology discipline will be required to take BIOCHEM 4G03.

**DEPARTMENT OF PHYSICS AND ASTRONOMY****Honours Chemistry and Physics**

(See Department of Chemistry)

**Honours Geology and Physics**

(See Department of Geology)

**Honours Mathematics and Physics**

(See Department of Mathematics and Statistics)

**Honours Arts & Science and Physics**

(B.Arts Sc.; See Arts & Science programme)

**Honours Physics****(Complementary Studies Option)****ADMISSION**

Completion of Natural Sciences I, including MATH 1A06 (or 1AA6 or 1C06) and 1B03, PHYSICS 1A06 (or 1B06 or 1C06) and CHEM 1A06, with a weighted average of at least 5.0 in the 18 to 21 units of Chemistry, Mathematics and Physics courses and a grade of at least C+ in either PHYSICS 1A06 or MATH 1A06 (or 1AA6 or 1C06).

COMP SCI 1MA3 must be completed before the end of Level II, and is recommended in Level I.

PHYSICS 1A06 is strongly recommended.

**NOTES**

1. If COMP SCI 1MA3 is completed in Level I then in Level II PHYSICS 2G03 may be replaced by PHYSICS 2C03 and 2D03.
2. The Physics Department considers Honours Physics (Specialist Option) to be more appropriate for graduate studies in Physics.

**REQUIREMENTS**

122-124 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

18 units MATH 2G03, 2O03; PHYSICS 2B06, 2G03, 2H03  
6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)

6 units Electives

If not completed: COMP SCI 1MA3

**LEVEL III: 31-32 UNITS**

7 units MATH 3C03; PHYSICS 3H04  
3 units from PHYSICS 3O03, 3M03  
6-7 units from Level III Physics, MATH 3D03  
3 units from HUMAN 2C03, MATH 2E03  
6 units from Business, Humanities, Social Sciences  
6 units Electives, excluding Physics

**LEVEL IV: 31-32 UNITS**

(Beginning in 1994-95)

6 units from Science Inquiry, including PHYSICS 4A03  
4 units PHYSICS 4J04  
9-10 units from Level III, IV Physics  
6 units from Level III, IV courses, excluding Physics  
6 units Electives

**Honours Physics (Specialist Option)****ADMISSION**

Completion of Natural Sciences I, including MATH 1A06 (or 1AA6 or 1C06) and 1B03, PHYSICS 1A06 (or 1B06 or 1C06) and CHEM 1A06, with a weighted average of at least 5.0 in the 18 to 21 units of Chemistry, Mathematics and Physics courses and a grade of at least C+ in either PHYSICS 1A06 or MATH 1A06 (or 1AA6 or 1C06).

COMP SCI 1MA3 must be completed before the end of Level II, and is recommended in Level I.

PHYSICS 1A06 is strongly recommended.

**NOTES**

1. Students who have completed Level II of Honours Physics (Specialist Option) with a CA of 6.0 are eligible to proceed to Level III of Honours Physics (Specialist Option), and Honours Physics (Theory Option). They may also be considered for admission to Level III of Honours Materials Science, preferably if MATLS 1A03 and 1B03, or ENGINEER 2003, has been completed in Level II.
2. At least one of PHYSICS 3B06 or 4D06 must be completed and the requirement is listed in Level III, but may be taken in Level IV. Students will generally find that more choices are offered by the timetable if PHYSICS 3B06 is taken in Level III and if PHYSICS 4D06 is taken in Level IV.
3. Students interested in Applied Physics should include PHYSICS 3B06, 4D06 and ENG PHYS 3W04 in their programme.

**REQUIREMENTS**

127 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 33 UNITS**

9 units MATH 2A06, 2C03  
15 units PHYSICS 2B06, 2C03, 2D03, 2H03  
6 units Electives, excluding Physics  
3 units Electives

If not completed: COMP SCI 1MA3

**LEVEL III: 32 UNITS**

(Beginning in 1994-95)

6 units MATH 3C03, 3D03  
6 units from PHYSICS 3B06, 4D06 (See *Note 2* above)  
17 units PHYSICS 3H04, 3K04, 3M03, 3MM3, 3N03  
3 units Electives

**LEVEL IV: 32 UNITS**

(Beginning in 1995-96)

14 units PHYSICS 4A03, 4B04, 4F03, 4J04  
3 units from PHYSICS 3A03, 3C03, 3X03, 3Y03, 4C03, 4E03, 4K03, 4U03  
6 units from Level III, IV Science  
9 units Electives. (See *Note 3* above)

**Honours Physics (Theory Option)****ADMISSION**

Completion of Level II Honours Physics (Specialist Option) or Level II Honours Mathematics and Physics with a CA of at least 6.0.

**NOTES**

1. PHYSICS 3C03 must be completed but is offered in alternate years. The requirement is listed in Level III but the course should be taken when offered.
2. Students who opt for PHYSICS 3A03 as part of the requirement for Level IV should note that it is offered in alternate years. They should take it when offered.

**REQUIREMENTS**

126-127 units total (Levels I to IV) of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II**

33 units from either the Honours Physics (Specialist Option) Level II or the Honours Mathematics and Physics Level II requirements

**LEVEL III: 32 UNITS**

9 units MATH 3C03, 3D03, 3Q03  
3 units PHYSICS 3C03. (See *Note 1* above)  
17 units PHYSICS 3H04, 3K04, 3M03, 3MM3, 3N03  
3 units Electives. (See *Note 2* above)  
If not completed: COMP SCI 1MA3

**LEVEL IV: 31-32 UNITS**

3 units from MATH 4B03, 4V03, PHYSICS 3A03. (See *Note 2* above)  
10 units PHYSICS 4A03, 4B04, 4F03  
9 units from PHYSICS 3A03, 3X03, 3Y03, 4E03, 4K03, 4U03  
6-7 units from Level III, IV Science  
3 units Electives. (See *Note 1* above)

**Honours Medical and Health Physics**

*The offering of this programme is contingent upon approval by the Ministry of Colleges and Universities.*

**ADMISSION**

Completion of Natural Sciences I, including MATH 1A06 (or 1AA6 or 1C06) and 1B03, PHYSICS 1A06 (or 1B06 or 1C06), CHEM 1A06, and one of BIOLOGY 1A06, COMP SCI 1MA3, with a weighted average of at least 5.0 in 18 to 21 units of Physics and Mathematics courses and either BIOLOGY 1A06 or CHEM 1A06. A grade of at least C+ must be achieved in either PHYSICS 1A06 (or 1B06 or 1C06) or MATH 1A06 (or 1AA6 or 1C06).

PHYSICS 1A06 is strongly recommended. It is recommended that COMP SCI 1MA3 be taken in Natural Sciences I.

**REQUIREMENTS**

121 units total (Levels I to IV), of which no more than 48 units may be from Level I courses

**LEVEL I:**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

6 units BIOCHEM 2E03, CHEM 2D03  
 9 units MATH 2E03, 2G03, 2O03  
 12 units PHYSICS 2B06, 2C03, 2H03  
 3 units Electives. BIOLOGY 2C03 is recommended.  
 If not completed: COMP SCI 1MA3 and BIOLOGY 1A06

**LEVEL III: 31 UNITS****(Beginning in 1994-95)**

6 units BIOLOGY 2B03; MATH 3C03  
 10 units PHYSICS 3H04, 3N03, 3O03  
 9 units PHYSICS 3Q03, 3R03, 3T03  
 6 units Electives

**LEVEL IV: 30 UNITS****(Beginning in 1995-96)**

3 units BIOLOGY 3Q03  
 3 units from ENG PHYS 3X03, ENGINEER 4X03  
 12 units PHYSICS 4A03, 4D06, 4E03  
 9 units PHYSICS 4K03, 4R03, 4T03  
 3 units Electives

**B.Sc. Three-Level Degree**

A three-level programme with a Physics orientation is available through the B.Sc. in Physical Science which is listed under the heading Science in this section.

**Minor in Physics**

6 units from PHYSICS 1A06, 1B06, 1C06  
 18 units from Levels II, III, IV Physics including at least six units from Level III, IV Physics

**NOTE**

A Minor in Physics can be completed without any Mathematics beyond Level I. However, more flexibility is possible if either MATH 2G03 and 2O03, or MATH 2A06 and 2C03 are completed. Additional flexibility is possible if PHYSICS 2B06 is completed.

**DEPARTMENT OF PSYCHOLOGY****Honours Psychology (B.A.) and Major Psychology (B.A.) and****B.A. in Psychology**

(See Faculty of Social Sciences, Department of Psychology)

**Honours Biology and Psychology**

(B.Sc.; See Department of Biology)

**Honours Computer Science and Psychology**

(B.Sc.; See Department of Computer Science and Systems)

**Honours Arts & Science and Psychology**

(B.Arts Sc.; See Arts & Science programme)

**Honours Psychology (B.Sc.)****(Complementary Studies Option)****ADMISSION**

Enrolment in this programme is limited. Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I, with a weighted average of at least 5.0 in PSYCH 1A06, and 12 units from BIOLOGY 1A06, CHEM 1A06, PHYSICS 1A06, 1B06, 1C06, MATH 1A06, 1AA6, 1C06, MATH 1B03, COMP SCI 1MA3, or COMP SCI 1MB3. A grade of at least C+ must be achieved in both PSYCH 1A06 and six other Level I Science units previously listed.

BIOLOGY 1A06 and MATH 1B03 are recommended.  
 MATH 1B03 must be completed by the end of Level II.

**NOTES**

1. In Level III or IV a student must complete at least one laboratory

course in Psychology (see the Course List). Enrolment is limited in the laboratory courses, and permission of the department must be obtained by March 1.

2. In some cases there are Level II (and III) prerequisites for Level III (and IV) courses. These should be considered when choosing your Level II (and III) programme.

**COURSE LIST**

PSYCH 3C06, 3E03, 3L03, 3QQ3, 3S03, 3V03, 4G03, or 4QQ3

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

6 units PSYCH 2R03, 2RR3  
 9 units from PSYCH 2E03, 2F03, 2H03, 2T03  
 3 units HUMAN 2C03, MATH 2E03  
 6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 6 units Electives, including at least three units which exclude Psychology

If not completed: MATH 1B03

**LEVEL III: 30 UNITS**

15 units from PSYCH 2E03, 2F03, 2H03, 2T03, all Level III Psychology (See *Note 1* above)  
 6 units from Business, Humanities, Social Sciences  
 6 units Electives, excluding Psychology  
 3 units Electives

**LEVEL IV: 30 UNITS****(Beginning in 1994-95)**

6 units from Science Inquiry  
 15 units from Level III, IV Psychology  
 6 units from Level III, IV courses excluding Psychology  
 3 units Electives

If not completed: one course from Course List. (See *Note 1* above)

**Honours Psychology (B.Sc.) (Specialist Option)****ADMISSION**

Enrolment in this programme is limited. Selection is based on academic achievement but requires, as a minimum, completion of Natural Sciences I, with a weighted average of at least 5.0 in PSYCH 1A06, and 12 units of BIOLOGY 1A06, CHEM 1A06, PHYSICS 1A06 (or 1B06 or 1C06) or MATH 1A06 (or 1AA6 or 1C06), MATH 1B03, COMP SCI 1MA3, or COMP SCI 1MB3 and a grade of at least C+ in both PSYCH 1A06 and six other Level I Science units.

BIOLOGY 1A06 and MATH 1B03 are recommended in Level I.  
 MATH 1B03 must be completed by the end of Level II.

**NOTES**

1. In Level III or IV a student must complete at least one laboratory course in Psychology (see the Course List). Enrolment is limited in the laboratory courses, and permission of the department must be obtained by March 1.

**COURSE LIST**

PSYCH 3C06, 3E03, 3L03, 3QQ3, 3S03, 3UU3, 4G03 or 4QQ3

**REQUIREMENTS**

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

6 units PSYCH 2R03, 2RR3  
 9 units from PSYCH 2E03, 2F03, 2H03, 2T03  
 9 units from Levels I and II Biochemistry, Biology, Chemistry, Computer Science, Mathematics, Statistics, Physics  
 6 units from Humanities, Social Sciences

If not completed: MATH 1B03

### LEVEL III: 30 UNITS

(Beginning in 1994-95)

- 18 units from PSYCH 2E03, 2F03, 2H03, 2T03, all Level III Psychology. (See *Note 1* above)
- 6 units from Levels III, IV Biochemistry, Biology, Chemistry, Computer Science, Mathematics, Statistics, Physics
- 6 units Electives

### LEVEL IV: 30 UNITS

(Beginning in 1995-96)

- 6 units PSYCH 4D06
- 12 units from Levels III, IV Psychology
- 6 units Electives, excluding Psychology
- 6 units Electives

If not completed: One course from Course List (See *Note 1* above)

## B.Sc. Three-Level Degree

A three-level programme with a Psychology orientation is available through the B.Sc. in Life Science which is listed under the heading Science in this section.

### Minor in Psychology

- 6 units PSYCH 1A06
- 18 units from Level II, III Psychology courses, including at least six units from Level III Psychology courses

## SCIENCE

### Honours Science

#### (Complementary Studies Option)

*The offering of this programme is contingent upon approval by the Ministry of Colleges and Universities.*

#### ADMISSION

Completion of Natural Sciences I, with a weighted average of at least 5.0 in MATH 1A06 (or 1AA6 or 1C06), one of CHEM 1A06, PHYSICS 1A06 (or 1B06 or 1C06), and six units from BIOLOGY 1A06, ENVIR SC 1A06, GEOG 1C03, 1G03, GEOLOGY 1C03 and PSYCH 1A06.

CHEM 1A06, one of PHYSICS 1A06, 1B06, or 1C06, one of BIOLOGY 1A06 or PSYCH 1A06, and one of ENVIR SC 1A06, GEOG 1C03, 1G03 or GEOLOGY 1C03 must be completed by the end of Level II. The completion of all the requirements in Level I is strongly recommended.

#### NOTES

1. This Honours degree programme is administered within the Faculty of Science through a Committee of Instruction.
2. Initial counselling for this programme may be obtained from the Chair of the Committee of Instruction.
3. There are Level II (and III) prerequisites for many Level III (and IV) courses. These should be considered when choosing your Level II programme.
4. Minors within the Faculty of Science are not permitted in the Honours Science programme.

#### COURSE LIST 1

All Level II, III and IV Physical Geography\*, and Geology courses

\*Physical Geography courses are marked with an asterisk in the Geography course listing.

#### COURSE LIST 2

BIOCHEM 3G03, 3GG3, 3H03, 3N03, 4C03, 4D03, 4E03, 4I03, 4M03, 4Q03; ENGINEER 4X03; ENG PHYS 3X03; MOL BIOL 4F03, 4H03; PHARMAC 4B03

All Level II, III and IV courses in Biology, except BIOLOGY 3B03, 3BB3, 3E03, 3H03, 3I03, 3K03, 3MM3, 3N03, 3TT3, 3UU3, 3U03, 3V03, 4C09, 4F06, 4G06, 4L09, 4Q03, 4X03, 4Y03

All Level II, III, and IV courses in Psychology, except PSYCH 3B03, 3C06, 3D03, 3DD3, 3M03, 4D06

#### COURSE LIST 3

All Level II, III and IV Computer Science, Mathematics and Statistics courses

#### COURSE LIST 4

All Level II, III and IV Chemistry and Physics courses

#### REQUIREMENTS

120 units total (Levels I to IV), of which no more than 48 units may be Level I courses

#### LEVEL I:

30 units from the Natural Sciences I requirements

#### LEVEL II: 30 UNITS

18 units from Level II courses in Course Lists 1, 2, 3 and 4 (see above), including at least six units from two different Course Lists. No more than six units from Biology may be taken.

6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)

6 units Electives, excluding courses from Course List 2

If not completed: CHEM 1A06, PHYSICS 1A06 (or 1B06 or 1C06), BIOLOGY 1A06 or PSYCH 1A06, and one of ENVIR SC 1A06, GEOG 1C03, 1G03, or GEOLOGY 1C03

#### LEVEL III: 30 UNITS

(Beginning in 1994-95)

15 units from Level III courses in Course Lists 1, 2, 3 and 4 (see above) including at least six units from two different course lists. No more than six units from Biology may be taken.

3 units from HUMAN 2C03, MATH 2E03

6 units from Business, Humanities, Social Sciences

6 units Electives, excluding courses from Course List 2

#### LEVEL IV: 30 UNITS

(Beginning in 1995-96)

6 units from Science Inquiry

12 units from Level III, IV courses in Course Lists 1, 2, 3 and 4 (see above). No more than six units from any one Course List. No more than six units from Biology may be taken.

6 units from Level III, IV courses excluding courses from Course List 2

6 units Electives, excluding courses from Course List 2

## B.Sc. in Earth Science

#### ADMISSION

Completion of Natural Sciences I, with a weighted average of at least 4.0 in six units of ENVIR SC 1A06, GEOG 1A06, 1C03, 1G03, GEOLOGY 1A03, 1C03.

#### NOTES

1. Students wishing to choose a coherent set of courses in a single discipline should consult the list of courses required in the Honours programme in the Department of Geography and the Honours programme (Complementary Studies Option) in the Department of Geology.
2. Students who have identified either Geography or Geology as their area of emphasis should approach that department for counselling. Those who do not intend a particular emphasis should obtain information on counselling from the Department of Geology.
3. There are Level II prerequisites for many Level III courses. These should be considered when choosing your Level II programme.

#### COURSE LIST 1

GEOG 2F03, 2K03, 2LL3, 2NN3, 2N03, 2T03, 2W03 and all Level II Geology courses

#### COURSE LIST 2

GEOG 3E03, 3F03, 3I03, 3K03, 3L03, 3M03, 3NN3, 3N03, 3O03, 3P03, 3U03, 3UU3, 3W03 and all Level III Geology courses

#### REQUIREMENTS

90 units total (Levels I to III), of which no more than 42 units may be



*Level I courses***LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

15 units from Course List 1 (see above)  
 6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 3 units from HUMAN 2C03, MATH 2E03  
 6 units Electives, including at least three units which exclude courses from Course List 1

**LEVEL III: 30 UNITS**

12 units from Course List 2 (see above)  
 3-6 units from Course Lists 1 and 2 (see above)  
 6 units from Business, Humanities, Social Sciences  
 6 units Electives, excluding courses in Course Lists 1 and 2  
 0-3 units Electives

**B.Sc. in General Science****ADMISSION**

Completion of Natural Sciences I, including MATH 1A06 (or 1AA6 or 1C06), and two of CHEM 1A06, PHYSICS 1A06 (or 1B06 or 1C06), BIOLOGY 1A06, PSYCH 1A06 with an average of at least 4.0 in two of the specified courses.

CHEM 1A06, PHYSICS 1A06 (or 1B06 or 1C06), BIOLOGY 1A06 (or PSYCH 1A06) and one of ENVIR SC 1A06, GEOG 1C03, 1G03, GEOLOGY 1C03 must be completed by the end of Level II. The completion of all the requirements in Level I is strongly recommended.

**NOTES**

- Information on counselling for this programme may be obtained from the Department of Geology.
- No more than 24 units of courses may be taken from any one department. Mathematics and Statistics are one department.
- There are Level II prerequisites for many Level III courses. These should be considered when choosing your Level II programme.

**COURSE LIST 1**

BIOCHEM 2E03 and all Level II courses in Biology, Chemistry, Computer Science, Physical Geography\*, Geology, Materials Science, Mathematics, Physics, Psychology and Statistics

**COURSE LIST 2**

BIOCHEM 3G06 or 3G03 and 3GG3 and all Level III courses in Biology, Chemistry, Computer Science, Physical Geography\*, Geology, Materials Science, Mathematics, Physics, Psychology and Statistics

\*Physical Geography courses are marked with an asterisk in the Geography course listing.

**REQUIREMENTS**

90 units total (Levels I to III), of which no more than 42 units may be Level I courses

**LEVEL I:**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

18 units from Course List 1 (see above). No more than six units from Biology may be taken  
 6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 6 units Electives, excluding Biology

If not completed: CHEM 1A06, PHYSICS 1A06 (or 1B06 or 1C06), BIOLOGY 1A06, (or PSYCH 1A06) and one of ENVIR SC 1A06, GEOG 1C03, 1G03, GEOLOGY 1C03

**LEVEL III: 30 UNITS**

12 units from Course List 2 (see above). No more than six units from Biology courses may be taken  
 3 units HUMAN 2C03, MATH 2E03  
 6 units from Business, Humanities, Social Sciences  
 3-6 units Electives, excluding courses in Course Lists 1 and 2  
 3-6 units Electives, excluding Biology

**B.Sc. in Life Science****ADMISSION**

Completion of Natural Sciences I, with a grade of at least C- in one of BIOLOGY 1A06 or PSYCH 1A06.

**NOTES**

- Students wishing to choose a coherent set of courses in a single discipline should consult the list of courses required in the Honours (Complementary Studies Option) programmes in the Departments of Biology and Psychology.
- Students who have identified either Biology or Psychology as their area of emphasis should approach that department for counselling. Those who do not intend a particular emphasis should obtain information on counselling from the Department of Biology.
- There are Level II prerequisites for many Level III courses. These should be considered when choosing your Level II programme. Many Level III Psychology courses have as a prerequisite a Statistics course offered by the Faculty of Science.
- Enrolment in Psychology laboratory courses is limited. Permission of the Psychology Department is required by March 1. PSYCH 3C06, 3E03, 3L03, 3QQ3, 3S03, 3UU3 are laboratory courses.

**COURSE LIST 1**

BIOCHEM 2E03; BIOLOGY 2B03, 2C03, 2D03, 2E03, 2F03; CHEM 2D03, 2O06; PSYCH 2E03, 2H03, 2R03, 2RR3, 2T03; STATS 2MA3, 2R06

**COURSE LIST 2**

BIOCHEM 3G06 or 3G03 and 3GG3 and all Level III Biology and Level III Psychology courses

**REQUIREMENTS**

90 units total (Levels I to III), of which no more than 42 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

18 units from Course List 1. No more than six units from Biology may be taken  
 6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 6 units Electives, excluding Biochemistry, Biology, Psychology

**LEVEL III: 30 UNITS**

12 units from Course List 2. No more than six units from Biology may be taken  
 3 units from HUMAN 2C03, MATH 2E03  
 6 units from Business, Humanities, Social Sciences  
 9 units Electives, excluding Biology, of which at least three units exclude Biochemistry, Psychology

**B.Sc. in Mathematical Science****ADMISSION**

Completion of any Level I programme, with a weighted average of at least 4.0 in MATH 1A06 (or 1AA6 or 1C06), COMP SCI 1MA3, and one of COMP SCI 1MB3, MATH 1B03.

COMP SCI 1MB3 and MATH 1B03 must be completed by the end of Level II.

MATH 1A06 (or 1AA6) is strongly recommended.

**NOTES**

- Students wishing to choose a coherent set of courses in a single discipline should consult the list of courses required in the Honours programmes (Complementary Studies Option) of the Departments of Computer Science and Systems, and Mathematics and Statistics.
- Students who have identified either Computer Science or Mathematics and Statistics as their area of emphasis should approach that department for counselling. Those who do not intend a particular emphasis should obtain information on counselling from the Department of Mathematics and Statistics.
- There are Level II prerequisites for many Level III courses.

These should be considered when choosing your Level II programme.

**COURSE LIST 1**

COMP SCI 2MC3, 2MD3, 2ME3, 2MF3, 2MJ3, 2SB3; MATH 2D03, 2E03, 2G03, 2J06, 2K03, 2O03; STATS 2D03, 2MB3

**COURSE LIST 2**

All Level III and IV Computer Science, Mathematics and Statistics courses

**REQUIREMENTS**

90 units total (Levels I to III), of which no more than 42 units may be Level I courses

**LEVEL I:**

30 units from any Level I programme including MATH 1A06 (or 1AA6 or 1C06), COMP SCI 1MA3 and one of COMP SCI 1MB3, MATH 1B03

**LEVEL II: 30 UNITS**

15 units from Course List 1 (see above)  
 6 units from World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section)  
 3 units from HUMAN 2C03, MATH 2D03, 2E03  
 6 units Electives, including at least three units which exclude Computer Science, Mathematics, Statistics

If not completed: COMP SCI 1MB3, MATH 1B03

**LEVEL III: 30 UNITS**

12 units from Course List 2 (see above)  
 3-6 units from Course Lists 1 and 2 (see above)  
 6 units from Business, Humanities and Social Sciences  
 6 units Electives, excluding Computer Science, Mathematics, Statistics  
 0-3 units Electives

**B.Sc. in Physical Science**

**ADMISSION**

Completion of Natural Sciences I, including MATH 1A06 (or 1AA6 or 1C06) and two of CHEM 1A06, MATH 1B03 or PHYSICS 1A06 (or 1B06 or 1C06) with a grade of at least C- in one of CHEM 1A06, PHYSICS 1A06 (or 1B06 or 1C06).

CHEM 1A06, MATH 1B03 and 1A06, 1B06, 1C06 must be taken

by the end of Level II and are strongly recommended in Level I.

**NOTES**

1. Students wishing to choose a coherent set of courses in a single discipline should consult the list of courses required in the Honours programmes (Complementary Studies Option) of the Departments of Chemistry and Physics.
2. Students who have identified either Chemistry or Physics as their area of emphasis should approach that department for counselling. Those who do not intend a particular emphasis should obtain information on counselling from the Department of Physics.
3. There are Level II prerequisites for many Level III courses. These should be considered when choosing your Level II programme.

**COURSE LIST 1**

CHEM 2A03, 2B06, 2C03, 2O06, 2P06; MATH 2G03, 2N03, 2O03; PHYSICS 2A03, 2B06, 2G03, 2H03

**COURSE LIST 2**

CHEM 3A03, 3B03, 3I03, 3Q03; all Level III Physics courses

**REQUIREMENTS**

90 units total (Levels I to III), of which no more than 42 units may be Level I courses

**LEVEL I**

30 units from the Natural Sciences I requirements

**LEVEL II: 30 UNITS**

18 units from Course List 1 (see above)  
 6 units from World History, Culture and Thought (See *World History, Culture and Thought Menu* in this section)  
 6 units Electives, excluding Chemistry and Physics

If not completed: CHEM 1A06, MATH 1B03 and one of PHYSICS 1A06, 1B06, 1C06

**LEVEL III: 30 UNITS**

12 units from Course List 2 (see above)  
 3 units from HUMAN 2C03, MATH 2E03  
 6 units from Business, Humanities, Social Sciences  
 9 units Electives, including at least three units which exclude Chemistry and Physics

# FACULTY OF SOCIAL SCIENCES

## Dean of Social Sciences

J.A. Johnson/M.A., Ph.D.

## Associate Dean (Studies)

W.K. Whillier/B.A., Ph.D.

## Academic Assistant to the Dean

E. Frank/M.A.

## Student Advisor

M. Foster/M.A.

## Student Advisor

J. Weston/B.A.

## Programmes Co-ordinator

E. Moore

The social sciences are concerned with the systematic study of activities and human relationships in societies which range from the pre-industrial to the post-industrial. There is also growing interest among social scientists in the interaction between people and their natural and artificial environments. Developments in theory and refinements of method have, in recent years, given great impetus to social science studies and research.

The Faculty of Social Sciences includes the following departments or schools and programmes:

Anthropology, Economics, Gerontology, Labour Studies, Physical Education, Political Science, Religious Studies, Social Work, Sociology. Geography and Psychology have programmes in the Faculty of Social Sciences as well as in the Faculty of Science.

The Faculty offers Bachelor of Arts, Honours Bachelor of Arts and Professional programmes. It also offers a B.A. Major programme in Psychology.

## LEVEL I PROGRAMMES

### SOCIAL SCIENCES I: 30 UNITS

#### PROGRAMME NOTES

1. Students registered in Honours B.A. programmes in the Faculty of Social Sciences are required to complete six units of courses chosen from the World, History, Culture and Thought Menu (See page 99). This requirement should be completed in Level I.
2. Students registered in B.A. programmes in the Faculty of Social Sciences are required to complete six units of courses chosen from the Faculty of Humanities (see *Academic Regulations*, Humanities requirement). It is recommended that this requirement be completed in Level I.
3. Normally, a student will take only six units of Level I work in any one discipline. In special circumstances a student may be permitted to take up to 12 units in one discipline.

#### REQUIREMENTS

12 units from ANTHROP 1A03, 1Z03, ECON 1A06; GEOG 1A06 or 1C03 and 1G03, 1B06; GERONTOL 1A06; LABR ST 1A03, 1AA3; POL SCI 1A06 or 1B03 and 1C03; PSYCH 1A06; RELIG ST 1B06, 1D06, 1E06, 1F06, 1H03, 1I06; SOCIOL 1A06

18 units Elective, which may include Social Sciences courses

### PHYSICAL EDUCATION I: 31 UNITS

#### REQUIRED

19 Units PHYS ED 1A06, 1B03, 1E03, 1F03; Practicum: PR02 (Gymnastics I), plus the McMaster Swimming Test (1S00) and PHYS ED 1CA0 (CPR/First Aid); BIOLOGY 1J03

12 units Elective

## HONOURS PROGRAMMES

The Honours programmes provide a concentration in the particular field, as well as an extended time of study, and are normally a requirement for those who contemplate proceeding to graduate studies. The departments of Economics, Geography, Labour Studies and Sociology offer an Honours (Specialist) option in addition to an Honours programme. In many cases, students may combine work in two departments with a somewhat lesser degree of concentration in each field and be graduated with a Combined Honours degree in two subjects. Students may also combine work in two departments and be graduated with an Honours degree in one subject with a Minor in a second subject. A Minor concentration consists of fewer units of work in a particular field than that which is required for the Combined Honours degree. The Honours Gerontology degree is offered only in combination with another subject. The Faculty of Social Sciences is participating fully in helping interested students combine concentration in a Social Sciences area with concentration in Arts and Science, or any discipline in the Faculty of Humanities.

Students enrolled in an Honours programme in the Faculty of Social Sciences in addition to meeting the University requirements for an Honours degree (see the *Academic Regulations* in this Calendar) must also fulfill the following breadth and skills requirements prescribed by the Faculty: at least 12 units of Level I Social Sciences courses; six units, not in the candidate's Honours subject(s) or Minor subject, drawn from the World History, Culture, Thought menu; six units of Research Methods courses, in the candidate's Honours subject(s), prescribed by the Department(s); and three units of informal logic, (HUMAN 2C03). Honours programmes in the Faculty of Social Sciences consist of a total of 120 units of work and include in the body of work prescribed by the Department(s) at least three units of the History of Thought of the candidate's Honours Social Sciences discipline(s) and six units of Inquiry and Honours seminar.

### Honours Programmes

Honours programmes will normally include approximately 45 units of work beyond Level I prescribed by the student's Department. Students intending to complete a Minor would normally register in an Honours programme rather than an Honours (Specialist) option.

**Honours (Specialist Option):** Some departments within the Faculty offer an Honours (Specialist) option which has different requirements from the Honours degree. The requirements in Honours (Specialist Option) will prepare you for graduate study in the discipline.

**Combined Honours programmes:** Subject to possible timetable restrictions, and provided that the student meets the requirements for entry into each of the relevant Honours programmes, a student may combine work in any two departments and be graduated with a Combined Honours degree in the two subjects.

All Combined Honours programmes must be approved by both Departments concerned as well as by the Associate Dean(s) (Studies). These programmes will normally include approximately 36 units of work beyond Level I in each Department (normally 12 units of work per level in each).

**Major programme:** See Department of Psychology programme description in this section and *Academic Regulations* on page 13 of this Calendar.

**Combined B.A./B.S.W. :** The School of Social Work offers a Combined B.A./B.S.W. programme of studies leading to a B.A. and a B.S.W. degree. (See the programme description in this section.) The B.S.W. degree may be attained separately only by those who have already received one undergraduate degree.

**B.P.E. degree:** The Department of Physical Education offers a programme of studies leading to the B.P.E. degree. (See the programme description in this section.)

**Bachelor of Arts programmes:** For requirements of Bachelor of Arts programmes, see *Academic Regulations* on page 13 of this Calendar.

The only three-level Combined Bachelor's degree programme is in Gerontology and Another Subject. The other subject may be from the Faculty of Social Sciences or the Faculty of Humanities. This programme may also be combined with the B.S.W. as a four-level programme.

Students are strongly advised to take advantage of the extensive advisory services provided by the Faculty. New students in particular should plan a programme of study that will allow them a number of options for Level II.

**HUMANITIES REQUIREMENTS**

Students registered in B.A. programmes in the Faculty of Social Sciences except for those combining a B.A. with a B.S.W., are required to complete six units of courses chosen from the Faculty of Humanities before graduation, preferably before Level II.

Students registered in the B.A. programme in Economics will fulfill this requirement by completing the English requirement for their programme. Students in the B.A. and B.A. (Major) Psychology programmes should note the additional Science or Humanities requirements for those programmes.

**Part-time Studies**

Subject to limitations of course offerings, a student may pursue on a part-time basis any programme in the Faculty of Social Sciences, except for the B.P.E. programme. Normally, students will arrange their programme of studies in consultation with a Student Advisor in the Office of the Associate Dean (Studies) and with the Undergraduate Advisor of the appropriate Department(s).

**World History, Culture and Thought Menu**

The Faculty of Social Sciences is committed to the principle of Liberal Studies, and requires that Social Sciences students obtain a broad knowledge of the cultural, philosophic and historical facts of the world around them.

Students enrolled in an Honours programme in the Faculty of Social Sciences must successfully complete at least six units of work from this menu in a subject different from that of either their Honours or Minor area of concentration. Students enrolled in Combined Honours involving programmes in both Social Sciences and Humanities or Social Sciences and Arts & Science are exempt from this requirement.

**Note:** Many of these courses have prerequisites. It is the student's responsibility to ensure that these have been met.

ANTHROP 2I03	History of Anthropology
CLASSICS 1B06	Mythology and Literature of Greece and Rome
CLASSICS 1L06	History and Archaeology of the Ancient World
ECON 2K03	Economic History of Canada
HISTORY 1C06	The Modern World: The Era of European Primacy
HISTORY 1D06	The Civilization of the West
HISTORY 1L06	History of Archaeology of the Ancient World
HISTORY 2A06	Early Modern Europe: 1400-1715
HISTORY 2B06	China: from the Opium War to the Present
HISTORY 2H06	United States History
HISTORY 2I06	Europe in the Middle Ages
HISTORY 2J06	The History of Canada
HISTORY 2K06	The History of Science
HISTORY 2L06	The History of Greece and Rome
HISTORY 2M06	European Society from Absolutism to Democracy
PHILOS 1B06	Philosophy and Society
PHILOS 1D06	Problems in Philosophy
PHILOS 2A06	Ancient Greek Philosophy
PHILOS 2C06	Descartes to Hume
POL SCI 2O06	Introduction to Political Theory
RELIG ST 1B06	World Religions
RELIG ST 1D06	Modern Study of the Bible
RELIG ST 1E06	Ideas of Love
RELIG ST 1I06	Religious Themes in Modern Literature
RELIG ST 2I03	Religion and Social Justice
RELIG ST 2I13	Christianity in the Patristic Period (100-800)
RELIG ST 2J06	India: Its Culture, Social History, Religion and Philosophy

RELIG ST 2JJ3	Christianity in the Medieval Period (800-1500)
RELIG ST 2KK3	Christianity in the 16th Century
RELIG ST 2A03	The Confucian Tradition
RELIG ST 2P06	Japanese Civilization
RELIG ST 2PP3	Indian Philosophy
RELIG ST 2R06	Divine Justice
RELIG ST 3MM3	Scepticism, Atheism, and Religious Faith
RELIG ST 3NN3	The Encounter of Science and Religion
RELIG ST 3U03	The Buddhist Tradition in India and South-East Asia
RELIG ST 3UU3	The Buddhist Tradition in East Asia

**Informal Logic**

Students enrolled in an Honours programme in the Faculty of Social Sciences must successfully complete three units of informal logic (HUMAN 2C03). Students enrolled in Combined Honours involving programmes in both Social Sciences and Arts and Science are exempt from this requirement.

**ACADEMIC REGULATIONS**

*Students enrolled in a programme in the Faculty of Social Sciences, in addition to meeting the Academic Regulations of the University, shall be subject to the following regulations.*

**ADMISSION AND READMISSION**

**Students from other Faculties are able to transfer to degree programmes offered by the Faculty of Social Sciences provided they have obtained a Cumulative Average of at least 3.5 and have completed the necessary programme admission requirements.**

**Students who do not meet these requirements must submit a Request for Special Consideration. Such requests for transfer will be considered at the same time as applications for re-admission (see below).**

A student who *May Not Continue Without Permission* may apply for readmission. Application for readmission must be made in writing to the Office of the Associate Dean of Social Sciences (Studies). Guidelines for the letter of application may be obtained from the Office of the Associate Dean (Studies). Deadlines for readmission application are the same as application deadlines for admission to the University. See *Sessional Dates* on page 5. Readmission applications will be carefully reviewed and the evidence considered will include the student's academic performance before and after admission to McMaster, current Faculty admission requirements, the letter of application with any supporting documentation and the student's ability in English.

**Readmission is not automatic or guaranteed.**

In the case of students who have been *Required to Withdraw*, readmission will not normally be considered for a session beginning within 12 months of the withdrawal date.

Decisions on requests for transfer and requests for readmission will be made after July 15 for entry or re-entry in September.

**DEADLINES**

The Faculty of Social Sciences will not consider applications for admission, admission to a second degree or continuing studies, registration, or dropping and adding of courses after the deadlines stated in this Calendar under *Sessional Dates and Application Procedures* on pages 5 and 11, respectively, unless written documentation is provided showing good cause, as determined by the Faculty Admissions, Study and Reviewing Committee.

**COURSE CHANGES**

Qualified students are permitted to transfer between B.A. and Honours programmes with the approval of the Associate Dean (Studies). Transfers are subject to the deadline dates established by the University.

**COURSES IN PHYSICAL EDUCATION AND SOCIAL WORK AVAILABLE FOR UNDERGRADUATE CREDIT**

Several courses offered by the Department of Physical Education and the School of Social Work may be taken by students in other

programmes as electives for undergraduate credit. Enrolment in these courses requires written permission of the department or instructor. These courses are:

PHYS ED 3J03, 3L03, 3P03, 3Q03, 3SS3, 4E03, 4J03, 4L03, 4M03, 4Q03  
SOC WORK 3C03, 3G03, 3H03, 3J03, 4J03, 4M03, 4Z03.

All other courses in Social Work and Physical Education are open only to students registered in those programmes.

## DEPARTMENT OF ANTHROPOLOGY

### ANTHROPOLOGY SUBFIELDS

(Applicable to all Anthropology programmes)

Anthropology includes the four major subfields of Social/Cultural Anthropology, Physical/Biological Anthropology, Archaeology, and Linguistics. Students may specialize in any one of these subfields though it is not necessary to do so. It should be noted, however, that each subfield has its own sequence of courses and prerequisites (see *Course Listings* in the Calendar).

### CULTURAL/SOCIAL ANTHROPOLOGY

ANTHROP 2B03, 2F03, 2H03, 2I03, 2KK3, 2P03, 2Q03, 2R03, 2S03, 2X03, 2Z03, 3A03, 3AA3, 3B03, 3D03, 3F03, 3G03, 3J03, 3JJ6, 3P03, 3Q03, 3RR3, 3S03, 3T03, 3V03, 3Z03, 3ZZ3, 4A03, 4D03, 4I03, 4K03, 4N03, 4Y03

### PHYSICAL/BIOLOGICAL ANTHROPOLOGY

ANTHROP 2DD3, 2E03, 2FF3, 2JJ3, 2U03, 3C03, 3N03, 3NN3, 3Z03, 3ZZ3, 4C03, 4J03, 4R03

(Relevant courses are also offered by Biology and Physical Education)

### ARCHAEOLOGY

ANTHROP 2O03, 2PA3, 2V03, 3AS3, 3CC6, 3E03, 3EE3, 3K03, 3NP3, 3U03, 3X03, 3XX3, 4F03, 4H03, 4HF3, 4PI3, 4U03 (relevant courses are also offered by History and Classics)

### LINGUISTICS

ANTHROP 2AA3, 2AL3, 2L03, 2LL3, 2M03, 2Q03, 3AL3, 3I03, 3M03, 3PL3, 4BL3, 4L03, 4T03

### OTHER COURSES

Courses not distinguished by subfield include the reading courses ANTHROP 2Y03, 3W03, 3WW3, 4BB3, 4G03, 4GG3, as well as the seminar course ANTHROP 4B03.

In planning your programme, it is important to take note of the prerequisites of certain of the higher-level courses.

## Honours Arts & Science and Anthropology

(B.ARTS.SC.; See Arts & Science programme)

## Honours Anthropology

### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in ANTHROP 1A03 and 1Z03 and six other units, including a grade of at least B- in six units Level I Anthropology.

### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)

48 units ANTHROP 2E03, 2F03, 2I03, 2PA3, 2Q03; one of 3A03, 3B03, 3D03, 3F03; 4I03; at least nine additional units of Level IV Anthropology; 18 units of Level II, III or IV Anthropology

6 units Research Methods from the following list: STATS 1A03 or one of: ECON 2B03, GEOG 2LL3, POL SCI 2F06, PSYCH 2G03, PSYCH 2R03, SOCIOL 2Y03, SOCIOL 3H06, or STATS 2R06  
If only three units are taken from the list above, an additional three units from ANTHROP 2FF3, 2DD3,

2Z03, 3K03, 3P03 and 4L03 must be completed.  
3 units Informal Logic: HUMAN 2C03  
6 units Social Sciences I courses other than ANTHROP 1A03 or 1Z03. If this requirement is completed in Level I, these units can be added to electives.  
6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* above).  
If requirement completed in Level I, these may be added to electives.  
21 units Electives

## Combined Honours in Anthropology and Another Subject

### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in ANTHROP 1A03 and 1Z03. Satisfaction of admission requirements for the Honours programme in the other B.A. subject.

### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)

36 units ANTHROP 2E03, 2F03, 2I03, 2PA3, 2Q03; one of 3A03, 3B03, 3D03, 3F03; 4I03; three additional units of Level IV Anthropology; 12 units Level II, III or IV Anthropology

36 units courses specified for the other subject

6 units Research Methods: six units from the following list: STATS 1A03 or one of: ECON 2B03, GEOG 2LL3, POL SCI 2F06, PSYCH 2G03, PSYCH 2R03, SOCIOL 2Y03, SOCIOL 3H06, or STATS 2R06

If only three units are taken from the list above, an additional three units from ANTHROP 2FF3, 2DD3, 2Z03, 3K03, 3P03 and 4L03 must be completed. or in combined programmes within the Faculty of Social Sciences, the Research Methods specified for the other subject.

3 units Informal Logic: HUMAN 2C03. Students combining Honours Arts and Science with Anthropology are exempt from this requirement.

6 units World History, Culture and Thought. Students combining Anthropology with Arts and Science, or with a Humanities subject, are exempt from this requirement. If requirement completed in Level I, these units may be added to electives.

3 units Electives

## Minor in Anthropology

### REQUIREMENTS

6 units ANTHROP 1A03 and 1Z03

18 units Level II, III or IV Anthropology, including one of ANTHROP 2E03, 2F03, 2PA3, 2Q03

## B.A. in Anthropology

### ADMISSION

Completion of any Level I programme with a grade of at least C- in ANTHROP 1A03 and 1Z03.

### REQUIREMENTS

90 units total (Levels I to III), of which 42 may be Level I courses

30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)

24 units two of ANTHROP 2E03, 2F03, 2PA3, 2Q03; 18 units Level II, III or IV Anthropology

6 units Humanities (see *Academic Regulations* in this section). If requirement completed in Level I, these units may be added to electives.

30 units Electives

## DEPARTMENT OF ECONOMICS

### Honours Arts & Science and Economics

(B. Arts Sc.; See Arts & Science programme)

### Honours Economics (Specialist Option)

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in Economics 1A06 and six additional units, including a grade of B- in ECON 1A06. Credit in OAC Calculus, or MATH 1K03, or equivalent.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 51 units ECON 2G03, 2GG3, 2H03, 2HH3, 3A03, 3AA3, 3F03, 3G03, 3LL3, 4A03; one of 2K03 or 3I03; 18 units Economics, excluding ECON 2C03 and 2D03
- 3-6 units Calculus drawn from MATH 1A06, 1AA6, 1C06, 1M03 or 1N06. If requirement completed in Level I, these units may be added to electives.
- 3 units Probability Theory: one of OAC Finite Math, MATH 1L03, STATS 1L03, STATS 2D03. If requirement is completed in Level I or with OACs these units may be added to electives.
- 6 units Research Methods: ECON 3O06
- 3 units Informal Logic: HUMAN 2C03
- 6 units Social Sciences I courses other than ECON 1A06. If requirement completed in Level I, these units may be added to electives.
- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these may be added to electives.
- 9-12 units Electives (the maximum Economics courses to be taken is 60 units)

### Honours Economics

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in ECON 1A06 and six additional units, including a grade of B- in ECON 1A06. Credit in OAC Calculus, or MATH 1K03, or equivalent.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 42 units ECON 2G03, 2GG3, 2H03, 2HH3, 3F03, 3LL3 and 4A03; one of 2K03 or 3I03; 18 units Economics courses, excluding ECON 2C03 and 2D03
- 3-6 units Calculus drawn from MATH 1A06, 1AA6, 1C06, 1M03 or 1N06. If requirement completed in Level I, these units may be added to electives.
- 3 units Probability Theory: one of OAC Finite Math, MATH 1L03, STATS 1L03, STATS 2D03. If requirement is completed in Level I or with OACs these units may be added to electives.
- 6 units Research Methods: ECON 2B03 and 3U03; or 3O06
- 3 units Informal Logic: HUMAN 2C03
- 6 units Social Sciences I courses, other than ECON 1A06. If requirement completed in Level I, these units may be added to electives.
- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these units may be added to electives.
- 18-21 units Electives (the maximum Economics courses to be taken is 60 units)

### Combined Honours in Economics and Another Subject

#### ADMISSION

Completion of any Level I programme with a grade of B- in ECON 1A06. Credit in OAC Calculus, or MATH 1K03, or equivalent. Satisfaction of admission requirements for the Honours programme in the other B.A. subject.

#### NOTES

- One of OAC Finite Math, MATH 1L03, STATS 1L03, or STATS 2D03 is a prerequisite for research methods courses offered by the Department of Economics.
- Students registered in Combined Honours programmes within the Faculty of Social Sciences who wish to satisfy the Inquiry and Honours Seminar requirements specified by the other department may replace ECON 3F03 and 4A03 with another six units Economics.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 33 units ECON 2G03, 2GG3, 2H03, 2HH3, 3F03, 3LL3 and 4A03 (See *Note 2*) one of 2K03 or 3I03; nine units Economics, excluding ECON 2C03 and 2D03
- 36 units Courses specified for the other subject
- 3-6 units Calculus drawn from MATH 1A06, 1AA6, 1C06, 1M03 or 1N06. If requirement completed in Level I, these units may be added to electives.
- 6 units Research Methods: ECON 2B03 and 3U03 or ECON 3O06 or, in combined programmes within the Faculty of Social Sciences, the Research Methods specified for the other subject. (See *Note 1*)
- 3 units Informal Logic: HUMAN 2C03. Students combining Honours Arts and Science with Economics are exempt from this requirement.
- 6 units World History, Culture and Thought. Students combining Economics with Arts & Science, or with a Humanities subject, are exempt from this requirement. If requirement completed in Level I, these units may be added to electives.
- 0-3 units Electives

### Honours Economics and Computer Science

#### ADMISSION

Completion of any Level I programme, including COMP SCI 1MA3 and 1MB3, and including a grade of at least 7.0 in ECON 1A06, and a weighted average of at least 7.0 in ECON 1A06, COMP SCI 1MB3, MATH 1A06 and MATH 1B03. MATH 1B03 may be postponed until Level II.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 36 units ECON 2G03, 2GG3, 2H03, 2HH3, 3LL3; 3F03 and 4A03; one of 2K03 or 3I03; 12 units Economics, excluding ECON 2C03 and 2D03
- 30 units COMP SCI 2MC3, 2MD3, 2MF3, 3MG3, 4MP6; two of COMP SCI 3CA3, 3EA3, 3MH3, 3MI3; six units Level II, III or IV Computer Science. COMP SCI 3EA3 is strongly recommended. COMP SCI 2ME3, 4EB3, 4EC3 are recommended as preparation for Business Data Processing
- 6-9 units Research Methods: STATS 2D03; one of STATS 2MB3 or 3D06 or ECON 3O06
- 3 units Informal Logic: HUMAN 2C03
- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these units may be added to

electives.  
6-9 units Electives

## Honours Economics and Geography

### ADMISSION

Completion of **any Level I** programme with a grade of at least B- in each of ECON 1A06 and GEOG 1B06. Credit in OAC Calculus, or MATH 1K03, or equivalent.

### NOTE

1. One of OAC Finite Math, MATH 1L03, STATS 1L03 or STATS 2D03 is a prerequisite for research methods courses offered by the Department of Economics (ECON 2B03 and 3O06).

### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 33 units ECON 2G03, 2GG3, 2H03, 2HH3, 3LL3; one of 2K03 or 3I03; 15 units Economics courses, excluding ECON 2C03 and 2D03
- 33 units nine units from GEOG 2A03, 2B03, 2R03, 2Y03; 3O03, 3Q03; six units from GEOG 3G03, 3T03, 3X03; GEOG 4C06; six units of Level IV Geography; six units Geography
- 3-6 units Calculus drawn from MATH 1A06, 1AA6, 1C06, 1M03 or 1N06. If requirement completed in Level I, these units may be added to electives.
- 6 units Research Methods: ECON 2B03 and 3U03; or ECON 3O06; or GEOG 2LL3 and 2NN3 or 2N03 (See *Note 1*)
- 3 units Informal Logic: HUMAN 2C03
- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these units may be added to electives.
- 3-6 units Electives

## Honours Economics and Mathematics

### ADMISSION

Completion of **any Level I** programme, including a grade of at least B- in ECON 1A06 and an average of at least 7.0 in MATH 1A06 and 1B03.

### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 36 units ECON 2G03, 2GG3, 2H03, 2HH3, 3F03, 3LL3 and 4A03; one of 2K03 or 3I03; 12 units Economics, excluding 2C03 and 2D03
- 36 units MATH 2A06, 2B06, 2C03; one of 3A06 or 3O06; 15 units from MATH 3E03, 3EE3, 3F03, 3FF3, 3P03, 3Q03, 3R03, 3T03, 4A06, 4C03, 4J03, 4K03, 4RR3, STATS 3S03, 3U03, 4H03, 4K03, 4M03
- 6-9 units Research Methods: STATS 2D03; one of STATS 2MB3, STATS 3D06, or ECON 3O06
- 3 units Informal Logic: HUMAN 2C03
- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these units may be added to electives.
- 0-3 units Electives

## Minor in Economics

### REQUIREMENTS

- 6 units ECON 1A06
- 18 units ECON 2G03, 2H03; 12 additional units Economics, excluding ECON 2C03 and 2D03

## B.A. in Economics

### ADMISSION

Completion of **any Level I** programme with a grade of at least C- in ECON 1A06. Credit in OAC Calculus, or MATH 1K03, or equivalent.

### REQUIREMENTS

90 units total (Levels I to III), of which 42 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 24 units ECON 2G03, 2H03, 2B03; one of 2K03 or 3I03; 12 units Economics courses, excluding ECON 2C03 and 2D03
- 6 units ENGLISH 1D06 which must be completed by the end of 60 units. If requirement completed in Level I, these units may be added to electives.
- 3-6 units Calculus drawn from MATH 1A06, 1AA6, 1C06, 1M03 or 1N06. If requirement completed in Level I, these units may be added to electives.
- 3 units One of OAC Finite Math, MATH 1L03, STATS 1L03 or STATS 2D03. If requirement completed in Level I or with OACs these units may be added to electives.
- 21-24 units Electives (the maximum Economics courses to be taken is 36 units)

## DEPARTMENT OF GEOGRAPHY

### Honours Geography (B.Sc.) and B.Sc. in Geography and Honours Geography and Geology (B.Sc.)

(See B.Sc. programmes in Geography,  
Faculty of Science, Department of Geography)

### Honours Economics and Geography

(B.A., See Department of Economics)

### Honours History and Geography

(B.A.; See Faculty of Humanities, Department of History)

### Honours Arts & Science and Geography

(B. Arts Sc.; See Arts & Science programme)

### Honours Geography (B.A., Specialist Option)

#### ADMISSION

Completion of **any Level I** programme with an average of at least 7.0 in six units of Level I Geography (and six other units), including a grade of at least B- in Level I Geography. One of MATH 1A06, 1C06 or 1M03 must be completed by the end of Level II. Its inclusion in the student's Level I programme is strongly recommended.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 48 units 12 units from GEOG 2A03, 2B03, 2D03, 2F03, 2K03, 2R03, 2T03, 2W03, 2Y03; GEOG 3003 and 4C06; nine additional units Level IV Geography; 18 units Level III and Level IV Geography, excluding GEOG 3JJ3, 3R03
- 3-6 units MATH 1A06, 1C06 or 1M03 which must be completed by the end of 60 units. If requirement completed in Level I, these units may be added to electives.
- 6 units Research Methods: GEOG 2LL3 and 2NN3 or 2N03
- 3 units Informal Logic: HUMAN 2C03
- 6 units Social Sciences I course other than Geography. If requirement completed in Level I, these units may be added to electives.
- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these units may be added to electives.
- 12 units Electives which must be outside Geography
- 3-6 units Electives



## Honours Geography

### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in six units of Level I Geography and six additional units, including a grade of at least B- in all Level I Geography. One of MATH 1A06, 1C06 or 1M03 must be completed by the end of Level II. Its inclusion in the student's Level I programme is strongly recommended.

### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 39 units GEOG 3003; 4CC3 and nine additional units of Level IV Geography or 4C06 and six units of Level IV Geography; 24 units of Level II-IV Geography courses, excluding 2C03, 2E03, 2P03, 3JJ3, and 3R03
- 3-6 units MATH 1A06, 1C06 or 1M03 which must be completed by the end of 60 units. If requirement completed in Level I, these units may be added to electives.
- 6 units Research Methods: GEOG 2LL3 and 2NN3 or 2N03
- 6 units Social Sciences I course other than Geography. If requirement completed in Level I, these units may be added to electives.
- 3 units Informal Logic: HUMAN 2C03
- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these units may be added to electives.
- 30 units Electives

## Combined Honours B.A. in Geography and Another Subject

### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in six units of Level I Geography. Satisfaction of admission requirements for the Honours programme in the other B.A. subject. One of MATH 1A06, 1C06 or 1M03 must be completed by the end of Level II. Its inclusion in the student's Level I programme is strongly recommended.

### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 30 units six units Level II Geography, excluding 2C03, 2E03, 2P03; 3O03, and nine units Level III, excluding GEOG 3JJ3, 3R03; 4CC3 and nine additional units Level IV Geography or 4C06 and six units of Level IV Geography (or six units of the thesis or Honours Seminar specified by the other department).
- 36 units Courses specified for the other subject
- 3-6 units MATH 1A06, 1C06 or 1M03 which must be completed by the end of 60 units. If requirement completed in Level I, these units may be added to electives.
- 6 units Research Methods: GEOG 2LL3 and 2NN3 or 2N03, or in combined programmes within the Faculty of Social Sciences, the Research Methods specified for the other subject.
- 3 units Informal Logic: HUMAN 2C03. Students combining Honours Arts and Science with Geography are exempt from this requirement.
- 6 units World History, Culture and Thought. Students combining Geography with Arts and Science, or with a Humanities subject, are exempt from this requirement. If requirement completed in Level I, these units may be added to electives.
- 3-6 units Electives

## Honours Geography and Environmental Studies (B.A.)

### ADMISSION

Completion of **Social Sciences I**, including MATH 1K03 or 1M03, ECON 1A06, ENV SCI 1A06, GEOG 1A06 or 1C03 and 1G03 with a grade of at least B- in all Level I Geography courses and in ENV SCI 1A06.

### COURSE LIST 1

- ANTHROP 2E03, 2F03, 2H03, 3C03, 3F03, 3V03, 3Z03, 4A03, 4C03
- BIOLOGY 2D03, 2E03, 2F03, 3A06, 3SS3, 3TT3, 4D03, 4Y03
- ECON 2G03, 3B03, 3C03, 3J06, 3V03, 3W03, 3Z03, 4E03, 4H03
- GEOG 2F03, 2K03, 2LL3, 2NN3, 2N03, 2R03, 2T03, 2W03, 3C03, 3F03, 3G03, 3J03, 3K03, 3L03, 3M03, 3NN3, 3N03, 3P03, 3U03, 3UU3, 3W03, 4A03, 4D03, 4J03, 4KK3, 4NN3, 4P03, 4Q03, 4R03, 4S03, 4T03, 4VV6, 4W03
- PHILOS 2G03, 3M03
- POL SCI 2E06, 2G06, 3S03, 3Z06, 4F06, 4G06, 4K06, 4O06
- SOCIOL 2H06, 3G03, 3HH3, 3V03

### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 63 units BIOLOGY 2F03; GEOG 3C03, 3E03, 3J03, 3O03, 3U03, 3UU3, 4VV6; 36 additional units from Course List 1, at least three units must be from Geography and at least 18 units may not be from Geography; at least 12 units must be Level III or IV.
- 6 units Research Methods: GEOG 2LL3 and 2NN3 or 2N03
- 3 units Informal Logic: HUMAN 2C03
- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these units may be added to electives.
- 12 units Electives

*GEOLOGY 1C03 is strongly recommended.*

## Honours Geography and Geology (B.A.)

### ADMISSION

Completion of any Level I programme with a grade of at least B- in both GEOG 1A06 or 1C03 and 1G03 and GEOLOGY 1A03 or 1C03. Six units of Mathematics (either 1A06 or 1C06, or two of 1K03, 1L03 or STATS 1L03, 1M03) which must be completed by the end of Level II. Their inclusion in the student's Level I programme is strongly recommended. CHEM 1C03 must be completed by the end of Level II.

### COURSE LIST 2

- GEOG 2F03, 2K03, 2LL3, 2NN3, 2N03, 2T03, 2W02, 3E03, 3F03, 3I03, 3K03, 3L03, 3M03, 3NN3, 3N03, 3O03, 3P03, 3W03, 4A03, 4C06, 4D03, 4E03, 4KK3, 4NN3, 4P03, 4Q03, 4R03, 4W03

### NOTES

- Students wishing to enter this programme are to follow the procedures for admission to the Limited Enrolment Programme in Geology.
- GEOLOGY 3E02 is normally taken at the end of Level II. This course is scheduled outside of the regular term.

### REQUIREMENTS

123 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme (See *Admission* above.)
- 63 units GEOG 2T03; one of GEOG 2F03, 2K03, 2U03, 2W03; GEOLOGY 2B06, 2C03, 2DD3, 2E01; GEOG 3E03, 3M03, 3O03; one of 3F03, 3K03, 3NN3, 3P03, 3W03; GEOLOGY 3CC6, 3E02, 3S03, two of GEOLOGY 2J03, 2I03, 3DD3, 3F03; six units of Level IV Geography

	from Course List 2 and six units of Level IV Geology; three units of Level III or IV Geography from Course List 2 or Level III or IV Geology.
3 units	CHEM 1C03. If requirement completed in Level I, these units may be added to electives.
6 units	MATH (1A06 or 1C06; or two of 1K03, 1L03, or STATS 1L03, 1M03). If requirement completed in Level I, these units may be added to electives.
6 units	Research Methods: GEOG 2LL3 and 2NN3 or 2N03
3 units	Informal Logic: HUMAN 2C03
6 units	World History, Culture and Thought (see <i>World History, Culture and Thought Menu</i> in this section). If requirement completed in Level I, these units may be added to electives.
6 units	Electives

## Minor in Geography

### REQUIREMENTS

6 units	Level I Geography
18 units	Level II, III or IV Geography with at least six units from Level III to IV and no more than six units from GEOG 2C03, 2E03, 2P03, 3JJ3 and 3R03

## B.A. in Geography

### ADMISSION

Completion of any Level I programme with a grade of at least C- in six units of any Level I Geography and six units of one other subject with a grade of at least C-.

### REQUIREMENTS

90 units total (Levels I to III), of which 42 may be Level I courses

30 units	from the Level I programme completed prior to admission to the programme. (See <i>Admission</i> above.)
24 units	six units from GEOG 2A03, 2B03, 2D03, 2F03, 2K03, 2LL3, 2NN3, 2N03, 2R03, 2T03, 2U03, 2W03, 2Y03; six additional units of Level II Geography; six units from GEOG 3F03, 3G03, 3K03, 3M03, 3P03, 3NN3, 3N03, 3Q03, 3T03, 3W03, 3X03; six additional units of Level III Geography.
6 units	Humanities (see Faculty of Social Sciences: Academic Regulations). If requirement completed in Level I, these units may be added to electives.
30 units	Electives. (The maximum Geography courses to be taken is 42 units)

## GERONTOLOGICAL STUDIES

### Honours Arts & Science and Gerontology

(B. Arts Sc.; See Arts & Science Programme)

### Combined Honours in Gerontology and Another Subject

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in GERONTOL 1A06 and satisfaction of admission requirements for the Honours B.A. programme in the other subject.

#### NOTES

##### 1. Enrolment in programmes in Gerontology is limited.

Application for admission, including a statement explaining the applicant's interest in the programme, should be made to the Chair of the Committee of Instruction, **prior to April 15**. The Admissions Committee may wish to interview the applicants.

- Students who have not taken GERONTOL 1A06 in Level I may be considered for admission to the programme, and should consult the Chair of the Committee of Instruction.
- Courses other than Gerontology or those listed in Course List 1 may be substituted at registration, with the permission of the Chair of the Committee of Instruction.

- Students in the Combined Honours programme must consult both departments regarding completion of the Research Methods requirement.
- GERONTOL 3D03 and GERONTOL 2B03 may both be counted toward the required units in Gerontology.

#### COURSE LIST 1

ANTHROP 3Z03  
ECON 3D03, 3Z03  
GEOG 4S03  
HTH SCI 3B04  
HISTORY 3EE3  
PHILOS 3C03  
RELIG ST 2M03, 2N03, 2WW3  
SOC WORK 3C03  
SOCIOLOG 3CC3, 3G03, 3HH3, 3X03, 4P03  
or other designated and approved courses. (See *Note 3*)

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

30 units	from the Level I programme completed prior to admission to the programme. (See <i>Admission</i> above.)
33 units	GERONTOL 2A03, 3B03; one of 2B03 or 3D03; 4A06 (Thesis) or PSYCH 4D06; three additional units Level IV Gerontology courses; 15 units of Gerontology courses or courses from Course List 1.
36 units	Courses as specified for the other subject
6 units	Research Methods: GERONTOL 3C03 and 3G03, or in combined programmes within the Faculty of Social Sciences, the Research Methods specified for the other subject.
3 units	Informal Logic: HUMAN 2C03. Students combining Arts and Science with Gerontology are exempt from this requirement.
6 units	World History, Culture and Thought (see <i>World History, Culture and Thought Menu</i> in this section). Students combining Gerontology with Arts & Science, or with a Humanities subject, are exempt from this requirement. If requirement completed in Level I, these units may be added to electives
6 units	Electives

## B.A. in Gerontology and Another Subject

### ADMISSION

Completion of any Level I programme with a grade of at least C- in GERONTOL 1A06 or and satisfaction of admission requirements for the B.A. in the other subject.

### NOTES

##### 1. Enrolment in programmes in Gerontology is limited.

Application for admission, including a statement explaining the applicant's interest in the programme, should be made to the Chair of the Committee of Instruction, **prior to April 15**. The Admissions Committee may wish to interview the applicants.

- Students who have not taken GERONTOL 1A06 may be considered for admission to the programme and should consult the Chair of the Committee of Instruction.
- Courses other than those listed in Course List 1 may be substituted at registration, with the permission of the Chair of the Committee of Instruction.
- No more than six units of work in the other subject of the combined programme which are also in Course List 1 may be used to fulfill the requirements of both programme components.
- Students in the Combined Gerontology and Another Subject must consult both departments regarding completion of the Research Methods and/or Statistics courses.
- GERONTOL 3D03 and GERONTOL 2B03 may both be counted toward the required units in Gerontology.
- Students in the B.A. in Gerontology and another Subject/Bachelor of Social Work should consult with the Chair of the Committee of Instruction regarding the GERONTOL 3B03: Gerontology Field Experience requirement.

**COURSE LIST 1**

ANTHROP 3Z03  
 ECON 3D03, 3Z03  
 GEOG 4S03  
 HTH SCI 3B04  
 HISTORY 3EE3  
 PHILOS 3C03  
 RELIG ST 2M03, 2N03, 2WW3  
 SOC WORK 3C03  
 SOCIOLOG 3CC3, 3G03, 3HH3, 3X03, 4P03  
 or other designated and approved courses (See Note 3)

**REQUIREMENTS**

90 units total (Levels I to III), of which 42 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme (See Admission above.)
- 24 units GERONTOL 2A03, 3B03, 3C03; one of 2B03 or 3D03; 12 additional units of Gerontology courses or courses from Course List 1
- 24 units Courses specified for the other subject (see Note 4)
- 6 units Humanities (see Academic Regulations in this section). If requirement completed in Level I, these units may be added to electives.
- 6 units Electives

**B.A. in Gerontology as a Second Degree**

**ADMISSION**

Completion of an undergraduate degree from a recognized university normally with a Cumulative Average of at least 4.0 (or its equivalent), a grade of at least C- in GERONTOL 1A06 (or its equivalent), and evidence of a personal interest in Gerontological Studies, which may be evaluated by one, or a combination of a written statement and an interview.

An applicant is normally required to complete the prerequisite undergraduate degree work by April of the year in which application is made.

**Enrolment in programmes in Gerontology is limited.**

As Second Degree candidates, applicants must first apply for admission to the University through the office of the Associate Registrar (Liaison and Admissions) indicating they want to take Gerontology as a Second Degree. An application for admission to the Gerontology programme will be sent to the applicant from the Office of the Associate Registrar.

Application for admission, including a statement explaining the applicant's interest in the programme, should be made to the Chair of the Committee of Instruction **prior to April 15.**

Students who have not included GERONTOL 1A06 (or its equivalent) in their first degree programme may be considered for admission to the programme and should consult the chair of the Committee of Instruction.

**NOTES**

1. Students are required to complete a total of 30 units for the second degree, all of which must be completed at McMaster. If advanced credit is granted for Gerontology courses, additional courses must be taken at McMaster to total 30 units.
2. Courses other than those listed below in Course List 1 may be substituted at registration, with the permission of the Chair of the Committee of Instruction.
3. GERONTOL 3D03 and GERONTOL 2B03 may be counted toward the required units in Gerontology.

**COURSE LIST 1**

ANTHROP 3Z03  
 ECON 3D03, 3Z03  
 GEOG 4S03  
 HTH SCI 3B04  
 HISTORY 3EE3  
 PHILOS 3C03  
 RELIG ST 2M03, 2N03, 2WW3  
 SOC WORK 3C03

SOCIOL 3CC3, 3G03, 3HH3, 3X03, 4P03  
 or other designated and approved courses. (See Note 2)

**REQUIREMENTS**

30 units total

24 units GERONTOL 2A03, 3B03; one of 3C03 or 4E03; one of 2B03 or 3D03; 12 additional units of Gerontology courses or courses from Course List 1

6 units Electives

**Honours B.A. in Gerontology as Another Subject as a Second Degree Programme**

**ADMISSION**

Former McMaster students who have completed a three-level B.A. degree in Combined Gerontology and Another Subject may apply to the Combined Honours in Gerontology and Another Subject as a Second Degree programme if they have a Cumulative Average of at least 7.0. The other subject must be the same as in the first degree and students must be accepted for Honours by Gerontology and by the other department.

Enrolment in programmes in Gerontology is limited.

Applicants must first apply for admission to the University through the office of the Associate Registrar (Liaison and Admissions) indicating they want to take Honours Gerontology as a Second Degree. An application for admission to the Gerontology programme will be sent to the application from the Office of the Associate Registrar.

Application for admission, including a statement explaining the applicant's interest in the programme, should be made to the Chair of the Committee of Instruction **prior to April 15.**

**NOTES**

1. Students are required to take courses to total at least 30 units, including all Honours requirements for both subjects. All units for the second degree must be completed at McMaster.
2. Courses other than those listed below in Course List 1 may be substituted at registration. Students wishing to designate a course not on the list of Gerontology courses must consult the Chair of the Committee of Instruction.
3. GERONTOL 3D03 and GERONTOL 2B03 may both be counted towards the required units in Gerontology.

**COURSE LIST 1**

ANTHROP 3Z03  
 ECON 3D03, 3Z03  
 GEOG 4S03  
 HTH SCI 3B04  
 HISTORY 3EE3  
 PHILOS 3C03  
 RELIG ST 2M03, 2N03, 2WW3  
 SOC SCI 3C03  
 SOCIOLOG 3CC3, 3G03, 3HH3, 3X03, 4P03  
 or other designated and approved courses. (See Note 2)

**REQUIREMENTS (MINIMUM)**

30 units total

Gerontology courses or courses from Course List 1 to complete the Honours requirement, including six units of research methods.  
 Courses specified for the other subject.

**LABOUR STUDIES**

**Honours Labour Studies (Specialist Option)**

**ADMISSION**

Completion of any Level I programme with an average of at least 7.0 in LABR ST 1AA3 and 1A03, and an overall average of at least 7.0 in 12 units, which includes LABR ST 1AA3 and 1A03, and six units from ECON 1A06, HISTORY 1C06, MATH 1K03, MATH 1L03 or STATS 1L03, POL SCI 1A06 or 1B03 and 1C03, PSYCH 1A06, SOCIOLOG 1A06

**NOTES**

1. Enrolment in the Labour Studies programme is limited.

Application for admission (forms available from Labour Studies Office), including a statement explaining the applicant's interest in the programme, should be made to the Chair, Committee of Instruction, **prior to April 15**. The Admissions Committee may wish to interview each applicant.

- Students are encouraged to consult the Labour Studies programme handbook which is available from the Labour Studies Office.
- Students may not transfer from Labour Studies to a Minor in Labour Studies except by the normal application process.
- LABR ST 2A06 and COMMERCE 2BA3 should be taken in Level II; COMMERCE 4BC3 and 4BD3 should be taken in Level III.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 54 units LABR ST 2A06, 2B03, 2C03; COMMERCE 2BA3; LABR ST 3C03; COMMERCE 4BC3 and 4BD3; 12 units from LABR ST 3A03, 3AA3, 3B03, 3D03, 3E03, 3I03; LABR ST 4A09, 4B03, 4C03, 4D03. (See *Note 4*)
- 12 units SOCIOL 1A06 and ECON 1A06 which must be completed by the end of 60 units. If requirement completed in Level I, these units may be added to electives.
- 3-6 units Research Methods: from ECON 2B03, ECON 3O06, SOCIOL 2Y03, SOCIOL 3H06, POL SCI 2F06, STATS 1A03, STATS 2R06
- 3 units Informal Logic: HUMAN 2C03
- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these units may be added to electives.
- 9-12 units Electives which may include COMMERCE 3BB3

### Honours Labour Studies

#### ADMISSION

Completion of **any Level I** programme with an average of at least 7.0 in LABR ST 1AA3 and 1A03, and an overall average of at least 7.0 in 12 units, which includes LABR ST 1AA3 and 1A03, and six units from ECON 1A06, HISTORY 1C06, MATH 1K03, MATH 1L03 or STATS 1L03, POL SCI 1A06 or 1B03 and 1C03, PSYCH 1A06, SOCIOL 1A06.

#### NOTES

- Enrolment in the Labour Studies Programme is limited.** Application for admission (forms available from Labour Studies Office), including a statement explaining the applicant's interest in the programme, should be made to the Chair, Committee of Instruction, **prior to April 15**. The Admissions Committee may wish to interview each applicant.
- Students are encouraged to consult the Labour Studies Programme Handbook which is available from the Labour Studies Office.
- Students may not transfer from Labour Studies to a Minor in Labour Studies except by the normal application process.
- LABR ST 2A06 should be taken in Level II. COMMERCE 4BC3 should be taken in Level III if needed as a prerequisite for Level IV courses.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 45 units LABR ST 2A06, 2C03; 21 units from: LABR ST 3A03, 3AA3, 3B03, 3C03, 3D03, 3E03, 3I03, COMMERCE 4BC3 and 4BD3; LABR ST 4A09, 4B03, and either 4C03 or 4D03. (See *Note 4*)
- 12 units SOCIOL 1A06 and ECON 1A06 which must be completed by the end of 60 units. If requirement completed in Level I, these units may be added to electives.
- 3-6 units Research Methods: from ECON 2B03, ECON 3O06, SOCIOL 2Y03, SOCIOL 3H06, POL SCI 2F06, STATS 1A03, STATS 2R06
- 3 units Informal Logic: HUMAN 2C03

- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these units may be added to electives.

18-21 units Electives, which may include COMMERCE 3BB3

### Combined Honours in Labour Studies and Another Subject

#### ADMISSION

Completion of **any Level I** programme with an average of at least 7.0 in LABR ST 1AA3 and 1A03, and an overall average of at least 7.0 in 12 units, which includes LABR ST 1AA3 and 1A03, and six units from ECON 1A06, HISTORY 1C06, MATH 1K03, MATH 1L03 or STATS 1L03, POL SCI 1A06 or 1B03 and 1C03, PSYCH 1A06, SOCIOL 1A06. Satisfaction of admission requirements for the Honours B.A. programme in the other subject.

#### NOTES

- Enrolment in the Labour Studies programme is limited.** Application for admission (forms available in the Labour Studies Office), including a statement explaining the applicant's interest in the programme, should be made to the Chair, Committee of Instruction, **prior to April 15**. The Admissions Committee may wish to interview each applicant.
- Students may choose to satisfy the requirements for Research Methods, Inquiry and Honours Seminar either as specified by the Labour Studies programme or as specified by the other department or programme. Students combining Labour Studies with a Humanities subject or with Religious Studies must complete the Research Methods, Inquiry and Honours Seminar requirements as specified by the Labour Studies programme. (LABR ST 4A09 and 4B03, and three to six units from the Labour Studies Research Methods Menu). Combined Honours students who wish to satisfy the Research Methods, Inquiry and Honours Seminar requirements as specified by the other department may replace LABR ST 4A09 and 4B03 with three units Level III or IV and three units Level IV Labour Studies courses.
- Students should consult the Labour Studies Programme Handbook, which is available from the Labour Studies Office.
- Students may not transfer from Honours Labour Studies to a Minor in Labour Studies except by the normal application process.
- LABR ST 2A06 should be taken in Level II. COMMERCE 4BC3 should be taken in Level III if needed as a prerequisite for Level IV courses.
- There are no Electives in this programme. Students who are planning to combine Honours Labour Studies with another subject should include SOCIOL 1A06, ECON 1A06 and six units of World History, Culture and Thought in their Level I programmes to provide some electives in their programme. Electives may include COMMERCE 3BB3. If these courses are not taken in Level I, students may have to take more than 120 units to complete the programme's requirements.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admissions* above.)
- 39 units LABR ST 2A06, 2C03; 15 units from: LABR ST 3A03, 3AA3, 3B03, 3C03, 3D03, 3E03, 3I03, COMMERCE 4BC3 and 4BD3; LABR ST 4A09, 4B03 and either LABR ST 4C03 or 4D03 (See *Note 2*)
- 36 units Courses specified for the other subject
- 12 units SOCIOL 1A06 and ECON 1A06 which must be completed by the end of 60 units. If requirement completed in Level I, these units may be added to electives.
- 3-6 units Research Methods: from ECON 2B03, ECON 3O06, SOCIOL 2Y03, SOCIOL 3H06, POL SCI 2F06, STATS 1A03, STATS 2R06 or in combined programmes within the Faculty of Social Sciences, the Research Methods specified for the other subject (See *Note 2*)

- 3 units Informal Logic: HUMAN 2C03. Students combining Honours Arts and Science with Labour Studies are exempt from this requirement.
- 6 units World History, Culture and Thought. Students combining Labour Studies with Arts & Science, or with a Humanities subject are exempt from this requirement. If requirement completed in Level I, these units may be added to electives.

- 12 units SOCIOL 1A06 and ECON 1A06 which must be completed by the end of 60 units. If requirement completed in Level I, these units may be added to electives.
- 6 units Humanities (see *Academic Regulations* in this section). If requirement completed in Level I, these units may be added to electives.
- 9 units Electives, which may include COMMERCE 3BB3.

### Minor in Labour Studies

Labour Studies will admit a maximum of 10 students to the Minor programme in Labour Studies each year.

#### NOTES

1. **Enrolment in the Labour Studies programme is limited.** Application for admission (forms available from Labour Studies Office), including a statement explaining the applicant's interest in the programme, should be made to the Chair, Committee of Instruction, **prior to April 15**. The Admissions Committee may wish to interview each applicant.
2. Honours students with a Minor in Labour Studies may take no more than three units of Level IV courses.
3. Students should consult the Labour Studies Programme Handbook which is available from the Labour Studies Office.
4. Students may not transfer from the Minor in Labour Studies to another Labour Studies programme except by the normal application process.

#### REQUIREMENTS

- 6 units LABR ST 1A03 and 1AA3
- 18 units Labour Studies courses, including LABR ST 2A06 and 2C03
- 12 units ECON 1A06 and SOCIOL 1A06 which must be completed by the end of 60 units. If requirement completed in Level I, these units may be added to electives.

### B.A. in Labour Studies

#### ADMISSION

Completion of any Level I programme with an average of at least 4.0 in LABR ST 1AA3 and 1A03 and an overall average of at least 4.0 in 12 units, which includes LABR ST 1AA3 and 1A03, and six units from ECON 1A06, HISTORY 1C06, MATH 1K03, 1L03 or STATS 1L03, POL SCI 1A06 or 1B03 and 1C03, PSYCH 1A06, and SOCIOL 1A06.

#### NOTES

1. **Enrolment in the Labour Studies programme is limited.** Application for admission (forms available from Labour Studies Office), including a statement explaining the applicant's interest in the programme, should be made to the Chair, Committee of Instruction, **prior to April 15**. The Admissions Committee may wish to interview each applicant. Students applying for the Honours programme will automatically be considered for the B.A. programme.
2. Part-time students continuing under the regulations of the previous B.A. programme (i.e., who entered the programme **prior to 1987/88**) should consult the office of the Associate Dean (Studies) of the Faculty of Social Sciences or the Director of Labour Studies.
3. Students should consult the Labour Studies Programme Handbook, which is available from the Labour Studies Office.
4. Students in the B.A. programme may not transfer to another Labour Studies programme except by the normal application process.
5. LABR ST 2A06 should be taken in Level II.

#### REQUIREMENTS

- 90 units total (Levels I to III), of which 42 units may be Level I courses
- 30 units from the Level I programme completed prior to admission to the programme. (See *Admissions* above.)
  - 33 units LABR ST 2A06, 2B03, 2C03; COMMERCE 2BA3, COMMERCE 4BC3, 4BD3; 12 units from LABR ST 3A03, 3AA3, 3B03, 3C03, 3D03, 3E03, 3I03 (See *Notes 2 and 5*)

### DEPARTMENT OF PHYSICAL EDUCATION

The Department of Physical Education offers a four-year programme leading to the degree of Bachelor of Physical Education (B.P.E.). The programme differs somewhat from the majority of Physical Education programmes in the province in that students begin to take courses leading to the degree in Level I. The programme is divided into **two** distinct parts.

During Levels I and II students take a core of 36 units of required theoretical courses in which they are introduced to the various subdisciplines of Physical Education, a core of seven units of required practicum courses.

During Levels III and IV students are free to select from a variety of Physical Education electives in both theory and practicum areas. These courses, supplemented by the Arts & Science electives selected by the student, may be grouped in various ways with career and/or graduate study goals in mind.

#### Academic Regulations

1. **Effective 1992-93, practicum courses are graded as A, B, or F and are not included in the calculation of the CA. For students admitted before 1992-93 practicum courses will continue to be graded on a 12-point scale and used in the calculation of the CA.**

2. **May Not Continue in the Programme: Readmission**

A student who is ineligible to continue in the B.P.E. programme may apply for readmission after not less than one year. Application for re-admission must be made in writing to the Undergraduate Co-ordinator in **March** of the year in which readmission is desired. Students normally will not be considered for readmission unless they have achieved a B- average in at least 24 units of university course work.

**Readmission is not guaranteed.**

#### WORK LOAD

All B.P.E. students must complete a Fall/Winter session work load of 31 units in Level I, and 34 units in Level II, and 33 units in Levels III, and IV. Advanced credit and credit earned during Spring/Summer sessions may be used to reduce the time required to complete the degree. In any Fall/Winter session, a student may not register for any more than the required number of units without the approval of the Undergraduate Co-ordinator.

#### Transferring into the Department of Physical Education

Enrolment of transfer students from another university or another McMaster programme is limited and applicants must normally have at least a B- average in their previous university work to be eligible.

**Effective 1992-93, practicum courses are graded as A, B, or F and are not included in the calculation of the CA.**

#### REQUIREMENTS

131 units total (Levels I to IV), of which 49 units may be Level I courses

- 66 units Physical Education Theory
  - Level I: 18 units: PHYS ED 1A06, 1B03, 1E03, 1F03 and BIOLOGY 1J03
  - Level II: 18 units: PHYS ED 2A03, 2B03, 2C06, 2D03, 2F03
  - Level III and IV: 30 units
- 11 units Physical Education Practicum
  - Level I: PHYS ED 1S00 (McMaster Swimming Test), PHYS ED 1CA0 (CPR/First Aid), PR02 (Gymnastics I)
  - Level II: PR03 (Track & Field I), PR04 (Games), PR05

- (Dance), PR06 (Fitness I)  
Level III and IV: six additional Practicum units
- 54 units Electives (the maximum Physical Education theory courses to be taken is 66 units)

### B.P.E. as a Second Degree

#### ADMISSION

Completion of any undergraduate degree from a recognized university normally with an average of at least 7.0 (B-) or its equivalent.

#### NOTES

- Applications must be made to the Undergraduate Physical Education Co-ordinator prior to May 15.
- The degree must be completed on a full-time basis.

Effective 1992-93, practicum courses are graded as A, B, or F and are not included in the calculation of the CA.

#### REQUIREMENTS

77 units total (66 Theory and 11 Practicum)

- 66 units Physical Education Theory:  
Level I: 18 units: PHYS ED 1A06, 1B03, 1E03, 1F03 and BIOLOGY 1J03  
Level II: 18 units: PHYS ED 2A03, 2B03, 2C06, 2D03, 2F03  
Level III and IV: 30 units
- 11 units Physical Education Practicum  
Level I: PHYS ED 1S00 (McMaster Swimming Test), PHYS ED 1CA0 (CPR/First Aid), PR02 (Gymnastics I)  
Level II: PR03 (Track & Field I), PR04 (Games), PR05 (Dance), PR06 (Fitness I)  
Level III and IV: six additional Practicum units

## DEPARTMENT OF POLITICAL SCIENCE

### Honours Arts & Science and Political Science

(B. Arts Sc.; See Arts & Science programme)

### Honours German and Political Science

(See Faculty of Humanities, Department of Modern Languages: German)

### Honours Russian and Political Science

(See Faculty of Humanities, Department of Modern Languages: Russian)

### Honours Political Science

For 1994-95, enrolment in this programme may be limited.

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in POL SCI 1A06 or 1B03 and 1C03 and six other units, including an average of at least 7.0 in Level I Political Science course(s).

#### NOTES

- Prerequisites:** Students should take note of those Level II courses that are required to qualify for a number of Level III and IV courses. Students who wish to enter courses but who lack the necessary prerequisites must obtain the permission of the instructor.
- Required Courses:** POL SCI 2F06 and 2O06 are required for students enrolled in Honours Political Science programmes, and recommended for students in B.A. programmes. However, if students take both these required courses at Level II, they may experience difficulties acquiring the necessary prerequisites for courses at Levels III and IV. Therefore, the Department strongly encourages students to take one of these courses at Level II and the other at Level III. Because POL SCI 2O06 is a prerequisite for Level III and IV courses in political theory, the order in which POL SCI 2O06 and 2F06 will depend on the particular course of study chosen; further advice on this may be sought from an Undergraduate Advisor.

#### REQUIREMENTS

- 120 units total (Levels I to IV), of which 48 units may be Level I courses
- 30 units from the Level I programme completed prior to admission to the programme. (See Admission above.)
- 48 units POL SCI 2O06, POL SCI 4Z06; six additional units of Level IV Political Science; 30 units Level II, III or IV Political Science of which a maximum of 12 units may be Level II
- 6 units Research Methods: POL SCI 2F06
- 3 units Informal Logic: HUMAN 2C03
- 6 units Social Sciences I courses other than POL SCI 1A06 or 1B03 and 1C03. If requirement completed in Level I, these units may be added to electives.
- 6 units World History, Culture and Thought (see *World History, Culture and Thought Menu* in this section). If requirement completed in Level I, these units may be added to electives.
- 21 units Electives (the maximum Political Science courses to be taken is 60 units).

### Combined Honours in

### Political Science and Another Subject

For 1994-95, enrolment in this programme may be limited.

#### ADMISSION

Completion of any Level I programme with a weighted average of at least 7.0 POL SCI 1A06 or 1B03 and 1C03. Satisfaction of the admission requirements for the Honours B.A. programme in the other subject.

#### NOTES

- Prerequisites:** Students should be alerted to those Level II courses that are required to qualify for a number of Level III and IV courses. Students who wish to enter courses but who lack the necessary prerequisites must obtain the permission of the instructor.
- Required Courses:** POL SCI 2F06 and 2O06 are required for students enrolled in Honours Political Science programmes, and recommended for students in B.A. programmes. However, if students take both these required courses at Level II, they may experience difficulties acquiring the necessary prerequisites for courses at Levels III and IV. Therefore, the Department strongly encourages students to take one of these courses at Level II and the other at Level III. Because POL SCI 2O06 is a prerequisite for Level III and IV courses in political theory, the order in which POL SCI 2O06 and 2F06 will depend on the particular course of study chosen; further advice on this may be sought from an Undergraduate Advisor.

#### REQUIREMENTS

- 120 units total (Levels I to IV), of which 48 units may be Level I courses
- 30 units from the Level I programme completed prior to admission to the programme (See Admission above.)
- 36 units POL SCI 2O06; 12 units Level III Political Science; six units Level IV Political Science; 12 units Level II, III or IV Political Science
- 36 units Courses specified for the other subject
- 6 units Research Methods: POL SCI 2F06 or in combined programmes within the Faculty of Social Sciences, the Research Methods specified for the other subject.
- 3 units Informal Logic: HUMAN 2C03. Students combining Honours Arts and Science with Political Science are exempt from this requirement.
- 6 units World History, Culture and Thought. Students combining Political Science with Arts & Science, or with a Humanities subject, are exempt from this requirement. If requirement completed in Level I, these units may be added to electives.
- 3 units Electives (the maximum Political Science courses to be taken is 48 units).

## Minor in Political Science

### NOTES

- Prerequisites:** All students should note those Level II Political Science courses that are required in order to register in a number of Level III courses.
- Level IV courses have limited enrolment with preference given to Honours Political Science students. Students must apply by ballot through the Department.

### REQUIREMENTS

6 units Level I Political Science and  
 18 units Level II, III of which up to 12 units may be Level II courses

## B.A. in Political Science

### ADMISSION

Completion of any Level I programme, with an average of at least C- in POL SCI 1A06 or 1B03 and 1C03.

### NOTES

- Prerequisites:** Students should be alerted to those Level II courses that are required to qualify for a number of Level III and IV courses. Students who wish to enter courses but who lack the necessary prerequisites must obtain the permission of the instructor.
- Required Courses:** POL SCI 2F06 and 2O06 are required for students enrolled in Honours Political Science programmes, and recommended for students in B.A. programmes. However, if students take both these courses at Level II, they may experience difficulties acquiring the necessary prerequisites for courses at Levels III and IV. Therefore, the Department strongly encourages students to take one of these courses at Level II and the other at Level III. Because POL SCI 2O06 is a prerequisite for Level III and IV courses in political theory, the order in which POL SCI 2O06 and 2F06 will depend on the particular course of study chosen; further advice on this may be sought from an Undergraduate Advisor.

### REQUIREMENTS

90 units total (Levels I to III), of which 42 units may be Level I courses

30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)  
 24 units 12 units Level II Political Science; 12 units Level III Political Science  
 6 units Humanities (see *Academic Regulations* in this section). If requirement completed in Level I these units may be added to electives.  
 30 units Electives (the maximum Political Science courses to be taken is 36 units)

## PSYCHOLOGY B.A. PROGRAMMES

### Honours Psychology

#### (B.A.)

### ADMISSION

Completion of any Level I programme with a grade of at least B- in PSYCH 1A06, and at least B- in six additional units, and credit in MATH 1A06, 1AA6 or 1C06, or at least C- in MATH 1M03.

### NOTES

- One of MATH 1A06, 1AA6 or 1C06, or MATH 1M03 with a grade of at least C-; must be completed before entrance into Level II of the programme.
- PSYCH 2R03 and 2RR3 must be completed before entrance to Level III.
- Inclusion of MATH 1B03 in Level II is highly recommended. MATH 1B03 or another course in linear algebra may be required in Level II of Honours B.A. Psychology programmes commencing in 1994-95.
- At some time during the programme, the student:
  - must meet a laboratory requirement by completing one of

PSYCH 3C06, 3E03, 3L03, 3QQ3, 3S03, 3V03, 4G03, or 4QQ3. Enrolment in Psychology Laboratory courses is limited. Permission of the department is required by March 1.

- must complete six units from the Social Sciences World History, Culture and Thought Menu;
  - must complete three units from the Informal Logic Menu;
  - must complete six units from Social Sciences I courses, in addition to PSYCH 1A06.
5. Students who are planning on graduate studies in Psychology and who meet the prerequisites should complete PSYCH 4D06.

### LEVEL II: 30 UNITS

**Required:** PSYCH 2R03, 2RR3; nine units from PSYCH 2E03, 2F03, 2H03 and 2T03; at least six additional units from the Faculty of Science, excluding Psychology and the Mathematics taken to meet the admission requirements. MATH 1B03 is highly recommended. (See *Note 3* above.)

**Electives:** To total 30 units, at least six of which must not be from Psychology

### LEVEL III: 30 UNITS

**Required:** 18 units of Level III Psychology; or three units from PSYCH 2E03, 2F03, 2H03 and 2T03 (if not taken in Level II) and 15 units of Level III Psychology. (See *Note 4.a.* above.)

**Electives:** 12 units, six of which must not be from Psychology

### LEVEL IV: 30 UNITS

**Required:** 18 units of Level III or IV Psychology

**Electives:** 12 units

## Combined Honours in Psychology and Another Subject

#### (B.A.)

### ADMISSION

Completion of any Level I programme with a grade of at least B- in PSYCH 1A06 and at least B- in six additional units, and credit in MATH 1A06, 1AA6 or 1C06 or at least C- in MATH 1M03.

### NOTES

- One of MATH 1A06, 1AA6 or 1C06, or MATH 1M03 with a grade of at least C-, must be completed before entrance into Level II of the programme.
- PSYCH 2R03 and 2RR3 must be completed before entrance to Level III.
- Inclusion of MATH 1B03 in Level II is highly recommended. MATH 1B03 or another course in linear algebra may be required in Level II of Honours B.A. Psychology programmes commencing in 1994-95.
- At some time during the programme, the student:
  - must meet a laboratory requirement by completing one of PSYCH 3C06, 3E03, 3L03, 3QQ3, 3S03, 3V03, 4G03, or 4QQ3. Enrolment in Psychology Laboratory courses is limited. Permission of the department is required by March 1.
  - must complete six units from the Social Sciences World History, Culture and Thought Menu;
  - must complete three units from the Informal Logic Menu;
  - must complete six units from Social Sciences I courses, in addition to PSYCH 1A06.
- Students who are planning on graduate studies in Psychology and who meet the prerequisites should complete PSYCH 4D06.

### LEVEL II: 30 UNITS

**Required:** PSYCH 2R03, 2RR3, and six units from PSYCH 2E03, 2F03, 2H03 and 2T03; at least six additional units from the Faculty of Science, excluding Psychology and the Mathematics taken to meet the admission requirements (MATH 1B03 is highly recommended. See *Note 3* above.); and all units required for the other subject.

**Electives:** To total 30 units

### LEVEL III: 30 UNITS

**Required:** 12 units of Level III Psychology, or three units from PSYCH 2E03, 2F03, 2H03 and 2T03 (if not taken in



Level II) and nine units of Level III Psychology; and all units required for the other subject. (See *Note 4.a.* above.)

**Electives:** To total 30 units

#### LEVEL IV: 30 UNITS

**Required:** 12 units from Level III or IV Psychology; and all units required for the other subject

**Electives:** To total 30 units

### Psychology Major

(B.A.)

#### ADMISSION

Completion of **any Level I** programme with at least a C in PSYCH 1A06 and in six additional units of Social Sciences or Natural Science.

#### NOTES

1. Completion of one of MATH 1A06, 1AA6, 1B03, 1C06, or 1M03 is required in Level II (completion in Level I is highly recommended).
2. The Statistics requirement (PSYCH 2G03 or 2R03) must be completed before entrance to Level III.

#### LEVEL II: 30 UNITS

**Required:** PSYCH 2G03 or 2R03; nine additional units of Level II Psychology, including at least two of 2E03, 2F03, 2H03 and 2T03; at least three units of Level I Mathematics chosen from MATH 1A06, 1AA6, 1B03, 1C06 or 1M03 if not already completed (See *Note 1* above); six units from Business, Humanities or Science, excluding Psychology.

**Electives:** To total 30 units, no more than three of which may be Psychology courses

#### LEVEL III: 30 UNITS

**Required:** 12 units of Psychology Level III, or three units from PSYCH 2E03, 2F03, 2H03 and 2T03 (if not taken in Level II) and nine units from Level III Psychology; six units from Business, Humanities or Science, excluding Psychology

**Electives:** 12 units of elective, no more than three of which may be Psychology courses

#### LEVEL IV: 30 UNITS

**Required:** 12 units Level III or IV Psychology; six units from Business, Humanities or Science, excluding Psychology

**Electives:** 12 units from Level III or IV, no more than three of which may be Psychology courses

### Minor in Psychology

PSYCH 1A06 and 18 units of Level II and III Psychology courses, including at least six units of Level III Psychology courses.

### B.A. in Psychology

#### ADMISSION

Completion of **any Level I** programme with at least a C- in PSYCH 1A06.

#### NOTES

1. Completion of one of MATH 1A06, 1AA6, 1B03, 1C06, 1M03 or 1K03 is required in Level II (completion in Level I is highly recommended).
2. The Statistics requirement (PSYCH 2G03 or 2R03) must be completed before entrance into Level III.

#### LEVEL II: 30 UNITS

**Required:** PSYCH 2G03 or 2R03; nine additional units of Level II Psychology, including at least two of 2E03, 2F03, 2H03 and 2T03; at least three units of Level I Mathematics chosen from MATH 1A06, 1AA6, 1B03, 1C06, 1M03 or 1K03 if not already completed (See *Note 1* above.); six units from Business, Humanities or Science, excluding Psychology

**Electives:** To total 30 units, no more than three of which may be Psychology courses

#### LEVEL III: 30 UNITS

**Required:** 12 units of Level III Psychology, or three units of PSYCH 2E03, 2F03, 2H03 and 2T03 (if not taken in Level II) and nine units of Level III Psychology; six units from Business, Humanities or Science, excluding Psychology

**Electives:** To total 30 units, no more than six of which may be Psychology courses

## DEPARTMENT OF RELIGIOUS STUDIES

### Fields of Study

The Department offers courses in four fields of study. Students are strongly encouraged to specialize in any one of the four fields, though it is not necessary to do so. Level II and III courses are allocated to the fields as follows:

#### I. ASIAN RELIGIONS

RELIG ST 2A03, 2J06, 2L03, 2P06, 2PP3, 2TT3, 3AA3, 3E03, 3H03, 3I03, 3U03, 3UU3; SANSKRIT 3A06, 4B06

#### II. BIBLICAL STUDIES AND EARLY CHRISTIANITY

RELIG ST 2B03, 2D06, 2DD3, 2EE3, 2E06, 2F03, 2FF6, 2VV3, 2Z03, 3K03, 3M03, 3O03, 3T03, 3X03

#### III. WESTERN RELIGIOUS THOUGHT

RELIG ST 2C03, 2G06, 2H03, 2I03, 2I13, 2JJ3, 2KK3, 2R06, 2S06, 2ZZ3, 3D03, 3KK3, 3LL3, 3MM3, 3NN3

#### IV. CONTEMPORARY AND COMPARATIVE RELIGIONS

RELIG ST 2AA3, 2BB3, 2K03, 2M03, 2N03, 2O06, 2QQ3, 2SS3, 2W03, 2WW3, 3A03, 3B03, 3BB3, 3J06, 3JJ6, 3SS3

### Honours Arts & Science and Religious Studies

(B. Arts Sc.; See Arts & Science programme)

### Honours Religious Studies

#### ADMISSION

Completion of **any Level I** programme with an average of at least 7.0 in 12 units acceptable to the Department, preferably including one Level I Religious Studies course.

#### NOTES

1. All students should consult the Departmental Handbook. All students are strongly urged to consult the Departmental Advisor at least once a year. Part-time students should be aware that required courses in Levels II, III and IV are regularly offered in the evenings and/or in the summer. Students who anticipate difficulty in fulfilling departmental requirements should consult the Departmental Undergraduate Advisor as early as possible in their programmes.
2. With the written approval of the Departmental Advisor, courses from other departments may be substituted for Religious Studies.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

30 units	from the Level I programme completed prior to admission to the programme. (See <i>Admission</i> above.)
48 units	six units in Asian Religions; three units in each of the three other fields of study (listed above); RELIG ST 3F03 and nine additional units of Level III Religious Studies; 4A06 and 4J06; nine additional units Level III and IV Religious Studies or approved substitutions.
6 units	Research Methods: six units of a language other than English, or Linguistics. If requirement completed in Level I, these units may be added to electives.
3 units	Informal Logic: HUMAN 2C03
6 units	Social Sciences I courses other than Religious Studies. If requirement completed in Level I, these units may be added to electives.
6 units	World History Culture and Thought (see <i>World History, Culture and Thought Menu</i> in this section). If requirement completed in Level I, these units may be added to electives.
21 units	Electives

## Combined Honours in Religious Studies and Another Subject

### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in 12 units acceptable to the Department, preferably including one Level I Religious Studies course. Satisfaction of admission requirements for the Honours B.A. programme in the other subject.

### NOTES

- All students should consult the Departmental Handbook. All students are strongly urged to consult the Departmental Advisor at least once a year. Part-time students should be aware that required courses in Levels II, III and IV are regularly offered in the evenings and/or in the summer. Students who anticipate difficulty in fulfilling departmental requirements should consult the Departmental Undergraduate Advisor as early as possible in their programmes.
- With the written approval of the Departmental Advisor, courses from other departments may be substituted for Religious Studies.
- Students must consult with both departments to determine the manner in which the Research Methods requirement is to be satisfied. Options include six units of Language other than English or Linguistics or six units of Statistics.

### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- |          |  |
|----------|--|
| 30 units | from the Level I programme completed prior to admission to the programme. (See <i>Admission</i> above.)  |
| 36 units | three units in Asian Religions; three units in each of two other fields of study (listed above); 3F03 and nine additional units of Level III Religious Studies or approved substitutions; 4A06 and 4J06; three additional units Religious Studies. |
| 36 units | Courses specified for the other subject.   |
| 6 units  | Research Methods: six units of a language other than English or Linguistics or Statistics. (See <i>Note 3</i> ) If requirement completed in Level I, these units may be added to electives.  |
| 3 units  | Informal Logic: HUMAN 2C03. Students combining Honours Arts and Science with Religious Studies are exempt from this requirement.   |
| 6 units  | World History Culture and Thought. Students combining Religious Studies with Arts and Science, or with a Humanities subject, are exempt from this requirement. If requirement completed in Level I, these units may be added to electives.         |
| 3 units  | Electives  |

## Minor in Religious Studies

### NOTE

All students should consult the Departmental Handbook. All students are strongly urged to consult the Departmental Advisor at least once a year. Part-time students should be aware that required courses in Levels II, III and IV are regularly offered in the evenings and/or in the summer.

### REQUIREMENTS

18 units Level II, III and IV Religious Studies

## B.A. in Religious Studies

### ADMISSION

Completion of any Level I programme with an average of at least 4.0 in six units of work acceptable to the Department preferably including one of the Level I Religious Studies courses.

### NOTES

- All students should consult the Departmental Handbook. All are strongly urged to consult the Departmental Advisor at least once each year. Part-time students should be aware that required courses in Levels II, III and IV are regularly offered in the evenings and/or in the summer. Students who anticipate difficulty in

fulfilling departmental requirements should consult the Departmental Undergraduate Advisor as early as possible in their programmes.

- With the written approval of the Departmental Advisor, courses from other departments may be substituted for Religious Studies.

### REQUIREMENTS

90 units total (Levels I to III), of which 42 units may be Level I courses

- |          |  |
|----------|--|
| 30 units | from the Level I programme completed prior to admission to the programme. (See <i>Admission</i> above.)  |
| 30 units | three units in Asian Religions; three units in each of two other fields of study (listed above); 3F03 and nine additional units of Level III Religious Studies or approved substitutions (including Level IV courses); nine units Level II or III Religious Studies. |
| 6 units  | Humanities (see Faculty of Sciences: <i>Academic Regulations</i> ). If requirement completed in Level I, these units may be added to electives.  |
| 24 units | Electives. (The maximum Religious Studies courses to be taken is 48 units.)  |

## SCHOOL OF SOCIAL WORK

### Combined B.A.RTS Sc./B.S.W.

Students interested in this combined programme should consult both the Director of the Arts and Science programme and the Director of the School of Social Work prior to enrolment in Level I. (See *Arts & Science* programme)

### Combined B.A./B.S.W.

#### ADMISSION

Completion of any Level I programme, including PSYCH 1A06 and SOCIOL 1A06, normally with a CA of at least 6.0 and evidence of personal suitability, which may be evaluated by one or a combination of written statements, tests, or interviews.

An applicant must complete Level I by April of the year in which application is made.

In choosing Level I courses, the student should take care to include those courses that will allow entry to the B.A. programme. Students should consult the relevant sections of the Calendar and/or the Office of the Associate Dean (Studies).

**Enrolment in the Combined B.A./B.S.W. programme is limited.** Students who intend to apply for the combined B.A. and B.S.W. programme must consult the School of Social Work prior to application.

**All applications** for admission to the School of Social Work are considered annually and must be made **directly to the School well before March 1** for the Fall/Winter term.

Applicants transferring from other universities (see *Two-tier Applications* below) **must also apply** through the Ontario Universities' Application Centre (OUAC) for full-time study, or through the Associate Registrar (Liaison and Admissions) for part-time study, and are required to meet the introductory Psychology and Sociology prerequisites.

Students admitted to the Combined programme who have completed B.A. work beyond Level I normally will require three years after admission to complete the programme.

#### TWO-TIER APPLICATIONS

If you are transferring from a university other than McMaster, or a college, you must complete **two** application forms as follows:

##### 1. General Application (December 1)

If you wish to study *full-time*, obtain a 105 application form from the Admissions Office of any Ontario university. Complete the form showing *both* your interest in the B.A./B.S.W. programme, and the subject you wish to take for the B.A. component. The form should be returned to OUAC, with the appropriate fee.

If you wish to study *part-time*, fill out a McMaster Application form which can be obtained directly from McMaster, at Gilmour Hall, Room 120.

To allow adequate time for the processing of the General Application, applicants are advised to submit their applications by December 1.

## 2. Supplementary Application (March 1)

After the General Application has been received at McMaster, the School of Social Work will mail you a Supplementary Application form, which must be completed and returned directly to the School of Social Work by March 1. (To avoid delay, you should request this form personally through direct contact with the School of Social Work.) This form is used to decide when applicants are able to write an admissions test, which is scheduled for two dates in March of each year, both on site and at alternative testing centres outside Hamilton.

Adequate time is needed to make these arrangements and to complete the admissions process. Therefore, it is *impossible* to consider applicants whose Supplementary Application arrives after the March 1 deadline.

### NOTES

1. **Course Groupings:** There are three groups of courses in the Social Work programme:

- Group I includes core courses which are required.
- Group II includes courses which are primarily practice oriented.
- Group III includes courses which are primarily policy oriented. Only Group III courses may be taken for elective credit by undergraduates not in Social Work, with the exception of SOC WORK 4A03 which is open only to Social Work students. Social Work students must take 12 units from Group III courses for elective credit. Permission of the School for Group III courses is required for all students.

#### GROUP I

SOC WORK 2B06, 2C03, 2D03, 3D06, 3DD6, 4D06, 4DD6

#### GROUP II

SOC WORK 3N03, 3O03, 3P03, 3R03, 4G03, 4K03, 4O03, 4P03, 4T03, 4V03, 4W03, 4X03, 4Y03

#### GROUP III

SOC WORK 3C03, 3G03, 3H03, 3J03, 4A03, 4J03, 4M03, 4Z03

2. **Progression Within Programme:** Students must achieve a minimum grade of C+ in each of SOC WORK 2B06, 2C03, 2D03, 3D06, and 4D06, and a Pass in SOC WORK 3DD6 and 4DD6 and a CA of at least 6.0. Students with a CA of at least 5.5, but less than 6.0, will be placed on programme probation for one reviewing period. Students may be on programme probation only once.

3. **Graduation:** To qualify for the B.A. and B.S.W. degrees, students must complete a total of at least 48 units of Social Work for credit towards the B.S.W. degree and a total of 90 units of credit towards the B.A. degree which includes 12 units Group III Social Work courses.

The B.S.W. degree will be granted only if the student has achieved a grade of at least C+ in each of SOC WORK 2B06, 2C03, 2D03, 3D06, and 4D06, and a Pass in SOC WORK 3DD6 and 4DD6, and a CA of 6.0.

4. Students are expected to assume the cost of travelling to and from field practice agencies.

### REQUIREMENTS

138 units total (Levels I to IV), of which 48 units may be Level I courses

- 30 units from the Level I programme completed prior to admission to the programme. (See *Admission* above.)
- 60 units SOC WORK 2B06, 2C03 and 2D03 (which must be completed prior to enrolling in SOC WORK 3D06 and 3DD6); SOC WORK 3D06 and 3DD6 (which must be completed prior to enrolling in SOC WORK 4D06 and 4DD6); one of SOC WORK 3N03, 3R03; one of SOC WORK 4O03, 4X03, 4Y03; six units additional Group II Social Work courses; SOC WORK 4D06 and 4DD6; 12 units Group III Social Work courses
- 3 units PSYCH 2A03 (which must be completed prior to enrolling in SOC WORK 3D06 and 3DD6)
- 24 units Courses specified for the B.A. (this may vary according to the B.A. programme)

21 units Electives (other requirements may be specified by the B.A. programme)

## B.S.W. as a Second Degree

### ADMISSION

Completion of an undergraduate degree from a recognized university, including *introductory* Psychology and Sociology, (equivalent to the McMaster courses PSYCH 1A06 and SOCIOL 1A06) normally with an average of at least 6.0 or its equivalent, and evidence of personal suitability which may be evaluated by one or a combination of written statements, interviews, or tests.

An applicant is required to complete the prerequisite undergraduate degree work by April of the year in which application is made.

**Enrolment in the B.S.W. Second Degree programme is limited.** Students who intend to apply to the B.S.W. as a Second Degree programme must consult the School of Social Work prior to application.

**All applications** for admission to the School of Social Work are considered annually and must be made **directly to the School well before March 1** for the Fall/Winter term. Applicants **must also apply** to the University through the Associate Registrar (Liaison and Admissions) for full- or part-time study.

### NOTES

1. **McMaster Work:** Students are required to take courses to total 60 units, all of which must be completed at McMaster. If advanced standing is granted, additional courses must be taken at McMaster to total 60 units.

2. **Course Groupings:** There are three groups of courses in the Social Work programme:

- Group I includes core courses which are required;
- Group II includes courses which are primarily practice oriented;
- Group III includes courses which are primarily policy oriented. Only Group III courses may be taken for elective credit by undergraduates not in Social Work, with the exception of SOC WORK 4A03 which is open only to Social Work students. Social Work students must take 12 units from Group III courses. Permission of the School for Group III courses is required for all students.

#### GROUP I

SOC WORK 2B06, 2C03, 2D03, 3D06, 3DD6, 4D06, 4DD6

#### GROUP II

SOC WORK 3N03, 3O03, 3P03, 3R03, 4G03, 4K03, 4O03, 4P03, 4T03, 4V03, 4W03, 4X03, 4Y03

#### GROUP III

SOC WORK 3C03, 3G03, 3H03, 3J03, 4A03, 4J03, 4M03, 4Z03

2. **Progression Within Programme:** Students must achieve a minimum grade of C+ in each of SOC WORK 2B06, 2C03, 2D03, 3D06, and 4D06, and a Pass in SOC WORK 3DD6 and 4DD6, and a CA of at least 6.0. Students with a CA of at least 5.5, but less than 6.0, will be placed on programme probation for one reviewing period. Students may be on programme probation only once.

3. **Graduation:** To qualify for the B.S.W. as a Second Degree, students must complete a total of 60 units of credit at McMaster. The B.S.W. as a Second Degree will be granted only if the student has achieved a grade of at least C+ in each of SOC WORK 2B06, 2C03, 2D03, 3D06, and 4D06, and a Pass in SOC WORK 3DD6 and 4DD6 and a CA of 6.0.

4. Students are expected to assume the cost of travelling to and from field practice agencies.

### REQUIREMENTS

- 60 units SOC WORK 2B06, 2C03, 2D03 and PSYCH 2A03 (which must be completed prior to enrolling in SOC WORK 3D06 and 3DD6); SOC WORK 3D06 and 3DD6 (which must be completed prior to enrolling in SOC WORK 4D06 and 4DD6); SOC WORK 4D06 and 4DD6; one of SOC WORK 3N03 or 3R03; one of SOC WORK 4O03, 4X03, 4Y03; 12 units Group III Social Work courses; three to six additional units of Group II Social Work to total 60 units. Six units of additional Group II must be chosen if PSYCH 2A03 was completed prior to

admission to the B.S.W. Second Degree programme.

## DEPARTMENT OF SOCIOLOGY

### Honours Arts & Science and Sociology

(B. Arts Sc.; See Arts & Science programme)

### Honours Sociology (Specialist Option)

For 1994-95, enrolment in this programme may be limited.

#### ADMISSION

Completion of any Level I programme with an average of at least 7.0 in SOCIOL 1A06 and six other units, including a grade of at least B- in SOCIOL 1A06.

#### NOTES

1. A student may take a maximum of six units of Level IV independent research (SOCIOL 4M03/4N03 or 4MM6).
2. Students should check both this Calendar and the Departmental Handbook for prerequisites and course descriptions.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- |          |  |
|----------|--|
| 30 units | from the Level I programme completed prior to admission to the programme. (See <i>Admission</i> above.)  |
| 48 units | SOCIOL 2S06 and one of 3A03, 3P03, 3PP3; one of 3003 or 3W03; at least 12 units of Level IV Sociology; 24 units Level II, III or IV Sociology  |
| 6 units  | Research Methods: SOCIOL 3H06  |
| 3 units  | Informal Logic: HUMAN 2C03   |
| 6 units  | Social Sciences I courses other than SOCIOL 1A06. If requirement completed in Level I, these units may be added to electives.  |
| 6 units  | World History, Culture and Thought (see <i>World History, Culture and Thought Menu</i> in this section). If requirement completed in Level I, these units may be added to electives. |
| 21 units | Electives  |

### Honours Sociology

For 1994-95, enrolment in this programme may be limited.

#### ADMISSION

Completion of any Level I programme, with an average of at least 7.0 in Sociology 1A06, and six additional units, including a grade of at least B- in SOCIOL 1A06.

#### NOTES

1. A student may take a maximum of 6 units of Level IV independent research (SOCIOL 4M03/4N03 or 4MM6).
2. Students should check both this Calendar and the Departmental Handbook for prerequisites and course descriptions.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- |          |  |
|----------|--|
| 30 units | from the Level I programme completed prior to admission to the programme. (See <i>Admission</i> above.)  |
| 42 units | SOCIOL 2S06; one of 3A03, 3P03, 3PP3; one of 3003 or 3W03; at least 12 units of Level IV Sociology; 18 units Level II, III or IV Sociology   |
| 6 units  | Social Sciences I courses other than SOCIOL 1A06. If the requirement is completed in Level I these units may be added to electives.  |
| 6 units  | Research Methods: SOCIOL 3H06  |
| 3 units  | Informal Logic: HUMAN 2C03   |
| 6 units  | World History, Culture and Thought (see <i>World History, Culture and Thought Menu</i> in this section). If requirement completed in Level I, these units may be added to electives. |
| 33 units | Electives  |

### Combined Honours in Sociology and Another Subject

For 1994-95, enrolment in this programme may be limited.

#### ADMISSION

Completion of any Level I programme with a grade of at least B- in SOCIOL 1A06. Satisfaction of admission requirements for the Honours programme in the other B.A. subject.

#### NOTES

1. A student may take a maximum of six units of Level IV independent research (SOCIOL 4M03/4N03 or 4MM6).
2. Students should check both this Calendar and the Departmental Handbook for prerequisites and course descriptions.
3. Where six units of Research Methods and Statistics are required by both Departments, a comparable course may be substituted for SOCIOL 3H06. Permission of the Sociology Department must be obtained to make this substitution.

#### REQUIREMENTS

120 units total (Levels I to IV), of which 48 units may be Level I courses

- |          |  |
|----------|--|
| 30 units | from the Level I programme completed prior to admission to the programme. (See <i>Admission</i> above.)  |
| 36 units | SOCIOL 2S06; one of 3A03, 3P03, 3PP3; one of 3003 or 3W03; at least 12 units of Level IV Sociology; 12 units Level II, III or IV Sociology.  |
| 36 units | Courses specified for the other subject  |
| 6 units  | Research Methods: SOCIOL 3H06 or in combined programmes within the Faculty of Social Sciences, the Research Methods specified for the other subject. (See <i>Note 3</i> .)   |
| 3 units  | Informal Logic: HUMAN 2C03. Students combining Honours Arts and Science with Sociology are exempt from this requirement.   |
| 6 units  | World History, Culture and Thought (see <i>World History, Culture and Thought Menu</i> in this section). Students combining Sociology with Arts & Science, or with a Humanities subject, are exempt from this requirement. If requirement completed in Level I, these units may be added to electives. |
| 3 units  | Electives  |

### Minor in Sociology

#### NOTE

Students should check both this Calendar and the Departmental Handbook for prerequisites and course descriptions.

#### REQUIREMENTS

- |          |   |
|----------|---|
| 6 units  | SOCIOL 1A06 and   |
| 18 units | Level II, III Sociology including one of SOCIOL 2D06, 2006, 2S06, or 2V06 |

### B.A. in Sociology

#### ADMISSION

Completion of any Level I programme, with a grade of at least C- in SOCIOL 1A06.

#### NOTE

Students should check both this Calendar and the Departmental Handbook for prerequisites and course descriptions.

#### REQUIREMENTS

90 units total (Levels I to III), of which 42 units may be Level I courses

- |             |   |
|-------------|---|
| 30 units    | from the Level I programme completed prior to admission to the programme. (See <i>Admission</i> above.)           |
| 24 units    | SOCIOL 2S06; one of SOCIOL 2Y03, 2Z03, 3H06 or GERONTOL 3C03 (with permission of the department);                 |
| 12-15 units | Level II, III Sociology courses.  |
| 6 units     | Humanities (see page 99 of Calendar). If requirement completed in Level I, these units may be added to electives. |
| 30 units    | Electives   |

# WOMEN'S STUDIES PROGRAMME

## Director

Joan Coldwell/B.A., M.A. (London), Ph.D., (Harvard)

## Administrative Assistant

Pat Fraser

Women's Studies is a rapidly expanding discipline which brings fresh new approaches to scholarship. It focuses on women's contributions to civilization in all fields of endeavour, past and present. It examines the ways in which ideas about women have developed and tests the validity of those ideas in the light of new knowledge and theories. It establishes the importance of gender as a category of analysis in scholarly enquiry, social relations, cultural expression and belief systems.

Students choose a subject they wish to pair with Women's Studies and work towards a combined degree. By offering a Combined Honours B.A. degree with another subject of the student's own choice, Women's Studies encourages the reassessment of the traditional academic disciplines in order to create a more balanced understanding of women and men.

Courses designated as Women's Studies are team-taught by members of the Women's Studies Committee of Instruction. These courses are interdisciplinary, allowing students to explore the relationship between different branches of knowledge and to test the presuppositions of established theoretical frameworks in any area of enquiry. The Director of Women's Studies advises students on selection of appropriate courses.

The programme emphasizes the integration of theory and practice, with small-group teaching, personal attention to individual development and the encouragement of student-designed research at all levels.

The Women's Studies programme is committed to understanding and seeking to improve the conditions of life for all women. Students in the programme are trained in feminist theories and in applied skills, enabling them to be creatively responsive to community needs and to be capable of critically analyzing women's issues and problems in the local and international work world.

Graduates of the programme will find many career options in such areas as education, health care, labour relations, personnel management, industrial and government consulting, as well as in work for higher degrees in Women's Studies.

## ACADEMIC REGULATIONS

The Women's Studies programme is governed by the general Academic Regulations of the University and the regulations described below.

### ADMISSION

Completion of **any Level I** programme with a weighted average of at least 7.0 in 12 units of Level I work, including a grade of at least B- in WOMEN ST 1A06 and satisfaction of admission requirements for the Honours B.A. programme in the other subject.

## Combined Honours B.A. in Women's Studies and Another Subject

### NOTES

1. **Enrolment in the programme is limited.** Application for admission (forms available in the Women's Studies office), including a letter explaining the applicant's interest in the programme, should be made to the Director of Women's Studies prior to April 15.
2. Students who have not taken WOMEN ST 1A06 because they have transferred from another university may be considered for admission to the programme if they are deemed by the Admission Committee to have fulfilled requirements equivalent to WOMEN ST 1A06.
3. Registration in each level of the programme requires written approval of the Director of the Women's Studies programme and the appropriate Other Subject Counsellor.
4. In Levels II, III and IV, students must take the six-unit Women's Studies course appropriate to their level and six additional units of approved discipline-related courses at each level. Students should plan their programmes in consultation with the Director of Women's Studies, the Departmental Counsellor for their Other Subject, and the Associate Dean of the Faculty in which the student is registered.

### REQUIREMENTS

30 units	from Level I, completed prior to admission to the programme. (See <i>Admission</i> above.)
6 units	WOMEN ST 2A06
6 units	from WOMEN ST 2B06, 2C06, 2H03, RELIG ST 2B03, 2BB3, 2SS3, SOCIOLOG 2Q06, 2U06
6 units	WOMEN ST 3A06
6 units	from WOMEN ST 3B03, 3BB3, 3C06, 3D06, ANTHROP 3W03, HISTORY 3X03, LABR ST 3E03, PHILOS 3I03, SOC WORK 3O03, SOCIOLOG 3D03, 3E03, 3X03
6 units	WOMEN ST 4A06
6 units	from WOMEN ST 4B06, 4C06, HISTORY 4H06, PHYS ED 4T03, SOCIOLOG 4U03
18 units	Elective course work beyond Level I

Some courses not listed above may be substituted, at the appropriate level, from: Anthropology, Classics, Comparative Literature, English, French, Geography, History, Labour Studies, Philosophy, Physical Education, Religious Studies and Sociology. Students must select their courses in consultation with the Director of Women's Studies.

**Note:** The courses required for the Women's Studies portion of the Combined Honours programme must not include courses offered by the Department in the student's other subject area.

## THEME SCHOOLS

The concept of a Theme School was outlined in a key series of recommendations in the University's Strategic Plan. A Theme School is a centre of interdisciplinary learning where a group of faculty members identifies a set of intellectual problems arising out of their research, establishes a programme of study focused on these problems, and gathers a group of students interested in learning about these problems. Students and faculty will form an intellectual community that will explore these problems through self-directed learning and independent study.

Theme Schools will be taken as a Minor in conjunction with an Honours programme. (See *Minors* in the *Academic Regulations* section on page 15 of this Calendar.)

It is anticipated that Theme Schools' life cycles will normally be five years. They will accept approximately 60 students a year for three years with the objective of graduating about 180 students by the end of the cycle.

The subject area of Theme Schools will vary over time, depending on the interests of faculty and students.

Individual Theme Schools will invite applications for students wishing to enrol early in 1994. Normally, students will indicate their particular interests and qualifications. Students selected for a school will be informed in the spring.

Currently, two schools have been approved by the University Senate.

### THEME SCHOOL ON INTERNATIONAL JUSTICE AND HUMAN RIGHTS

#### Co-Directors

Rhoda E. Howard/B.A., M.A., Ph.D.  
Gary A. Warner/B.A., L.ès L., D. de l'U.

This Theme School will take as its starting point the global consensus on human rights enshrined in the International Bill of Rights of the United Nations, and many other UN documents. The focus will be on comparative international debates about the relationships among modernization, technology, development and human rights. The concept of International Justice recognizes the cultural and ideological diversity that underlies these debates.

The Theme School will concentrate on two of the most important public issues of our time: how to modernize efficiently and without violating economic rights; and how to organize societies politically in a manner that permits development and human rights and does not violate people's sense of community or culture.

### THEME SCHOOL ON NEW MATERIALS AND THEIR IMPACT ON SOCIETY

#### Director

A. John Berlinsky/B.Sc., M.Sc., Ph.D.

Throughout the history of humanity, the availability of new and/or improved materials has largely determined the nature and direction of technological developments and has hence been a major factor in the evolution of society. Standard examples of such materials are bronze, iron, paper and silicon, and the impact they have had in their respective areas.

This Theme School will consider the process by which new materials are discovered and improved. It will examine the ways in which new and better materials enable the creation of new technology, emphasizing the central role of the materials themselves and it will investigate the impact of this material-driven technology on all aspects of human life, including business, recreation, communication, science, art and the environment.

### ACADEMIC REGULATIONS

Theme School Minor programmes are governed by the general Academic Regulations of the University and the regulations described below.

Normally, students will enter a Theme School in Level II and will complete an Honours or Engineering degree with a Theme School Minor. Continuation in the Theme School normally requires students to maintain standing in their programme.

### THEME SCHOOL PROGRAMMES

Each Theme School will admit a maximum of 60 students to the Minor in any given year.

#### ADMISSION

Admission will be by selection and on condition that a student is accepted into an Honours programme. Either Theme School will accept students admitted into any Honours programme or into a Bachelor of Engineering programme.

#### PROGRAMME REQUIREMENTS

- Enrolment in the Theme Schools Minor is limited. Applications for admission in 1994-95 should be made to the respective Theme School Co-ordinator by January 28, 1994. Theme School faculty may wish to interview applicants.
- Theme School on New Materials and Their Impact on Society: Requirements**

This programme has three main components:

- Courses (TSNM 2B03, 3B03, 3C03, 4B03);
- the Theme School Seminar (TSNM 2A02, 3A02, 4A02); and
- Research Internship (TSNM 2R06, 3R06).

The Seminar is required of all students for a total of six units.

A minimum of 18 units must be taken from among the Theme School courses and research internships: Normally, one or two courses will be taken in the Fall and Winter terms. TSNM 2B03 must be taken in Level II.

- Theme School on International Justice and Human Rights: Requirements**

Students are required to take 24 units of Theme School courses taken in Levels II, III and IV. This Theme School will provide students with a chance to investigate problems of human rights and international justice from an interdisciplinary perspective. Students will conduct individual and group research using problem-based and self-directed learning techniques. They will be expected to plan their research projects so they cover a variety of topics in several disciplines over the three years of the programme.

See specific courses and their descriptions in the *Course Listings* section.



# MINORS AND THEMATIC AREAS

## MINORS

The following two listings constitute University-sanctioned Minors in Indigenous Studies and Peace Studies.

No degree is granted for either programme of study, but Honours students can receive a Minor designation on their transcripts following graduation if their chosen Minor programme is successfully completed. Please see the *Minor* subsection in the University's *Academic Regulations*, on page 15, for further information.

### Indigenous Studies

*For more information, please contact the Indigenous Studies office, Chester New Hall, Room 231, ext. 7426.*

The Minor in Indigenous Studies was developed as a direct response to the wishes of representatives of Indigenous groups in Ontario, of students, and of educators, for greater accessibility to a university education for native students. The structure of the programme was developed by the President's Committee on Indigenous Issues. This Committee, comprising University and Aboriginal representatives, formulates policy on all issues affecting the Indigenous communities at large. The Committee serves as the primary resource on all subjects relating to the education and support needs of the University's Indigenous population, both in Indigenous-specific and general programming and services.

The Indigenous Studies Minor responds to a desire for a programme of study that examines Indigenous people's history, spirituality, and contemporary situation, with particular attention to the Indigenous people's own perspective. As such, the Minor will provide new perspectives on these subjects for non-native students and will enrich the University experience of native students.

The Minor concept has been developed by the President's Committee on Indigenous Issues with significant input from Indigenous representatives from the province. The idea of a Minor was chosen because it responded first to the need of native students to attain a degree in regular academic disciplines while enriching their knowledge of Indigenous societies and culture. Second, it will assist non-native students who wish to learn more about Indigenous peoples as a complement to their chosen programme of study.

### Academic Regulations

The Indigenous Studies Minor is governed by the general Academic Regulations of the University and the regulations described below. Students in Honours programmes will qualify at graduation for a Minor in Indigenous Studies if they complete these requirements:

INDIG ST 1A06	Introduction to Indigenous Studies and 18 units from:
INDIG ST 2A03	Introduction to Native Spirituality
INDIG ST 2B03	Introduction to Indigenous People's History
INDIG ST 2C03	Introduction to Contemporary Indigenous Societies
OJIBWA 1Z06	Beginner's Intensive Ojibwa
MOHAWK 1Z06	Beginner's Intensive Mohawk
CAYUGA 1Z06	Beginner's Intensive Cayuga
OJIBWA 2Z06	Intermediate Ojibwa
MOHAWK 2Z06	Intermediate Mohawk
CAYUGA 2Z06	Intermediate Cayuga
ANTHROP 2B03	Indigenous Peoples of North America
ANTHROP 2O03	North American Prehistory
ANTRHOP 2V03	The Aztecs, Maya and Inca
ANTHROP 3A03	Cultures in Contact: The Canadian North
ANTHROP 3F03	Contemporary Northern Peoples
ANTHROP 3U03	Canadian Archaeology
ANTHROP 4PI3	Prehistory of the Iroquois
RELIG ST 3B03	Native and Ethnic Religions in Canada

No more than six of these 18 units may be Level I courses.

*Please see the Course Listings section for a detailed description of the above courses.*

### Peace Studies

Peace Studies, which is concerned with war and peace — their nature, causes and relation to social life — is a growing international field. It is now possible for students to complete a Minor in Peace Studies at McMaster. The requirements of the Minor include the core course, SOC SCI 2B06, and an additional 18 units above Level I, selected from the courses listed below.

The courses listed are offered by various departments and are relevant to the study of peace and conflict. They are drawn from a wide variety of disciplines within the Faculties of Humanities, Social Sciences, Science and the Arts and Science programme. The range of options available for the Minor ensures an interdisciplinary approach. The Minor should be of interest to students wishing to pursue to a wide range of careers.

Students wishing to pursue a Minor in Peace Studies can obtain further information from Dr. Graeme MacQueen or Dr. Leszek Gluchowski at the Centre for Peace Studies, University Hall, Room B104, ext. 4729.

ANTHROP 2X03	Warfare and Aggression
ANTHROP 2T03	Competition and Conflict
ARTS&SCI 3CF6	Inquiry Topic: Human Rights
ARTS&SCI 3CG6	Inquiry Topic: Federalism
BIOLOGY 3Q03	Radiation Biology
HISTORY 3I03	The International Relations of the European Powers, 1924-1945
HISTORY 3I16	The History of Warfare, 1865-1945
HISTORY 3RR3	War and Society in 20th Century Britain
PHILOS 1B06	Philosophy and Society
PHILOS 2G03	Social and Political Issues
PHILOS 3P03	Philosophies of War and Peace
POL SCI 2E06	International Politics
POL SCI 3AA3	International Politics in the Post-War Period
POL SCI 4F06	Human Rights: International and National
POL SCI 4M06	Issues in International Politics
RELIG ST 1F06	War and the Problem of Meaning
RELIG ST 2H03	Issues in War and Peace
RELIG ST 2L03	Life, Work and Teachings of Mahatma Gandhi
SCIENCE 2G03	The World's Supply of Food
SOC SCI 2B06	Introduction to the Study of Peace
SOC SCI 2C03	Genocide and Ethnocide
SOC SCI 2D03	Peace and Development
SOCIOL 3F06	Political Sociology

*Please see the Course Listings section for a detailed description of the above courses.*

## THEMATIC AREAS

The following listing is designed to assist you in choosing courses in areas of study, in which there is currently no B.A. programme.

### Asian Studies

While there is no B.A. programme in Asian Studies, students interested in concentrating in this area may choose from among the following courses offered by various departments. Those desiring further information on specific courses should consult the departmental listing in the Calendar. (Students interested in Japanese Studies should enquire about the Combined Honours programme in Japanese Studies and Another Subject.)

Students wishing to pursue Asian Studies may obtain further information from Dr. D. Barrett, Chester New Hall, Room 625, ext. 4130, or Dr. K. Shinohara, University Hall, Room 126, ext. 3393.

### COURSES DEALING STRICTLY WITH ASIAN MATERIAL

ART HIST 3J03	Japanese Art
ART HIST 3K03	Arts of China
GEOG 2C03	China: People and Land in Transition
GEOG 3JJ3	Geography of Japan
HISTORY 2B06	China: From Late Imperial Times to the Present
HISTORY 2E06	The Islamic World, 600-1800
HISTORY 3A03	Imperial Islam:
	The Ottomans, the Safavids and the Moguls
HISTORY 3AA3	The Modern Middle East
HISTORY 3B03	Modern Japan
HISTORY 4BB6	Special Topics in the History of Modern Japan



HISTORY 4G06  
 HISTORY 4GG6  
 RELIG ST 2J06

RELIG ST 2A03  
 RELIG ST 2L03  
 RELIG ST 2P06  
 RELIG ST 2PP3  
 RELIG ST 2TT3  
 RELIG ST 3I03  
 RELIG ST 3AA3  
 RELIG ST 3H03  
 RELIG ST 3U03

RELIG ST 3UU3

Special Topics in the History of Modern China  
 Topics in Middle Eastern and Islamic History  
 India: Its Culture, Social History, Religion and Philosophy  
 The Confucian Tradition  
 Life, Work and Teachings of Mahatma Gandhi  
 Japanese Civilization  
 Indian Philosophy  
 Taoism and the Search for Immortality in China  
 Storytelling in Indian Religion  
 Popular Religion in India  
 Story Telling in East Asian Religions  
 The Buddhist Tradition in India and Southeast Asia  
 The Buddhist Tradition in East Asia

**COURSES WITH SIGNIFICANT ASIAN CONTENT**

ECON 2C03  
 POL SCI 4MM6  
 RELIG ST 1B06  
 RELIG ST 1F06  
 RELIG ST 2BB3  
 RELIG ST 2H03  
 RELIG ST 2QQ3  
 RELIG ST 2SS3  
 RELIG ST 2WW3

Economic Issues: Asian-Pacific Economies  
 International Relations of the Pacific Rim  
 World Religions  
 War and the Problem of Meaning  
 Images of the Divine Feminine  
 Issues in War and Peace  
 Cults in North America  
 Women and Religion  
 Health, Healing and Religion

**LANGUAGE COURSES**

CHINESE 1Z06  
 CHINESE 1ZZ6

CHINESE 2Z06  
 CHINESE 3Z03  
 JAPANESE 1Z06  
 JAPANESE 2Z06  
 JAPANESE 3ZZ6  
 JAPANESE 4L03  
 JAPANESE 4Z03  
 SANSKRIT 3A06  
 SANSKRIT 4B06

Beginner's Intensive Chinese  
 Beginner's Intensive Chinese for Dialect Speakers  
 Intermediate Intensive Chinese  
 Advanced Chinese  
 Beginner's Intensive Japanese  
 Intermediate Intensive Japanese  
 Advanced Intensive Japanese  
 Japanese Literature  
 Advanced Practice in Japanese  
 Introduction to Sanskrit Grammar  
 Readings in Sanskrit Texts

**Canadian Studies**

There is no B.A. in Canadian Studies, but students interested in this area may choose from among the following courses, subject to meeting the prerequisites.

**HUMANITIES**

ART HIST 3B03  
 ENGLISH 2C03  
 ENGLISH 3Z03  
 FRENCH 2D03  
 FRENCH 2E03  
 FRENCH 3AA3  
 FRENCH 3BB3  
 FRENCH 4U03  
 HISTORY 2J06  
 HISTORY 3L03

HISTORY 3M03

HISTORY 3N03  
 HISTORY 3U03  
 MUSIC 3T03

Aspects of Canadian Art  
 Contemporary Canadian Fiction  
 Contemporary Canadian Poetry  
 Introduction to the Civilization of French Canada  
 Literature of Quebec  
 The Modern French Canadian Novel  
 Contemporary Quebec Theatre  
 Topics in French-Canadian Literature  
 The History of Canada  
 Modern Canada:  
 The Great Transformation, 1890-1929  
 Modern Canada:  
 From Depression to Referendum, 1929-1980  
 The History of the Canadian Working Class  
 Aspects of French Canadian History  
 Studies in Canadian Music

**SOCIAL SCIENCES**

ANTHROP 3A03  
 ANTHROP 3F03  
 ECON 2K03  
 GEOG 2E03  
 GEOG 3T03  
 GEOG 4U03  
 GEOG 4Z03  
 POL SCI 2G06  
 POL SCI 3DD6

Cultures in Contact: The Canadian North  
 Contemporary Northern Peoples  
 Economic History of Canada  
 Canada  
 Geography of Planning  
 Selected Problems in Urban Planning  
 Advanced Cultural Geography  
 Politics in Canada  
 Political Parties, Movements and Elites in Canada

POL SCI 3FF3  
 POL SCI 3GG3  
 POL SCI 3I13  
 POL SCI 3J13  
 POL SCI 4O06  
 POL SCI 4S06  
 RELIG ST 3B03  
 RELIG ST 3BB3  
 SOCIOL 2H06  
 SOCIOL 3BB3

SOCIOL 3Q03

Canadian Foreign Policy  
 Politics of Federalism  
 Elections and Electoral Behaviour in Canada  
 Provincial Politics in Canada  
 Canadian Public Policy  
 Canadian Political Theory  
 Native and Ethnic Religions in Canada  
 Major Denominations in Canada  
 A Sociological Analysis of Canadian Society  
 Major Denominations in Canada  
 (Cross-list: RELIG ST 3BB3)  
 Native and Ethnic Religions in Canada  
 (Cross-list: RELIG ST 3B03)

**Eighteenth-Century Studies**

There is no B.A. programme in Eighteenth-Century Studies, but students wishing to make a special study of the field may group electives from the following list of relevant courses offered by various departments.

For a full description and requirements see the Course Listings section in this Calendar.

ART HIST 2N03  
 ENGLISH 3G06  
 ENGLISH 3M03  
 FRENCH 3K03  
 FRENCH 3KK3  
 FRENCH 4F03  
 GERMAN 3A03  
 HISTORY 2N06  
 HISTORY 4F06  
 PHILOS 3A06

Italian Baroque Art and Architecture  
 English Literature 1660-1800  
 Romantic Poetry  
 18th-Century French Literature I  
 18th-Century French Literature  
 Topics in 18th-Century French Literature  
 Baroque and Enlightenment Literature  
 British History 1500 to the Present  
 Special Topics in the Age of the Enlightenment  
 From Kant to Hegel

**Health and Society**

While there is no B.A. programme in Health and Society, students wishing to concentrate in this area should be aware of the following courses offered by Departments and Schools in the Faculty of Social Sciences.

For more information on specific courses, please consult the Course Lists in the Calendar. Students should note that not all listed courses may be available and should check carefully for prerequisites.

Students wishing to pursue courses in Health and Society may obtain more information from Dr. Vivienne Walters, Kenneth Taylor Hall, Room 718, ext. 3617.

**COURSES DEALING WITH HEALTH AND SOCIETY ISSUES**

ANTHROP 2U03  
 ANTHROP 3Z03

ANTHROP 3ZZ3  
 ANTHROP 4C03  
 ECON 3Z03  
 GEOG 4S03  
 HISTORY 3EE3  
 HISTORY 4EE6

LABR ST 3D03  
 PHILOS 2D03  
 PHILOS 3C03  
 PHYS ED 4F03  
 PHYS ED 4P03  
 PSYCH 3B03  
 PSYCH 3N06  
 RELIG ST 2M03  
 RELIG ST 2N03  
 RELIG ST 2WW3  
 RELIG ST 3SS3  
 SCIENCE 2G03  
 SOC WORK 3C03  
 SOCIOL 3G03  
 SOCIOL 3HH3  
 SOCIOL 4G03

Plagues and People  
 Medical Anthropology:  
 The Biomedical Approach  
 Medical Anthropology: Symbolic Healing  
 Human Adaptability/The Social Environment  
 Health Economics  
 Geography of Health  
 History of Medicine in Canada  
 Society, Science and the Medical Profession in 19th and 20th Century in North America  
 Occupational Health and Safety  
 Moral Issues  
 Advanced Bioethics  
 Health: Issues in Research and Consumerism  
 Health Science: Behavioural  
 Special Populations  
 Abnormal Psychology  
 Death and Dying: Comparative Views  
 Death and Dying: The Western Experience  
 Health, Healing and Religion  
 Body, Mind, and Spirit  
 The World's Supply of Food  
 Social Aspect of Health and Disease  
 Sociology of Health Care  
 Sociology of Health  
 The Social Production of Illness

Students will also find courses relevant to this theme in the listings of other Faculties.

## PART-TIME DEGREE STUDIES

The University offers a broad range of educational opportunities if you wish to take degree studies on a part-time basis. In addition to the daytime offerings in the Fall/Winter and Spring/Summer sessions, a wide selection of evening classes is available throughout the year.

If you take degree courses, you will associate with one of the undergraduate Faculties (Business, Health Sciences, Humanities, Science or Social Sciences). By so doing, you will have the opportunity to consult with the academic counsellors of your Faculty, and with the departments whose courses are of interest to you. If your interests change, it is often possible to transfer to another department or Faculty.

The courses which you take in the early stages of your education will form the basis for choosing your programme of study. The Level I courses will give you the information you need for this purpose, as well as provide the prerequisites for more advanced courses and admission to programmes of study. The programmes of study which are available entirely through evening and summer courses are indicated on the *Degrees by Programme* chart, in the *Degrees and Programmes* section of this Calendar. You should also familiarize yourself with the requirements and information found in the following sections: *Admissions Requirements*, *Academic Regulations* and *Sessional Dates*, as well as the programme descriptions found in the specific Faculty sections.

### ADMISSION

Before you register for any degree course or programme, you must apply for admission.

- If you have already completed some university, community college, or other post-secondary education, you will be required to submit official transcripts of this work, along with your application, in order to be considered for admission and possible credit towards your McMaster programme.
- If you satisfy the University's normal admission requirements for full-time study, you may choose to register for part-time study in most programmes.
- If you do not satisfy these requirements, you may be admissible as a **Mature Student** and given the opportunity to show that you can deal successfully with university work. New regulations are now in effect for continuation as a Mature Student. Initially, you may take only one course at a time.

See the *Admission Requirements* section on page 7 for details concerning all avenues of admission to degree study.

### AVAILABILITY OF COURSES

Although both daytime and evening courses are open to all students, as a part-time student, you may have other responsibilities which restrict you to the courses offered in the evenings, winter and

summer. If you can arrange to take day courses, the options are greatly enlarged.

Normally, publications for part-time students are made available in March for the Spring/Summer session and in June for the Fall/Winter session.

### CO-ORDINATOR OF PART-TIME DEGREE STUDIES

The Co-ordinator of Part-time Degree Studies, Gordon Raymond or his Assistant, Tina Horton, may be telephoned at 525-9140, ext. 4325 or 4324, respectively, for counselling and to discuss preparation and plans for degree study.

Mr. Raymond's office, Gilmour Hall, Room 103, is open in the day, and in the evening by appointment. More detailed information concerning programmes and courses is provided by the Academic Counsellors within each Faculty as follows:

- Business: ext. 3941
- Humanities: ext. 4326
- Science: ext. 2612
- Social Sciences: ext. 4604

Information about application procedures and admission regulations is available through the Admissions Office (Gilmour Hall, Room 120, 525-9140, ext. 4796).

Information about non-degree courses and programmes, including courses for pre-university upgrading, is available through the Centre for Continuing Education (525-9140, ext. 4321).

### OFF-CAMPUS CENTRE

McMaster University supports the Mohawk/McMaster Education Information Centre in downtown Hamilton. This centre exists to provide information and maintain comprehensive collections of calendars and brochures concerning educational opportunities across Canada. The staff can help you to make contact with the appropriate persons at McMaster.

The Information Centre is at the Hamilton Public Library (Central Branch), 55 York Boulevard., Hamilton, just off Jackson Square, telephone (416) 525-9140, ext. 2020.

### MAPS

The McMaster Association of Part-time Students (MAPS) maintains an office and student lounge in Kenneth Taylor Hall, Room 102, telephone 525-9140, ext. 2021, and publishes a newsletter, *Link*, which is sent to all part-time students. The coffee lounge is open from Monday to Thursday, day and evening, and Friday during the day.

MAPS Executive Director, Bruce Misch, is available during these hours to help students. All part-time students are invited to use these facilities and to assist their Association in its efforts to improve the quality and range of educational opportunities available to students who can only attend university in the evening.

# COURSE LISTINGS

If no prerequisite is listed, the course is open.

## ANTHROPOLOGY

Faculty as of January 15, 1993

### Chair

Edward V. Glanville

### Professors Emeriti

David J. Damas/A.B. (Toledo), A.M., Ph.D. (Chicago)  
Richard Slobodin/B.A., M.S. (City College of New York), Ph.D. (Columbia)

### Professors

John J. Colarusso/B.A. (Cornell), M.A. (Northwestern), Ph.D. (Harvard)  
David R. Counts/B.A. (Texas), Ph.D. (Southern Illinois)  
Dorothy Counts (University of Waterloo)/B.A., M.A., Ph.D. (Southern Illinois)  
part-time  
Harvey Feit/B.A. (Queens), M.A. Ph.D. (McGill)  
Edward V. Glanville/B.A., Ph.D. (Dublin)  
Christopher Hallpike/B. Litt., M.A., D. Phil. D. Litt. (Oxford)  
William C. Noble/B.A. (Toronto), Ph.D. (Calgary)  
Richard J. Preston/M.A., Ph.D. (North Carolina)  
Shelley Saunders/B.A., M.A., Ph.D. (Toronto)  
Michael Spence (University of Western Ontario)/B.A., M.A. (Toronto), Ph.D. (Southern Illinois)/part-time

### Associate Professors

Ellen Badone (Religious Studies)/ B.A., M.A. (Toronto), Ph.D. (California, Berkeley)  
Matthew Cooper/B.A. (Brooklyn College), M.Phil., Ph.D. (Yale)  
Laura Finsten/B.A. (Western), M.A. (Calgary), Ph.D. (Purdue)  
Trudy Nicks (Royal Ontario Museum)/B.A., M.A., Ph.D. (Alberta)/part-time  
Peter G. Ramsden/B.A. (Toronto), M.A. (Calgary), Ph.D. (Toronto)  
Susan Pfeiffer (University of Guelph)/B.A. (University of Iowa), M.A., Ph.D. (Toronto)/part-time  
William L. Rodman/B.A. (Sydney), M.A., Ph.D. (Chicago)

### Assistant Professors

Aubrey Cannon/B.A. (Simon Fraser), Ph.D. (Cambridge)  
Christopher Ellis (University of Western Ontario)/B.A. (Waterloo), M.A. (McMaster), Ph.D. (Simon Fraser)/part-time  
D. Ann Herring/B.A., M.A., Ph.D. (Toronto)  
Wayne Warry/B.A., M.A. (McMaster), Ph.D. (ANU)

### Associate Members

Belinda Leach (Labour Studies)/B.A., (Carleton), M.A., Ph.D. (Toronto)  
Henry Schwarcz (Geology)/B.A. (Chicago), M.S., Ph.D. (California Institute of Technology), F.R.S.C.  
Dennis Wilms (Clinical Epidemiology)/B.A. (Waterloo), M.A. (McMaster), Ph.D. (UBC)

### Department Notes:

1. Not all Anthropology courses listed in this Calendar are taught every year. Students are advised to consult the department's brochure and the timetable which is published annually by the Registrar's Office to determine whether a course is offered.
2. The department offers two Level I Anthropology courses. ANTHROP 1A03 and 1Z03, taken together, are designed to provide an introduction to the study of Anthropology.
3. Registration in all courses marked \*\* listed as selected topics and independent research require prior arrangement with the instructor; otherwise, no grade will be submitted for the course.
4. To identify Anthropology courses by subdiscipline, students should refer to the lists of courses under *Anthropology Subfields* in the section *Faculty of Social Sciences, Department of Anthropology*.

### Courses

#### ANTHROP 1A03 INTRODUCTION TO ANTHROPOLOGY: CULTURE AND SOCIETY

A general introduction to the study of human culture and society in all of its aspects. Examples and illustrations will be drawn largely from non-Western societies.

Three hours (lectures and discussion); one term

#### ANTHROP 1Z03 THE HUMAN JOURNEY : THE ANTHROPOLOGY OF THE PAST

An examination of the story of the human species, from the earliest origins to the rise of civilization, as told by physical anthropology and archaeology.

Three hours (lectures and discussion); one term

#### ANTHROP 2AA3 THE ORIGIN AND DEVELOPMENT OF THE EUROPEAN LANGUAGES

The phonetic, morphological, syntactic and lexical structures of Indo-European languages and the role of these features in the genesis and development of English, German, French, Russian, Italian, Spanish and other Indo-European-based languages of Europe.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: LINGUIST 2A06

Cross-list: LINGUIST 2AA3

#### ANTHROP 2AL3 THE MAKING OF THE EUROPEAN LINGUISTIC LANDSCAPE

This history of language use in Europe from the fall of the Roman Empire to the flowering of linguistic nationalism.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: LINGUIST 2A03

#### ANTHROP 2B03 INDIGENOUS PEOPLES OF NORTH AMERICA

A comparative study of selected cultures of this continent, dealing with traditional and modern situations.

Three hours (lectures and discussion); one term

#### ANTHROP 2DD3 PRIMATE BEHAVIOUR

A survey of current issues in primate behaviour, including taxonomy, demography, social structure, reproduction, play, cognition, and sociobiology. Students will conduct a zoo observation study.

Three hours (lectures and discussion); one term

Prerequisite: Six units of Level I Anthropology

#### ANTHROP 2E03 HUMAN VARIATION AND EVOLUTIONARY CHANGE

An introduction to the study of human evolution, evolutionary mechanisms, and variability in living species of human and non-human primates.

Three hours (lectures and discussion); one term

Prerequisite: Six units of Level I Anthropology

*This course is required of all students registered in an Honours Programme in Anthropology, and is a prerequisite for advanced courses in Physical Anthropology.*

#### ANTHROP 2F03 SOCIAL ANTHROPOLOGY

This course is designed to equip students with a repertoire of concepts necessary for more advanced courses in anthropology. The course examines kinship and forms of social organization in western and non-western society.

Three hours (lectures and discussion); one term

Prerequisite: Six units of Level I Anthropology

*This course is required of all students registered in an Honours programme in Anthropology.*

#### ANTHROP 2FF3 HUMAN OSTEOLOGY AND FORENSIC ANTHROPOLOGY

A study of human bones and teeth with a consideration of how to determine sex, age, stature and other individual characteristics from these remains alone.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level II, III or IV of any programme

*Enrolment is limited.*

#### ANTHROP 2H03 ENVIRONMENT AND CULTURE

The interdependence of human societies and their physical and biological environments is examined. Human attitudes toward space, place and environment in Western and non-Western societies are emphasized. The convergence of Western environmental movements and aboriginal philosophy is explored.

Three hours (lectures and discussion); one term

**ANTHROP 2103 HISTORY OF ANTHROPOLOGY**

Some of the major developments and personalities in the history of anthropology as a discipline, with emphasis upon the English-speaking world. Three hours (lectures and discussion); one term  
Prerequisite: Six units of Level I Anthropology or ANTHROP 1A03  
*This course is required of all students in an Honours Programme in Anthropology.*

**ANTHROP 2JJ3 HUMAN GROWTH AND CONSTITUTION**

Variation in body form and composition examined in the context of normal growth and evolutionary development. Three hours (lectures and discussion); one term  
Antirequisite: ANTHROP 2J03

**ANTHROP 2KK3 MYTH**

Major definitions and theories of myth are discussed in conjunction with primary readings from mythological texts. Two lectures, one tutorial; one term  
Cross-list: RELIG ST 2K03

**ANTHROP 2L03 PHONETICS**

A study of the sounds of language and human articulatory capabilities. Three hours (lectures); one term  
Cross-list: LINGUIST 2L03

**ANTHROP 2LL3 LANGUAGES OF THE WORLD**

A sociolinguistic survey of the world's languages under topics such as official and vernacular languages, multilingualism, language loss and spread, and language conflict. Three hours (lectures and discussion); one term  
Cross-list: LINGUIST 2LL3

**ANTHROP 2M03 PHONOLOGY**

A study of the patterns of distinctive sounds in the world's languages. Three hours (lectures); one term  
Prerequisite: ANTHROP 2L03 or LINGUIST 2L03  
Cross-list: LINGUIST 2M03

**ANTHROP 2O03 NORTH AMERICAN PREHISTORY**

An examination of the origins and development of the major indigenous cultural groups of prehistoric North America. Three hours (lectures and discussion); one term  
Prerequisite: ANTHROP 1Z03 or 2PA3

**ANTHROP 2P03 PEOPLES OF THE PACIFIC**

An introduction to the ways of life and thought in Pacific island societies. The course will emphasize the material culture, networks of social relations, and systems of belief, of the peoples of Melanesia, Polynesia, and Micronesia. Three hours (lectures and discussion); one term

**ANTHROP 2PA3 INTRODUCTION TO PREHISTORIC ARCHAEOLOGY**

An introduction to the goals and methods of archaeological research with a focus on specific problems in human prehistory. Three hours (lectures and discussion); one term  
Prerequisite: Three units of Level I Anthropology  
*This course is required of all students in an Honours programme in Anthropology.*

**ANTHROP 2Q03 LINGUISTICS AND THE STUDY OF CULTURE**

A study of the application of linguistic models, particularly structuralism, to sociocultural anthropology and related disciplines. Three hours (lectures and discussion); one term  
Prerequisite: Registration in at least Level II of any programme  
Cross-list: LINGUIST 2Q03

**ANTHROP 2R03 RELIGION, MAGIC, AND WITCHCRAFT**

An introduction to the cross-cultural study of the relationship between the natural and supernatural, and between ideology and social action. Three hours (lectures and discussion); one term  
Prerequisite: ANTHROP 1A03 or 2F03

**ANTHROP 2S03 AN ETHNIC HISTORY OF THE LANDS IN AND AROUND THE FORMER SOVIET UNION**

This survey course will examine the ethnology, languages and histories of the people that fall or once fell within the lands that make up or adjoin the territory that was once the Soviet Union. Where possible, discussion of present conflicts or future tensions will be couched in terms of historical influences. Three hours (lectures); one term

**ANTHROP 2U03 PLAGUES AND PEOPLE**

A consideration of the role played by infectious disease in human evolution. The social and biological outcomes of major epidemics and pandemics, past and present, will be explored. Three hours (lectures and discussion); one term

**ANTHROP 2V03 THE AZTECS, MAYA AND INCA**

A survey of these three great prehistoric New World civilizations, using archaeological, ethnohistoric and colonial information. Topics will include religion, social structure, political and economic organization, as well as the similarities and differences among the Aztecs, Maya and Inca. Three hours (lectures); one term

**ANTHROP 2X03 WARFARE AND AGGRESSION**

The aim of the course is to assess the extent to which violence is both controlled by and an expression of society and culture. Three hours (lectures and discussion); one term

**ANTHROP 2Y03 HONOURS SEMINAR**

This course will give students the opportunity to develop skills in critical thinking and in communicating their ideas by emphasizing individual work in a seminar format. Topics will vary from year to year. Three hours (lectures and discussion); one term  
Prerequisite: Registration in Level II or III Honours Anthropology

**ANTHROP 2Z03 INTRODUCTION TO SOCIAL RESEARCH**

This course is designed to develop those skills necessary to pursue and understand research. Several general methods of sociological research will be examined. Three hours (lectures and discussion); one term  
Prerequisite: Registration in Honours or B.A. Anthropology and either ANTHROP 1A03 or 2F03  
Cross-list: SOCIOL 2Z03  
*Enrolment is limited.*

**ANTHROP 3A03 CULTURES IN CONTACT: THE CANADIAN NORTH**

A comparative ethnographic analysis of traditional and contemporary hunting and gathering cultures in the Canadian Arctic and Subarctic. The course examines socio-political change, environmental relations, and the impact of the fur-trade on aboriginal communities. Three hours (lectures and discussion); one term  
Prerequisite: ANTHROP 1A03 or 2F03; or registration in a Health Sciences programme

**ANTHROP 3AA3 READING ETHNOGRAPHIES**

Learning to evaluate ethnographic text is a fundamental skill in anthropological training and research. This course examines selected texts, some of which have become classic in the history of the discipline, to distinguish the reliable from unreliable. Through detailed study, students will gain critical resources for future studies. Three hours (lectures and discussion); one term  
Prerequisite: ANTHROP 2F03

**ANTHROP 3AL6 THE SOCIAL SITUATION OF THE MODERN EUROPEAN LANGUAGES**

A survey of the social functions, changes in status and attendant linguistics problems of the languages of Europe. Among the topics covered are the growth of standard languages, modernization, dialects and dialect levelling, language planning, language attitudes, the impact of nationalism and internationalism, and the spread of European languages throughout the world. Three lectures; two terms  
Prerequisite: Registration in Level II and above  
Cross-list: LINGUIST 3A06

**ANTHROP 3AS3 ARCHAEOLOGY AND SOCIETY**

A critical examination of the history of archaeology and the social and political implications of our understanding of the ancient human past. Three hours (lectures and discussion); one term  
Prerequisite: Three units of Level I Anthropology

**ANTHROP 3B03 ETHNOLOGY: EUROPE**

A comparative ethnological survey of selected societies in Europe. Three hours (lectures and discussion); one term  
Prerequisite: Six units of Social/Cultural Anthropology

**ANTHROP 3C03 HUMAN ADAPTABILITY/ THE PHYSICAL ENVIRONMENT**

Biocultural models of the ways in which humans cope with features of

their physical environment, such as hot and cold climates, high altitude, photoperiodicity and solar radiation.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level III or IV of any programme. ANTHROP 2E03 is highly recommended.

**ANTHROP 3CC6 ARCHAEOLOGICAL FIELD SCHOOL**

Field instruction in the techniques used in the excavation of an archaeological site. The course includes hands-on instruction in manual excavation methods, mapping, field recording, and laboratory analysis.

Prerequisite: ANTHROP 2PA3, 3K03, or an equivalent course in archaeological methods

Antirequisite: Course credit for an equivalent field school at another university  
*Enrolment is limited*

**ANTHROP 3D03 ETHNOLOGY: PACIFIC ISLANDS**

Analysis of selected issues in Pacific anthropology.

Three hours (lectures and discussion); one term

Prerequisite: ANTHROP 2P03

**ANTHROP 3E03 SPECIAL TOPICS IN ARCHAEOLOGY I**

The topic varies with each instructor (e.g. one class may examine *Ancient Mesoamerican Cities* and another focus on *The Archaeology of Death*). Consult the department office for topics prior to registration.

Three hours (lectures and discussion); one term

Prerequisite: ANTHROP 2PA3

**ANTHROP 3EE3 SPECIAL TOPICS IN ARCHAEOLOGY II**

As per ANTHROP 3E03. In 1993-94, the topic will be Gender in Archaeology.

Three hours (lectures and discussion); one term

Prerequisite: ANTHROP 2PA3

**ANTHROP 3F03 CONTEMPORARY NORTHERN PEOPLES**

An examination of native-white interaction in northern Canada with an emphasis on present day events.

Three hours (lectures and discussion); one term

Prerequisite: ANTHROP 1A03 or 2F03; or registration in a Health Sciences programme

**ANTHROP 3G03 COMPARATIVE MYTHOLOGY**

The reconstruction of lost mythic traditions by means of comparative techniques drawn from historical linguistics. The Indo-European traditions of Eurasia will be examined.

Three hours (lectures and discussion); one term

**ANTHROP 3I03 SYNTAX**

A study of the human capacity to form words into sentences. Emphasis will be on generative transformational grammar.

Three hours (lectures); one term

Cross-list: LINGUIST 3I03

**ANTHROP 3JJ6 ANTHROPOLOGY OF RELIGION**

Survey and evaluation of theoretical perspectives employed by anthropologists in the study of religion. Specific ethnographic examples will be drawn primarily, but not exclusively, from non-Western cultures.

Two lectures, one tutorial; two terms

Cross-list: RELIG ST 3JJ6

**ANTHROP 3K03 ARCHAEOLOGICAL INTERPRETATION**

Technique and methodology in the investigation of archaeological material.

Three hours (lectures and discussion); one term

Prerequisite: Three units of Level II Archaeology

*Enrolment is limited.*

**ANTHROP 3M03 MORPHOLOGY**

The study of word formation in languages of the world: a critical survey of current theories and issues.

Three hours (lectures); one term

Prerequisite: ANTHROP 3I03 or LINGUIST 3I03

Cross-list: LINGUIST 3M03

**ANTHROP 3N03 PRIMATE BIOLOGY AND EVOLUTION**

Comparative anatomy and development of our nearest living relatives as well as an examination of the fossil record from 70 to 5 million years ago.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level III or IV of any programme. ANTHROP 2E03 is highly recommended.

**ANTHROP 3NN3 HOMINID EVOLUTION**

An evaluation of the anatomical, genetic and fossil evidence for the evolution of the human species.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level III or IV of any programme. ANTHROP 2E03 is highly recommended.

**ANTHROP 3NP3 NEOLITHIC PREHISTORY**

A survey of the development of settled, food-producing human cultures from earliest villages to urban life.

Three hours (lectures and discussion); one term

Prerequisite: ANTHROP 1Z03 or 2PA3

**ANTHROP 3P03 RESEARCH METHODS IN CULTURAL ANTHROPOLOGY**

Methodologies and techniques of research, especially field study, in sociocultural anthropology.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level II or III of any Anthropology programme

**ANTHROP 3PL3 PRAGMATICS AND DISCOURSE**

A discussion of the problems confronting the linguist in the study of text and discourse at the level beyond the sentence. The course will deal with the interaction between grammar and situational factors.

Prerequisite: Registration in Level III or IV of the Modern Language and Linguistics programme or Anthropology

Cross-list: LINGUIST 3P03

**ANTHROP 3Q03 ANTHROPOLOGICAL APPROACHES TO THE STUDY OF AGING**

An examination of the contribution of anthropology to the study of aging with an emphasis on cross-cultural comparisons, and including an assessment of the anthropological literature relating to the biological basis of aging in modern and prehistoric populations.

Three hours (lectures and discussion); one term

Prerequisite: Six units of Social/Cultural Anthropology, or registration in any programme in Gerontology

Cross-list: GERONTOL 3Q03

**ANTHROP 3RR3 TOPICS IN THE ANTHROPOLOGY OF GENDER**

This course involves a consideration of the anthropology of gender. Cross-cultural material from small-scale and large-scale societies is used to discuss gender in relation to work activities, socialization, and the construction of images and identities.

**ANTHROP 3S03 HISTORY OF THOUGHT IN SOCIAL ANTHROPOLOGY**

The development of anthropology as a discipline, with emphasis on the emergence and refinement of concepts concerning culture, social structure, and sociocultural change.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level III or IV Anthropology

**ANTHROP 3T03 DOMINATION AND RESISTANCE**

This course focuses on the comparative study of political processes cross-culturally. We specifically examine the processes of domination and resistance in the history of contact between western and indigenous cultures.

Three hours (lectures and discussion); one term

Prerequisite: Six units of Social/Cultural Anthropology

**ANTHROP 3U03 CANADIAN ARCHAEOLOGY**

A study of the development of native Canadian cultures prior to the arrival of Europeans.

Three hours (lectures and discussion); one term

Prerequisite: Three units of Level II Archaeology

**ANTHROP 3V03 COMPARATIVE ECONOMIC ORGANIZATION**

An examination of contrasting types of economic organization, with particular reference to societies with a non-industrial base.

Three hours (lectures and discussion); one term

Prerequisite: Six units of Social/Cultural Anthropology

**ANTHROP 3W03\*\* SPECIAL TOPICS IN ANTHROPOLOGY I**

Reading and discussion of selected topics in Anthropology. It is incumbent upon the student to secure arrangements with the supervising instructor prior to registration in this course; otherwise, no grade will be submitted.

One term

Prerequisite: Registration in Level II, III or IV Anthropology

**ANTHROP 3WW3\*\* SPECIAL TOPICS IN ANTHROPOLOGY II**

As per ANTHROP 3W03, but on a different topic.

One term

Prerequisite: Registration in Level II, III or IV Anthropology

**ANTHROP 3Z03 MEDICAL ANTHROPOLOGY: THE BIOMEDICAL APPROACH**

Patterns of stress and disease with emphasis on the modern biomedical

approach. Disease in the evolutionary context with emphasis on disease as a failure of adaptation and response.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level III or IV of any programme. ANTHROP 2E03 or 2F03 is highly recommended.

#### **ANTHROP 3ZZ3 MEDICAL ANTHROPOLOGY: SYMBOLIC HEALING**

An interdisciplinary approach to traditional systems of healing such as Greek humeral medicine, Chinese, Shamanic, etc. Emphasis will be on cultural and psychological parameters of healing.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level III or IV of any programme. ANTHROP 2E03 or 2F03 is highly recommended.

#### **ANTHROP 4A03 THEORIES OF SOCIAL EVOLUTION**

The various theories of social evolution from classical to modern times, but with special attention to Spencer, Marx, sociobiology, and modern anthropological works.

Three hours (lectures and discussion); one term

Prerequisite: ANTHROP 2F03 and three additional units of Level II or III Anthropology

#### **ANTHROP 4B03 CURRENT PROBLEMS IN ANTHROPOLOGY I**

The topic varies with each instructor (e.g. one class may examine *Urban Anthropology* and another focus on *Recent Advances in Genetics*). Consult the department office for topics prior to registration.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Anthropology

#### **ANTHROP 4BB3 CURRENT PROBLEMS IN ANTHROPOLOGY II**

As per ANTHROP 4B03, but on a different topic.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Anthropology

#### **ANTHROP 4BL3 APPLIED LINGUISTICS: SECOND LANGUAGE TEACHING**

The contributions made by the linguist, the psychologist, and the sociologist to the planning, organization, and implementation of a language-teaching methodology, with particular emphasis on CAI/CALL.

Prerequisite: Six units of Linguistics courses above Level I from Anthropology or Modern Languages and Linguistics listing

Cross-list: LINGUIST 4B03

#### **ANTHROP 4C03 HUMAN ADAPTABILITY/ THE SOCIAL ENVIRONMENT**

Evaluates the impact that the social environment, as expressed in nutrition, disease, culture change, crowding and migration, has on human biology.

Three hours (lectures and discussion); one term

Prerequisite: ANTHROP 3C03

#### **ANTHROP 4D03 APPLIED ANTHROPOLOGY**

An examination of how anthropology is applied to solve human problems. Includes discussion of how students can use their anthropological training in non-academic occupations.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level IV Anthropology

#### **ANTHROP 4EE3 COMPARATIVE SYSTEMS OF THOUGHT**

Selected studies in religion, magic, and systems of knowledge in the cultures of non-literate peoples, and their expression in myth and ritual.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level IV Anthropology

#### **ANTHROP 4F03 CURRENT ISSUES IN ARCHAEOLOGICAL THEORY**

A seminar in current topics and issues in archaeology.

Three hours (lectures and discussion); one term

Prerequisite: Three units of Level III Archaeology courses

#### **ANTHROP 4G03\*\* INDEPENDENT RESEARCH I**

Independent study of a research problem through published materials and/or fieldwork. Students will be required to write up the results of their inquiry in scholarly form. It is incumbent upon the student to secure arrangements with the supervising instructor prior to registration in this course; otherwise, no grade will be submitted.

One term

Prerequisite: Registration in Level II, III or IV Anthropology

#### **ANTHROP 4GG3\*\* INDEPENDENT RESEARCH II**

As per ANTHROP 4G03, but on a different topic.

One term

Prerequisite: Registration in Level IV Anthropology

#### **ANTHROP 4H03 TOPICS IN MESOAMERICAN PREHISTORY**

An in depth examination of problems in the prehistory of a major subregion of Mesoamerica, or of a temporal period across all Mesoamerica.

Three hours (seminar); one term

Prerequisite: Three units of Level III Archaeology

#### **ANTHROP 4HF3 ARCHAEOLOGY OF HUNTERS AND FORAGERS**

Study of the prehistoric technologies and organizational strategies used in making a living from the natural environment, and examination of the cultural contexts of foraging economies.

Three hours (seminar); one term

Prerequisite: ANTHROP 2PA3 and three units of Level III Archaeology

#### **ANTHROP 4I03 CONTEMPORARY ANTHROPOLOGICAL THEORY**

Seminar on selected recent developments in anthropological theory. In 1993-94, the course will focus on anthropological perspectives on Global Systems.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Anthropology

*This course is required of all students registered in Honours Anthropology.*

#### **ANTHROP 4J03 ADVANCED TOPICS IN PHYSICAL ANTHROPOLOGY**

Study at an advanced level of selected topics within the subdiscipline. Topics may change from year to year.

Three hours (seminar); one term

Prerequisite: ANTHROP 2E03

#### **ANTHROP 4L03 FIELD LINGUISTICS**

An advanced course in techniques of linguistic field research. The field situation is simulated by using an actual target language.

Three hours (seminar); one term

Prerequisite: 12 units of Anthropology or Linguistics above Level I

Cross-list: LINGUIST 4L03

#### **ANTHROP 4N03 ANTHROPOLOGY AND EDUCATION**

A comparison of the formal and informal ways in which people learn within their cultural context, and a survey of the uses of anthropology in schools.

Three hours (seminar); one term

Prerequisite: Registration in an Honours programme in Social Science

#### **ANTHROP 4PI3 PREHISTORY OF THE IROQUOIS**

A seminar course that examines the archaeological record of the development of Iroquois culture in the lower Great Lakes.

Three hours (seminar); one term

Prerequisite: ANTHROP 2PA3 and three units of Level III Archaeology

#### **ANTHROP 4R03 SKELETAL BIOLOGY OF EARLIER HUMAN POPULATIONS**

The analysis of human skeletal samples, including such topics as paleopathology, paleodemography, paleonutrition and biological distance analyses.

Three hours (lectures and discussion); one term

Prerequisite: ANTHROP 2FF3

Antirequisite: ANTHROP 3O06

#### **ANTHROP 4T03 GENERATIVE GRAMMAR: MIND AND CULTURE**

An examination at an advanced level of Chomsky's generative grammar as a paradigm for the study of minds and cultures.

Three hours (seminar); one term

Prerequisite: ANTHROP/LINGUIST 2Q03, 2L03 or 3I03

Antirequisite: ANTHROP/LINGUIST 2T03

Cross-list: LINGUIST 4T03

#### **ANTHROP 4U03 PREHISTORY OF THE BRITISH ISLES**

A seminar course in the archaeology of Great Britain and Ireland from the Lower Paleolithic to the Bronze Age. Within these limits, chronology and topical emphasis may vary.

Three hours (seminar); one term

Prerequisite: Three units of Level III Archaeology

#### **ANTHROP 4Y03 DEVELOPING SOCIETIES**

Topics may include, for example, the meaning of development, innovation and technological change, urbanization, and protest movements.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level III or IV Honours Anthropology

For Graduate Courses, see *Calendar of the School of Graduate Studies*.

## ART AND ART HISTORY

### Faculty as of January 15, 1993

#### Acting Chair

Hugh Galloway

#### Professors Emeriti

George B. Wallace/M.A. (Trinity College, Dublin)  
Paul H. Walton/B.A. (Toronto), A.M., Ph.D. (Harvard)

#### Associate Professors

Donald F. Carr/B.A. (Guelph), M.F.A. (Chicago)  
Hugh G. Galloway/Dipl. Art (Edinburgh)  
Hayden B.J. Maginnis/B.A. (Western), M.F.A., Ph.D. (Princeton)

#### Assistant Professors

Judy N. Major-Girardin/B.F.A. (Windsor), M.F.A. (Alabama)  
Niamh O'Laoghaire/B.A., M.A., Ph.D. (Toronto)  
Glenn T. Scott/B.A. (McGill), M.F.A., Ph.D. (Princeton)  
Graham Todd/L.D.A.D. Dip. (Chelsea School of Art) M.F.A. (Guanajuato)  
Warren D. Tresidder/B.A. (New South Wales), M.A. (British Columbia), Ph.D. (Michigan)

#### Lecturers

Elizabeth Horton Sharf/A.B. (Wellesley College), M.A. (Michigan)

#### Instructors

Martin Grove/N.D.D. Fine Art/part-time  
Jean Maddison/M.F.A. (Royal College of Art, London)/part-time  
Kim Ness/B.A. (McMaster), M. Litt. (Edinburgh), M.M.St. (Toronto)/part-time  
John Wilkinson/part-time Art Gallery Director and Curator  
Kim G. Ness/B.A. (McMaster), M. Litt. (Edinburgh), M.M.St. (Toronto)

#### Associate Members

Katherine M.D. Dunbabin/Classics/B.A., D.Phil. (Oxford)  
Stephen B. Johnson/Drama/B.A. (Guelph), M.A. (Toronto), Ph.D. (New York)  
Graham Petrie/Drama/M.A. (St. Andrews), B.Litt. (Oxford) Art and Art History

### Department Notes:

Art courses are open only to students registered in a programme in Honours Art.

## ART ...

### Courses

#### ART 1F06 INTRODUCTION TO STUDIO PRACTICE

An exploration of composition by two- and three-dimensional methods. Two studio practice (three hours each); two terms  
Prerequisite: Submission of an acceptable portfolio, and an interview with the Department

**ART 1F06:** ART 1F06 is open only to students intending to pursue a degree in Honours Art or Combined Honours Art and Another Subject on a full-time basis. Applicants must present a portfolio of their work and be interviewed by the Department of Art and Art History by April 30. The portfolio should contain a variety of original works in different media, including work derived from both first-hand observation and the imagination. Late applications will be considered only if spaces remain available after the first allocations have been made. Applicants for this course should use the MHA OUAC code.

#### ART 2A04 PAINTING I

An introduction to concepts, techniques and ideas related to the development of paintings from motif through organization to completed work. One studio practice (four hours); two terms  
Prerequisite: ART 1F06

#### ART 2B04 SCULPTURE I

An introduction to concepts, techniques and ideas related to the development of sculpture from initial maquettes, through organization to completed work. One studio practice (four hours); two terms  
Prerequisite: ART 1F06

#### ART 2C03 FIGURE DRAWING AND SUPERFICIAL ANATOMY

One studio practice (three hours); two terms  
Prerequisite: ART 1F06

#### ART 2F04 INTRODUCTORY PRINTMAKING

An introduction to methods of intaglio and relief printmaking, lithography and serigraphy. One studio practice (four hours); two terms  
Prerequisite: ART 1F06

#### ART 3A03 ADVANCED PAINTING I

A continuation of subjects explored in ART 2A04 with encouragement towards independent development. Two studio practice (three hours each); one term  
Prerequisite: ART 2A04

#### ART 3AA3 ADVANCED PAINTING II

A continuation of ART 3A03 with greater emphasis on the establishment of independent ideas. Two studio practice (three hours each); one term  
Prerequisite: ART 3A03

#### ART 3B03 ADVANCED SCULPTURE I

A continuation of subjects explored in ART 2B04 with encouragement towards independent development. Two studio practice (three hours each); one term  
Prerequisite: ART 2B04

#### ART 3BB3 ADVANCED SCULPTURE II

A continuation of ART 3B03 with greater emphasis on the establishment of independent ideas. Two studio practice (three hours each); one term  
Prerequisite: ART 3B03

#### ART 3C03 ADVANCED DRAWING

One studio practice (three hours); two terms  
Prerequisite: ART 2C03

#### ART 3G06 CURRENT PRACTICES IN THE VISUAL ARTS

A series of seminars and/or workshops conducted by contemporary visual artists and individuals involved in the business of Art. A written thesis and a portfolio are requirements of the course. Three hours; two terms  
Prerequisite: Registration in Level III of any Honours programme in Art

#### ART 3P03 ADVANCED PRINTMAKING I

A continuation of subjects explored in ART 2F04 with encouragement towards independent development. Two studio practice (three hours each); one term  
Prerequisite: ART 2F04  
Antirequisite: ART 3P06

#### ART 3PP3 ADVANCED PRINTMAKING II

A continuation of ART 3P03 with greater emphasis on the establishment of independent ideas. Two studio practice (three hours each); one term  
Prerequisite: ART 3P03  
Antirequisite: ART 3P06

#### ART 4B12 MAJOR STUDIO PROJECT

A summation of investigations into painting, sculpture, printmaking or drawing to be conducted under the supervision of two studio faculty members. Prerequisite: ART 3G06 and registration in Level IV Honours Art or Combined Honours in Art and Another Subject with a grade of at least B- in six units of Level III work in the chosen field. Antirequisite: ART 4C06  
Students wishing to integrate ART 4B12 with ART 4D03 must have a grade of at least A- in a previous course in the chosen field or fields.

#### ART 4C06 MINOR STUDIO PROJECT

An investigation into painting, sculpture, printmaking or drawing to be conducted under the supervision of a studio faculty member. Prerequisite: ART 3G06 and registration in Level IV of Combined Honours in Art and Another Subject with a grade of at least B- in six units of Level III work in the chosen field. Antirequisite: ART 3F06 or 4B12 or registration in 4B12  
Students wishing to integrate ART 4C06 with ART 4D03 must have a grade of at least A- in a previous course in the chosen field or fields.



**ART 4D03 MEDIA RESEARCH**

Investigation of studio techniques, under the supervision of a studio faculty member.

Prerequisite: Registration in Level IV of any Honours programme in Art with a grade of at least B- in six units of Level III work in the chosen field.

*Students wishing to integrate ART 4B12 or 4C06 with ART 4D03 must have a grade of at least A- in a previous course in the chosen field or fields.*

**ART HISTORY ...****ART HIST 1A06 INTRODUCTION TO THE STUDY AND HISTORY OF THE VISUAL ARTS**

An examination of the various forms and functions of art and architecture in the Western tradition, with an historical study of the major monuments of that tradition.

Three lectures; two terms

**ART HIST 2B03 GREEK ART**

The architecture, sculpture, and painting of the Greek and Hellenistic worlds.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: CLASSICS 2B03

**ART HIST 2C03 ROMAN ART**

The architecture, sculpture, and painting of the Roman world.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: CLASSICS 2C03

**ART HIST 2D03 19TH- AND 20TH-CENTURY ART AND ARCHITECTURE**

A study of the major movements and styles in painting, sculpture and architecture from c. 1780 to c. 1960.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: ART HIST 2O03 or 2P03

**ART HIST 2E03 APPROACHES TO ART HISTORY**

A study of the various approaches which art historians of the last 100 years have taken in investigating the art of the past.

Three lectures; one term

Prerequisite: ART HIST 1A06

**ART HIST 2G03 THE ART OF THE MEDIEVAL WORLD**

A systematic survey of the history of medieval art between c. 350 and 1400 A.D.

Three lectures; one term

Prerequisite: Registration in Level II and above

**ART HIST 2H03 AESTHETICS**

An introduction to some main theories of the nature of art, criticism, and the place of art in life and society.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: PHILOS 2H03

*Offered in alternate years.*

**ART HIST 2M03 THE ART AND ARCHITECTURE OF THE ITALIAN RENAISSANCE 1400-1580**

The history of art in Renaissance Italy with the emphasis on the works of individual artists and architects.

Three lectures; one term

Prerequisite: Registration in Level II and above

**ART HIST 2N03 ITALIAN BAROQUE ART AND ARCHITECTURE**

An examination of the major trends in Italian art and architecture from 1580-1780.

Three lectures; one term

Prerequisite: Registration in Level II and above

**ART HIST 2X06 THE ART OF THE FILM**

An introduction to film style and technique through a detailed critical analysis of major works from the silent period to the present day.

Two lectures, plus one weekly film screening; two terms

Prerequisite: Six units from the Faculty of Humanities, and registration in Level II and above

Cross-list: DRAMA 2X06

**ART HIST 3AA3 CONTEMPORARY ART**

An examination of major developments in painting, sculpture, and other media from World War II to the present together with a review of related critical theory.

Three lectures; one term

Prerequisite: ART HIST 2D03 or 2P03

*Offered in alternate years.*

**ART HIST 3B03 ASPECTS OF CANADIAN ART**

A survey of the visual arts in Canada from the earliest explorations and settlements to the present.

Three lectures; one term

Prerequisite: Registration in Level III or IV of any programme

*Offered in alternate years.*

**ART HIST 3BB3 THE ART OF NORTHERN EUROPE IN THE 17TH CENTURY**

A discussion of the art of France, Flanders, the Netherlands and England in the Baroque period. Emphasis will be given to Rubens, Poussin and Rembrandt.

Three lectures; one term

Prerequisite: ART HIST 2N03

*Offered in alternate years.*

**ART HIST 3CC3 LITERATURE AND FILM**

An examination of the particular characteristics of both literature and film and the relationship between them through a detailed study of selected novels, short stories and plays and the films that have been based on them.

Three lectures, plus one weekly film screening; one term

Prerequisite: Registration in Level III or IV of a programme in Drama, Literature or Art History. ART HIST 2X06 is recommended.

Antirequisite: DRAMA 4H03

Cross-list: COMP LIT 3L03, DRAMA 3H03, and ENGLISH 3CC3

**ART HIST 3E03 EUROPEAN ARCHITECTURE OF THE 17TH AND 18TH CENTURIES**

This course will examine the developments in architecture primarily in Italy, France and England in the 17th and 18th centuries with background material, where necessary, on 16th-century architectural styles.

Three lectures; one term

Prerequisite: ART HIST 2N03

**ART HIST 3F03 THE AMERICAN CINEMA I**

A survey of some of the predominant features of the American Cinema from its beginning to 1950. Emphasis will be placed both on the artistic value of the films and on their social significance and impact.

Two lectures, plus one weekly film screening; one term

Prerequisite: ART HIST 2X06

Cross-list: DRAMA 3R03

**ART HIST 3FF3 THE AMERICAN CINEMA II**

A survey of some of the predominant features of the American Cinema from 1950 to the present day. Emphasis will be placed both on the artistic value of the films and on their social significance and impact.

Two lectures, plus one weekly film screening; one term

Prerequisite: ART HIST 2X06

Cross-list: DRAMA 3RR3

**ART HIST 3G03 LATE ANTIQUE AND EARLY CHRISTIAN ART**

The art and architecture of the later Roman Empire, and the birth of Christian Art (A.D. 200-600).

Three lectures; one term

Prerequisite: ART HIST 2C03 or 2G03

Cross-list: CLASSICS 3G03

*Alternates with ART HIST 3H03*

**ART HIST 3H03 ARCHAIC GREEK ART**

The formative period of Greek Art from its rebirth after the Dark Ages to the Persian Wars (ca. 1000-480 B.C.) and its relationship to the art of the Near East.

Three lectures; one term

Prerequisite: ART HIST 2B03

*Alternates with ART HIST 3G03*

Cross-list: CLASSICS 3H03

**ART HIST 3J03 JAPANESE ART**

An introduction and discussion of major aspects of the visual arts of Japan.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Available only as an elective for students registered in an Art History programme.*

Cross-list: JAPAN ST 3J03

**ART HIST 3K03 ARTS OF CHINA**

An introduction to the arts of China from the Neolithic period to the twentieth century, covering Bronze Age arts, recent archaeological discoveries, Buddhist sculpture, figure and landscape painting, and Chinese calligraphy.

Seminar (two hours); one term

Prerequisite: Registration in Level II and above

*Available as an elective only for students registered in an Art History programme.*

**ART HIST 3L03 VENETIAN RENAISSANCE PAINTING**

An examination of the works of the major painters of the Renaissance in Venice, including such artists as Giovanni Bellini, Giorgione and Titian.

Three lectures; one term

Prerequisite: ART HIST 2M03

*Offered in alternate years.*

**ART HIST 3S03 ART AND CIVILIZATION AT THE DAWN OF THE ITALIAN RENAISSANCE 1200-1400**

A study of Italian art and civilization in the age of transition between the Middle Ages and the Renaissance.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in Art or Art History

*Offered in alternate years.*

**ART HIST 3T03 TOPICS IN NATIONAL CINEMAS I**

Previous topics include: Soviet and East European Cinema. Consult the Department concerning topic to be offered.

Two lectures, plus one weekly film screening; one term

Prerequisite: ART HIST 2X06

Cross-list: DRAMA 3T03 and MODERN LANG 3T03

*ART HIST 3T03 may be repeated, if on a different topic, to a total of six units.*

**ART HIST 3TT3 TOPICS IN NATIONAL CINEMAS II**

Previous topics include: Canadian Cinema, French Cinema. Consult the Department concerning topic to be offered.

Two lectures, plus one weekly film screening; one term

Prerequisite: ART HIST 2X06

Cross-list: DRAMA 3TT3

*ART HIST 3TT3 may be repeated, if on a different topic, to a total of six units.*

**ART HIST 3V03 SUPERVISED READING**

Readings in a field of special interest to the student, under the guidance of a Faculty member.

Prerequisite: Registration in Level III or IV of Honours Art History or Level IV Honours Art and a grade of at least B- in a previous course in the chosen field; or permission of the Department

Antirequisite: ART 4D03

**ART HIST 3X03 TOPICS IN ANCIENT ART AND ARCHAEOLOGY**

Previous topics include: Hellenistic and Roman Painting. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: ART HIST 2B03 or 2C03, and registration in Level III or IV of a programme in Art History or Classics

*Offered in alternate years.*

Cross-list: CLASSICS 3X03

*ART HIST 3X03 may be repeated, if on a different topic, to a total of six units.*

**ART HIST 4AA3 SPECIAL STUDIES IN CONTEMPORARY ART**

An in-depth examination of one or more significant movements in contemporary art, theory and criticism from c. 1960 to the present. Topics will vary from year to year, but will be drawn from a list including Pop-Art, Post-Painterly Abstraction, Minimal Art, Conceptual Art, Earthworks, Neo-Expressionism and Postmodernism.

Seminar (two hours); one term

Prerequisite: ART HIST 3AA3

*Offered in alternate years.*

*Enrolment is limited.*

**ART HIST 4C03 THE ART OF THE HIGH RENAISSANCE IN ROME**

A study of the art and architecture of Raphael, Michelangelo and their contemporaries in Rome in the early 16th century.

Seminar (two hours); one term

Prerequisite: ART HIST 2M03

*Offered in alternate years.*

*Enrolment is limited.*

**ART HIST 4F03 DUTCH PAINTING OF THE 17TH CENTURY**

A study of the so-called "minor masters" of Holland's Golden Age of painting.

Seminar (two hours); one term

Prerequisite: ART HIST 3BB3

*Offered in alternate years.*

*Enrolment is limited.*

**ART HIST 4FF3 STUDIES IN FILM**

Senior Seminar: An examination of selected films.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in Art or Art History

Cross-list: DRAMA 4FF3

*Offered in alternate years.*

*Enrolment is limited.*

**ART HIST 4M03 ASPECTS OF THE ART OF MATISSE AND PICASSO**

An examination of selected paintings, sculptures and drawings by Henri Matisse and Pablo Picasso.

Three lectures; one term

Prerequisite: ART HIST 2D03 or 2P03

*Offered in alternate years*

**ART HIST 4N03 NEOCLASSICISM AND ROMANTICISM**

An historical and critical investigation of selected issues and artists connected with the Neoclassical and Romantic movements.

Seminar (two hours); one term

Prerequisite: ART HIST 2D03 or 2O03

*Offered in alternate years.*

**ART HIST 4O06 THESIS**

Supervised study of a problem in the history of art of special interest to the student.

Prerequisite: Registration in Level IV of any Honours programme in Art History, and a grade of at least B- in a previous course in the chosen field, and permission of the Department

**ART HIST 4Q03 CARAVAGGIO**

A study of all of the paintings attributed to Caravaggio and their stylistic and documentary evidence. The variety of methods of examining an artist's work is emphasized.

Three lectures; one term

Prerequisite: ART HIST 2N03

*Offered in alternate years.*

**ART HIST 4R03 PAINTING AND SCULPTURE OF 15TH-CENTURY ITALY**

An examination of the representational arts of the early Renaissance with emphasis on the Florentine contribution.

Three lectures; one term

Prerequisite: ART HIST 2M03

*Offered in alternate years.*

**ART HIST 4S03 SPECIAL STUDIES IN FILM**

Previous topics include: Genre Studies, Film Comedy. Consult the Department concerning topic to be offered.

Two lectures, plus one weekly film screening; one term

Prerequisite: ART HIST 2X06

Cross-list: DRAMA 3J03

*ART HIST 4S03 may be repeated, if on a different topic, to a total of six units.*

**ART HIST 4V03 THE STUDY, CRITICISM AND EVALUATION OF ART**

A seminar to introduce students to the history, theory, and practice of connoisseurship. Its focus will be to develop skills in confronting the single work of art.

Seminar (two hours); one term

Prerequisite: Registration in Level III or IV of a programme in Art or Art History

*Offered in alternate years.*

*Enrolment is limited.*

**ART HIST 4X03 INTRODUCTION TO ART GALLERIES AND MUSEUMS**

A study of the history and methods of institutions created for the purpose of collecting, preserving, displaying and interpreting art objects.

Seminar (two hours); one term

Prerequisite: Registration in Level III or IV of a programme in Art or Art History

*Offered in alternate years.*

*Enrolment is limited.*

## ARTS AND SCIENCE

### Council of Instructors

#### Director

Barbara M. Ferrier (*Biochemistry*)  
 Richard Bourbonniere (*Inland Waters*)  
 Sylvia Bowerbank (*English*)  
 Ihor Z. Chorneyko (*Mathematics and Statistics*)  
 James Deaville (*Music*)  
 David A. Goodings (*Physics*)  
 Louis I. Greenspan (*Religious Studies*)  
 H. Hansen (*Visiting Professor*)  
 Rhoda E. Howard (*Sociology*)  
 Robert C. Hudspith (*Mechanical Engineering*)  
 Elizabeth M. Inman (*Drama*)  
 Graham K. Knight (*Sociology*)  
 Atif A. Kubursi (*Economics*)  
 Cyril H. Levitt (*Sociology*)  
 Alan Mendelson (*Religious Studies*)  
 P. K. Rangachari (*Medicine*)  
 Michael L. Ross (*English*)  
 James D. Stewart (*Mathematics and Statistics*)

### Department Notes:

- Prerequisites:** The prerequisite for all Level I, II, III and IV courses is normally registration in the Arts and Science Programme.
- Limited Enrolment:** Enrolment in Level I of the Arts and Science Programme is limited to approximately 50 students.

### Courses

#### ARTS&SCI 1A06 WESTERN THOUGHT I

An examination of central themes, from the time of the Greeks to the present, in Western religious, philosophical, and scientific thought. Students will study the formulation of these themes in such thinkers as Plato, Nietzsche, Rousseau, Augustine, and Descartes. Topics considered will include the legitimacy of the state; the scope and limits of reasoning; and the foundations of morality. Although the problems discussed will be formulated in a contemporary idiom, the works will be viewed with respect to their historical context.

#### ARTS&SCI 1B06 WRITING AND INFORMAL LOGIC

The primary aim of this course is to develop the student's critical and analytical skills in dealing with the written word. Students will examine the structure of selected texts, analyze various types of reasoning, and receive individual attention in expository writing.

#### ARTS&SCI 1C06 INQUIRY

Inquiry seminars are designed to develop skills basic to the systematic investigation of public issues. These skills include those involved in formulating questions, gathering and interpreting evidence from a variety of sources, evaluating arguments, and reaching well-considered conclusions. This course which presently deals with Third World Development includes lectures and exercises on advanced methods of library research and an introduction to computers.

#### ARTS&SCI 1D06 CALCULUS

This course aims to provide a thorough understanding of the principles and major applications of differential and integral calculus of functions of one variable, as well as an introduction to multivariate calculus and differential equations.

*ARTS & SCI 1D06 serves as a prerequisite for all upper level Mathematics, Statistics, Computer Science and Physics courses, for which MATH 1A06 is a prerequisite.*

#### ARTS&SCI 2A06 WESTERN THOUGHT II

Development of political, economic, sociological and psychological thought in the writings of such major figures as Hobbes, Rousseau, Adam Smith, Marx, Weber, Keynes, Freud and Skinner. Attention will be given to their treatment of such topics as the nature of man, the concept of human rights, the role of government in the economy, the motivation of human action, and the applicability of scientific method to political, economic and psychological problems.

#### ARTS&SCI 2D06 PHYSICS

Classical mechanics and special relativity are treated, highlighting the

discoveries of Newton and Einstein. The laws of thermodynamics, entropy, and elementary statistical physics are presented. Finally, the important discoveries leading to the quantum theory are surveyed. Laboratory projects will be undertaken.

#### ARTS&SCI 2R06 MATHEMATICAL MODELS FOR CHANGE, CHANCE AND ERROR

Probability, distributions, measures of association, tests of significance, mathematical models, and other quantitative methods useful in the analysis of variable phenomena, are considered.

#### ARTS&SCI 3A06 LITERATURE

Literary works drawn from a variety of genres and periods will be examined. The course will focus on the ways in which great writers have treated enduring human ethical concerns. It will attempt to show how literary creativity involves the matching of formal and stylistic mastery, on the one hand, with ethical awareness on the other. The course will require frequent brief written assignments.

#### ARTS&SCI 3B03 TECHNOLOGY AND SOCIETY I

The Culture of Technology. Current technological practices and approaches are studied as a cultural activity with its own beliefs, values, social structures and institutions.

#### ARTS&SCI 3BB3 TECHNOLOGY AND SOCIETY II

The Social Control of Technology. The dominant mechanisms of the social control of technology will be studied. Includes an examination of assessment methods and the role of ethics.

Prerequisite: ARTS&SCI 3B03

#### ARTS&SCI 3CB6 INQUIRY TOPIC: ENVIRONMENT

Examination of the impact of economic, social, and political decisions on our local and regional environment.

#### ARTS&SCI 3CD6 INQUIRY TOPIC: CURING SOCIETY

Examination of such issues of health and sickness as the functions of hospitals; attitudes toward illness, and the funding of medical research.

#### ARTS&SCI 3CE6 INQUIRY TOPIC: MEDIA

This course consists of four sections dealing with theoretical and analytical perspectives, political economy of the media, news media and entertainment media and their cultural effects.

#### ARTS&SCI 3CF6 INQUIRY TOPIC: HUMAN RIGHTS

This course consists of readings, discussions and assignments on Canadian and international human rights.

#### ARTS&SCI 3CG6 INQUIRY TOPIC: FEDERALISM

The future of multi-national federal political systems will be examined.

#### ARTS&SCI 3D03 CREATIVE ARTS I

The nature of a selected art form and its relation to culture and ideas is examined. Close attention is paid to the creative process as a way of understanding the nature of the artistic product.

#### ARTS&SCI 3DD3 CREATIVE ARTS II

Further examination of the creative process by examination of another art form is undertaken.

Prerequisite: ARTS&SCI 3D03

#### ARTS&SCI 4A06 INDIVIDUAL STUDY

This course consists of a library, laboratory, or field project under the supervision of a faculty member. Students intending to register must first consult the Director of the Arts & Science Programme and then prepare an outline for approval after consultation with the faculty supervisor.

#### ARTS&SCI 4A12 INDIVIDUAL STUDY

Cross-list: ARTS&SCI 4A06 based on more extensive study.

#### ARTS&SCI 4C06 THESIS

This course consists of a library, laboratory, or field project under the supervision of a faculty member. Three copies of a completed thesis must be submitted by the end of classes. Students intending to register must first consult the Director of the Arts & Science Programme and then prepare an outline for approval after consultation with the faculty supervisor.

#### ARTS & CI 4C12 THESIS

Cross-list: ARTS&SCI 4C06 based on more extensive research.

## ASIAN STUDIES

(SEE MINORS AND THEMATIC AREAS OF STUDY)

# BIOCHEMISTRY

## Faculty as of January 15, 1993

### Chair

G.E. Gerber

### Professors Emeriti

Ross H. Hall/B.A. (*British Columbia*), M.A. (*Toronto*), Ph.D. (*Cambridge*)  
Dennis R. McCalla/B.Sc. (*Alberta*), M.Sc. (*Saskatchewan*), Ph.D. (*California Inst. of Technology*), F.C.I.C.

### Professors

Vettai S. Ananthanarayanan/M.Sc., Ph.D. (*Madras*)  
Russell A. Bell/M.Sc. (*Wellington*), M.S. (*Wisconsin*), Ph.D. (*Stanford*), F.C.I.C.,  
Professor of Chemistry  
Luis A. Branda/B.Sc., D.Sc. (*Uruguay*)  
William W. Chan/M.A., Ph.D. (*Cambridge*)  
Richard M. Eppard/A.B. (*Johns Hopkins*), Ph.D. (*Columbia*)  
Barbara M. Ferrier/B.Sc., Ph.D. (*Edinburgh*)  
Karl B. Freeman/B.A., Ph.D. (*Toronto*)  
Gerhard E. Gerber/B.Sc., Ph.D. (*Toronto*)  
Hara P. Ghosh/M.Sc., D.Phil. (*Calcutta*)  
Radhey S. Gupta/M.Sc. (*New Delhi*), Ph.D. (*Bombay*)  
Richard J. Haslam/M.A., D.Phil. (*Oxford*), Professor of Pathology  
John A. Hassell/B.Sc. (*Brooklyn College*), Ph.D. (*Connecticut*)  
Evert Nieboer/M.Sc. (*McMaster*), Ph.D. (*Waterloo*)

### Associate Professors

John P. Capone/B.Sc. (*Western*), Ph.D. (*McMaster*)  
Calvin B. Harley/B.Sc. (*Waterloo*), Ph.D. (*McMaster*)  
Richard A. Rachubinski/B.Sc., M.Sc., Ph.D. (*McGill*)

### Assistant Professors

David W. Andrews/B.Sc. (*Ottawa*), Ph.D. (*Toronto*)  
Douglas W. Bryant/B.Sc. (*McGill*), M.Sc., Ph.D. (*York*)/part-time  
Corinne G. Lobe/B.Sc., Ph.D. (*Alberta*)  
Gerard D. Wright/B.Sc., Ph.D. (*Waterloo*)  
Daniel S.C. Yang/B.Sc., M.Sc. (*Alberta*), Ph.D. (*Pittsburgh*)

### Associate Members

Stephanie A. Atkinson/*(Pediatrics)* B.A. (*Western*), Ph.D. (*Toronto*)  
Aled M. Edwards/*(Pathology)* B.Sc., Ph.D. (*McGill*)  
Gurmit Singh/*(Pathology)* B.Sc., Ph.D. (*Dalhousie*)  
Thillainathan Sivakumaran/*(Pathology)* B.Sc. (*Ceylon*) M.Sc., Ph.D. (*Queen's*),  
F.R.S.C. (*London*)  
Bradley N. White/*(Biology)* B.Sc. (*Nottingham*), Ph.D. (*McMaster*)

## Courses

### BIOCHEM 2A06 PRINCIPLES OF BIOCHEMISTRY I

An overview of biochemical processes emphasizing the importance of structure, reactivity and energetics of molecules in biological systems. Designed for students intending to proceed to Biochemistry 3A03.

Three lectures or tutorial, one lab (three hours) every third week; two terms  
Prerequisite: Credit or registration in one of CHEM 2B06, 2O06, and registration in a Biochemistry programme or Honours Molecular Biology and Biotechnology  
Antirequisite: BIOCHEM 2A03, 2E03, 3G03, 3GG3 or 3G06

### BIOCHEM 2E03 ELEMENTARY BIOCHEMISTRY

A treatment of the basic areas of biochemistry, including physiological chemistry. Designed for students who do not intend to pursue biochemistry.

Three lectures; one term  
Prerequisite: Credit or registration in one of CHEM 2D03, 2B06, 2O06  
Antirequisite: BIOCHEM 2A03, 2A06, 3A03, 3AA3, 3A06, 3G03, 3GG3 or 3G06

### BIOCHEM 3A03 PRINCIPLES OF BIOCHEMISTRY II

Major themes of biochemistry particularly concerning the structure and function of proteins and nucleic acids. An extension of Biochemistry 2A06.

Three lectures; one term  
Prerequisite: BIOCHEM 2A03 or 2A06  
Antirequisite: BIOCHEM 3A06, 3G03, 3GG3 or 3G06

### BIOCHEM 3AA3 SPECIALIZED TOPICS

Selected areas of biochemistry such as nitrogen metabolism, connective tissues, excitable membranes and molecular physiology.

Three lectures; one term

Prerequisite: BIOCHEM 3A03

Antirequisite: BIOCHEM 3A06, 3G03, 3GG3, or 3G06

### BIOCHEM 3G03 BIOCHEMISTRY OF MACROMOLECULES

Chemical and conformational properties of proteins and relationships to their function including regulation of enzyme activity. Chemical and physical structure of DNA and RNA relevant to biological function.

Three lectures; one term

Prerequisite: CHEM 2B06 or 2O06

Antirequisite: BIOCHEM 2A03, 2A06, 2E03, 3A06, 3A03, 3AA3, or 3G06.

Students who receive special permission to register in this course after completing BIOCHEM 2E03 will not retain credit for BIOCHEM 2E03 on completion of this course.

### BIOCHEM 3GG3 METABOLISM AND HUMAN PHYSIOLOGICAL BIOCHEMISTRY

Production of energy by cells and its utilization to maintain their structure and function. The integration and control of biochemical processes in healthy cells, tissues, organs and the whole body.

Three lectures; one term

Prerequisite: BIOCHEM 3G03

Antirequisite: BIOCHEM 2A03, 2A06, 3A06, 3A03, 3AA3, or 3G06

### BIOCHEM 3H03 CLINICAL BIOCHEMISTRY

An outline of clinical chemistry; its relation to disease and relevance to health care.

Three lectures; one term

Prerequisite: Credit or registration in BIOCHEM 3A06, or 3A03 and 3AA3, or 3G03 and 3GG3, or 3G06

### BIOCHEM 3L03 BIOCHEMISTRY LABORATORY

Illustration of fundamental principles and techniques of experimental biochemistry.

One lab (three hours), one tutorial (three hours); one term

Prerequisite: BIOCHEM 2A03 or 2A06, and registration in an Honours or Major Biochemistry programme or in the Honours Molecular Biology and Biotechnology programme

### BIOCHEM 3N03 NUTRITION AND METABOLISM

Study of nutritional biochemistry and the regulation of metabolism; the role of specific nutrients in functional processes of the body in health and disease.

Three lectures; one term

Prerequisite: Credit or registration in BIOCHEM 3A06, or 3A03 and 3AA3, or BIOCHEM 3G03 and 3GG3, or 3G06

### BIOCHEM 3P03 BIOCHEMISTRY LABORATORY PROJECTS

Research projects illustrating modern methods in biochemical research including molecular biology.

One lab (three hours), one tutorial (three hours); one term

Prerequisite: BIOCHEM 3L03 and registration in an Honours Biochemistry programme

Antirequisite: BIOCHEM 4L03, 4G03

Enrolment is limited.

### BIOCHEM 4A03 RECENT ADVANCES IN BIOCHEMISTRY

Student presentation and critical evaluation of selected topics from the current research literature in Biochemistry and Molecular Biology.

Seminar (three hours); one term

Prerequisite: Registration in Level IV of an Honours Programme in Biochemistry. Permission of the Department must be sought during registration in March. Admission will be decided by June 1.

Enrolment is limited.

### BIOCHEM 4B06 SENIOR THESIS

A thesis based on a project directly supervised by a member or associate member of the Department of Biochemistry.

Three labs (three hours); two terms

Prerequisite: BIOCHEM 3L06 or 3P03, or MOL BIO 3A06, or BIOLOGY 3V03 and registration in an Honours Biochemistry or Molecular Biology and Biotechnology programme. Students must have a C.A. or a C.A.A. of at least 9.5. Potential registrants should consult the Chair before June 1.

Antirequisite: BIOCHEM 4L03, 4P03, 4U06

Enrolment is limited.

### BIOCHEM 4C03 BIOCHEMISTRY INQUIRY

Broader aspects of biochemistry such as those relating to food, drugs, health and environment. A combination of projects, discussions, seminars and lectures as appropriate to the subject matter.

Three lectures; one term

Prerequisite: BIOCHEM 2E03 and permission of the instructor, or BIOCHEM 3A06, or 3A03 and 3AA3, or 3GG3 or 3G06

*Enrolment is limited.*

*(First offered in 1994-95)*

**BIOCHEM 4D03 BIOTECHNOLOGY AND GENETIC ENGINEERING**  
Theory, methods and applications in genetic engineering and biotechnology with emphasis on recombinant DNA, hybridomas, engineered organisms, and fermentation processes.

Three lectures; one term

Prerequisite: One of BIOCHEM 3A03, 3G03, 3A06, 3G06

**BIOCHEM 4E03 GENE EXPRESSION**

An advanced course covering molecular aspects of gene expression in eukaryotes: DNA replication, control of transcription, RNA processing and transport, translation, protein processing and targeting.

Three lectures; one term

Prerequisite: One of BIOCHEM 3A03, 3A06, 3G06, or BIOCHEM 3G03 and 3GG3

**BIOCHEM 4G03 BIOTECHNOLOGY AND GENETIC ENGINEERING LABORATORY**

This lab is complementary to BIOCHEM 4D03. Experiments may involve cloning, engineered metagenesis, DNA sequencing, expression of cloned gene and fermentation.

Two labs (four hours); one term

Prerequisite: One of BIOCHEM 3A03, 3A06, 3G06, or BIOCHEM 3G03 and 3GG3, and one of BIOCHEM 3L06, 3P03, BIOLOGY 3V03, and registration in an Honours Biochemistry or Molecular Biology and Biotechnology programme. Permission of the Department is required before Sept. 15.

Antirequisite: BIOCHEM 4L03, 4B06

*Enrolment is limited.*

**BIOCHEM 4I03 STRUCTURAL AND MECHANISTIC ASPECTS OF MACROMOLECULES**

Advanced treatment of protein and nucleic acid structure. Structure-function correlations. Mechanism of enzyme action. Interactions involving macromolecules.

Three lectures; one term

Prerequisite: One of BIOCHEM 3A03, 3A06, 3G03, 3G06, and one of CHEM 3D03, 3D06, 3F03

**BIOCHEM 4L03 ADVANCED BIOCHEMISTRY LABORATORY**

Fundamental principles of experimental biochemistry with emphasis on modern methods in enzymology, membrane biochemistry and molecular biology.

Two labs (four hours); one term

Prerequisite: BIOCHEM 3A03, 3A06, 3G06, or 3G03 and 3GG3, and one of BIOCHEM 3L03, 3L06

Antirequisite: BIOCHEM 3P03 or 4G03

**BIOCHEM 4M03 MEMBRANE STRUCTURE AND FUNCTION**

Chemical structure and molecular organization of membrane constituents. Molecular basis of the biological activity of membranes.

Three lectures; one term

Prerequisite: One of BIOCHEM 3A03, 3A06, 3G06, or 3G03 and 3GG3

**BIOCHEM 4P03 RESEARCH PROJECT**

A research project will be supervised by a member or associate member of the Department of Biochemistry.

Three labs (three hours); one term

Prerequisite: One of BIOCHEM 3A03, 3A06, 3G06, or 3G03 and 3GG3, and one of BIOCHEM 3L06, 3P03, BIOLOGY 3V03, and registration in an Honours Biochemistry or Molecular Biology and Biotechnology programme. Permission of the Department required before Sept. 15.

Antirequisite: BIOCHEM 4B06 or 4U06

*Enrolment is limited.*

**BIOCHEM 4Q03 BIOCHEMICAL PHARMACOLOGY**

Interactions of drugs with living systems. Drug absorption, distribution, mechanism of action, metabolism and elimination will be discussed.

Three lectures; one term

Prerequisite: One of BIOCHEM 3A03, 3A06, 3G06, or 3G03 and registration in 3GG3

Antirequisite: BIOLOGY 3AA3

For Graduate Courses, see *Calendar of School of Graduate Studies*.

## BIOLOGY

### Faculty as of January 15, 1993

#### Chair

B.N. White

#### Professors Emeriti

Stanley T. Bayley/B.Sc., Ph.D. (London)

Douglas Davidson/B.Sc. (Durham), D.Phil. (Oxford)

Douglas M. Davies/B.A., Ph.D. (Toronto), F.E.S.C.

Kenneth A. Kershaw/B.Sc. (Manchester), Ph.D. (N. Wales), D.Sc. (Wales), F.R.S.C.

Stanley Mak/M.Sc. (Saskatchewan), Ph.D. (Toronto)

John J. Miller/B.A., Ph.D. (Toronto)

B. Ann Oaks/B.A. (Toronto), M.A., Ph.D. (Saskatchewan), F.R.S.C.

Iwao Takahashi/B.A. (Hakodate), M.S.A. (Kyushu), Ph.D. (Montreal)

Stephen F.H. Threlkeld/M.Sc. (Alberta), Ph.D. (Cambridge)

Jean E.M. Westermann/B.Sc. (Western), M.A. (Mount Holyoke), Ph.D. (Toronto)

#### Professors

Frank L. Graham/(Pathology) M.A., Ph.D. (Toronto)

John H. Hassell/B.Sc. (Brooklyn College), Ph.D. (Connecticut)

John N.A. Loti/B.Sc. (British Columbia), M.S., Ph.D. (California, Davis)

D. Gordon McDonald/B.Sc. (Western), M.Sc., Ph.D. (Calgary)

Richard A. Morton/M.S., Ph.D. (Chicago)

Ludvik Prevec/M.A., Ph.D. (Toronto)

Andrew J. Rainbow/(Radiology) B.Sc. (Manchester), M.Sc. (London), Ph.D. (McMaster)

Rama S. Singh/B.Sc. (Agra), M.Sc. (Kanpur), Ph.D. (California, Davis)

George J. Sorger/B.Sc. (McGill), M.S., Ph.D. (Yale)

Richard A. Vollenweider/Dipl.Biol.Math., Ph.D. (Science) (Zurich)/part-time

Bradley N. White/B.Sc. (Nottingham), Ph.D. (McMaster)

Christopher M. Wood/B.Sc., M.Sc. (British Columbia), Ph.D. (East Anglia)

#### Associate Professors

Allan D. Dingle/B.Sc. (McMaster), M.Sc. (Illinois), Ph.D. (Brandeis)

Turlough Finan/B.Sc., M.Sc. (National, Ireland), Ph.D. (Guelph)

G. Brian Golding, B.Sc. (Dalhousie), Ph.D. (Alberta)

Doris E.N. Jensen/M.A. (Toronto), Ph.D. (British Columbia)

Jurek Kolasa/M.Sc., Ph.D. (Poznan)

Collin A. Nurse/B.E.Sc. (Western), Ph.D. (Harvard)

Michael J. O'Donnell/B.Sc., Ph.D. (Toronto)

James S. Pringle/(Royal Botanical Gardens), A.B. (Dartmouth), M.S. (New Hampshire), Ph.D. (Tennessee)/part-time

C. David Rollo/B.Sc., M.Sc. (Guelph), Ph.D. (British Columbia)

#### Assistant Professors

Ana Campos, B.A., M.A. (Rio de Janeiro), Ph.D. (Brandeis)

Patricia Chow-Fraser/B.Sc., M.Sc. (Waterloo), Ph.D. (Toronto)

Darwyn S. Coxson/B.Sc. (Lethbridge), Ph.D. (McMaster)

H. Lisle Gibbs/B.Sc. (Queen's), M.S., Ph.D. (Michigan)

J. Roger Jacobs/B.Sc. (Calgary), M.Sc., Ph.D. (Toronto)

Herbert E. Schellhorn/B.Sc., M.Sc. (Guelph), Ph.D. (North Carolina)

Elizabeth A. Weretilnyk/B.Sc., Ph.D. (Alberta)

#### Instructional Assistants

Beryl Piccinin/B.Sc. (Mount Allison), M.Sc. (McMaster)

Herbert Pohl/B.Sc., M.Sc. (McMaster)

Raymond Procwat/B.Sc. (McMaster), B.Ed. (Toronto)

## Courses

### BIOLOGY 1A06 ADAPTATION IN THE BIOLOGICAL WORLD

A course in introductory Biology which stresses the adaptation of form and function at the levels of molecules, cells, organisms and populations.

Three lectures, or two lectures, one lab (three hours); two terms

Prerequisite: OAC Biology or at least a 75% average in two OAC Science or Mathematics courses. Registration in or completion of CHEM 1A06 strongly recommended. CHEM 1A06 is a prerequisite for many Biology courses in Level II, III, and IV. OAC Biology is strongly recommended.

### BIOLOGY 1J03 HUMAN PHYSIOLOGY

Physiology of respiration, circulation, energy and muscle metabolism and

reproduction.

Three lectures; one term

Antirequisite: Registration in Natural Science I or in any Biology, Biochemistry or Molecular Biology and Biotechnology programme

### **BIOLOGY 2B03 CELL BIOLOGY**

Basic treatment of cell structure and function, including transport and chemical signals; adaptation of structure and function in specialized cells. Three lectures; two lectures, one lab (three hours); or two lectures, one tutorial; one term

Prerequisite: BIOLOGY 1A06 (or a grade of at least B- in BIOLOGY 1G06), CHEM 1A06

### **BIOLOGY 2C03 GENETICS**

Structure, function and transmission of genes; chromosomal basis of inheritance; mono- and dihybrid crosses; sequential steps in gene function; linkage maps; sex chromosome inheritance.

Three lectures, or two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 1A06 (or a grade of at least B- in BIOLOGY 1G06), CHEM 1A06

### **BIOLOGY 2D03 THE PLANT KINGDOM**

An introduction to the major groups of green plants. Growth and development of vegetative parts and mechanisms of reproduction will be emphasized.

Two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 1A06 or ENVIR SC 1A06; or a grade of at least B- in BIOLOGY 1G06

### **BIOLOGY 2E03 THE ANIMAL KINGDOM**

Selected aspects of design in the major animal groups, with emphasis on adaptations to terrestrial versus aquatic environments.

Two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 1A06 or ENVIR SC 1A06; or a grade of at least B- in BIOLOGY 1G06

### **BIOLOGY 2F03 FUNDAMENTALS OF ECOLOGY**

A broad overview of ecology at the level of organisms, populations and communities.

Three lectures; one term

Prerequisite: BIOLOGY 1A06 or ENVIR SC 1A06; or a grade of at least B- in BIOLOGY 1G06

### **BIOLOGY 3AA3 FUNDAMENTAL CONCEPTS OF PHARMACOLOGY**

Drug interaction with living organisms; receptor theory of drug action; drug absorption, elimination, toxicity, design; individual variations in drug action; drug-drug interactions; society and drugs.

Three lectures, or two lectures, one tutorial; one term

Prerequisite: CHEM 2O06 or 2B06, and credit or registration in one of BIOLOGY 3P03, 3U03, 3UU3, 3U06, and credit in one of BIOCHEM 3A03, 3A06, 3G03 or 3G06. Registration in one of BIOCHEM 3AA3 or 3GG3 is recommended.

Antirequisite: BIOCHEM 4Q03 or registration in Honours Biology and Pharmacology

### **BIOLOGY 3B03 PLANT PHYSIOLOGY**

Principles of physiology and plant cell metabolism. Topics include: photosynthesis, photorespiration, mineral nutrition, water relations and transpiration.

Two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 2B03 and 2D03

### **BIOLOGY 3BB3 STRUCTURE AND DEVELOPMENT OF PLANT CELLS**

Ultrastructure, development and function of plant cells, and tissues.

Two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 2B03 and 2D03

### **BIOLOGY 3C03 MICROBIAL PHYSIOLOGY AND REGULATION**

Basic energy-yielding metabolisms. Biochemical and genetic regulation of bacterial morphogenesis and reproduction.

Three lectures; one term

Prerequisite: BIOLOGY 3E03

### **BIOLOGY 3E03 INTRODUCTORY MICROBIOLOGY**

Biology of the prokaryotic cell including structure-function relationships, antimicrobial agents and bacterial taxonomy. Use of microorganisms in biotechnology.

Two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 2B03 and either CHEM 2D03 or 2O06

### **BIOLOGY 3F03 VERTEBRATE ANATOMY**

An introduction to the development of structure and function in vertebrates.

Two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 2E03

### **BIOLOGY 3FF3 EVOLUTION**

An introduction to macroevolution, with emphasis on the vertebrates.

Two lectures, one lab (three hours) or two lectures, one tutorial; one term

Prerequisite: BIOLOGY 2E03

### **BIOLOGY 3H03 MOLECULAR BIOLOGY OF THE NUCLEUS**

Structure of the nucleus and of chromatin; organization of DNA sequences; DNA replication, transcription; gene expression; some relevant techniques

Three lectures, or two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 2B03

### **BIOLOGY 3HH3 MOLECULAR ORGANIZATION OF THE EUKARYOTIC CYTOPLASM**

A detailed examination of structure and function of subcellular components, with particular focus on the differentiation and specialization of organelle systems including the cell membrane and cytoskeleton.

Three lectures, or two lectures, one tutorial; one term

Prerequisite: BIOLOGY 2B03

### **BIOLOGY 3I03 EUKARYOTIC GENETICS**

The genetics of eukaryotic organisms. Experimental problems in gene transmission, interaction and polymorphism. Linkage, recombination and chromosome structure; sex determination.

Two lectures, one tutorial; or two lectures one lab (three hours); one term

Prerequisite: BIOLOGY 2B03 and 2C03

### **BIOLOGY 3J03 POPULATION GENETICS**

Conceptual foundations of evolutionary theory and principles of population genetics.

Three lectures or two lectures, one tutorial; one term

Prerequisite: BIOLOGY 2C03

### **BIOLOGY 3K03 ANIMAL HISTOLOGY**

The structure, function, and organization of cells, tissues, organs and organ systems.

Two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 2E03; or a grade of at least B- in BIOLOGY 1G06

### **BIOLOGY 3MM3 INVERTEBRATE FORM AND FUNCTION**

Analysis of sensory reception, nervous control systems, feeding, skeletal support, locomotion, excretion, respiration, and reproduction in selected invertebrates.

Two lectures, one lab/tutorial (three hours); one term

Prerequisite: BIOLOGY 2E03

### **BIOLOGY 3N03 EMBRYOLOGY**

Descriptive and experimental studies of animal development, including: gametogenesis; fertilization; cell proliferation, migration, and selective cell associations; inductive interactions; organogenesis; regeneration.

Two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 2E03

### **BIOLOGY 3NN3 DEVELOPMENTAL BIOLOGY**

A study of principles underlying developmental phenomena: polarity, gradients and pattern formation; intra- and intercellular mechanisms governing cell determination and differentiation; cell lineage and cell recognition.

Three lectures; or two lectures, one tutorial; or two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 2B03, 2C03. BIOLOGY 3N03 is strongly recommended.

### **BIOLOGY 3O03 MICROBIAL GENETICS**

The genetics of bacteriophages, bacteria and fungi. Special emphasis will be placed on relationships between microbial genetics and general problems in genetics.

Two lectures, one tutorial; one term

Prerequisite: BIOLOGY 2C03. BIOLOGY 3E03 is strongly recommended.

### **BIOLOGY 3P03 CELL PHYSIOLOGY**

Cell function with emphasis on cell membranes and transport processes. A quantitative physicochemical interpretation of the electrical properties of cells.

Two lectures, one tutorial; one term

Prerequisite: BIOLOGY 2B03; credit or registration in one of BIOCHEM 3A06, 3A03 and 3AA3, or one of 3G06 or 3G03

### **BIOLOGY 3Q03 RADIATION BIOLOGY**

The effects of radiation upon biological material at the physical, molecular, cellular, tissue, and organismal levels. Applications of radiation in medicine and industry.

Three lectures; one term

Prerequisite: One of PHYSICS 1A06, 1B06, 1C06 and either BIOLOGY 1A06 or a grade of at least B- in BIOLOGY 1G06; or permission of the instructor

**BIOLOGY 3R03 FIELD BIOLOGY I**

Fieldwork plus written assignments chosen from an assortment of modules offered by faculty from McMaster and other Ontario Universities' Biology Departments. Available modules are posted in January each year. Content and schedules vary annually.

Prerequisite: Permission of the instructor

**BIOLOGY 3SS3 POPULATION ECOLOGY**

Population structure and dynamics. Natural selection and regulation of organisms by environmental and biological factors. An evolutionary view of predation, competition, life history schedules.

Two lectures, one tutorial; one term

Prerequisite: BIOLOGY 2F03; or permission of the instructor. COMP SCI 1ZA3 (or 1MA3) and STATS 2MA3 or 2R06 are highly recommended.

**BIOLOGY 3TT3 COMMUNITY ECOLOGY**

Community structure; succession; patterns of diversity and their relevance to conservation; elements of biological control; energy flow; nutrient cycling and climatic influences.

Two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 2F03; or permission of the instructor. One of BIOLOGY 2D03 or 2E03 and COMP SCI 1ZA3 (or 1MA3) and STATS 2MA3 or 2R06 is recommended.

**BIOLOGY 3U03 ANIMAL PHYSIOLOGY - HOMEOSTASIS**

Respiration, circulation, metabolism and renal function.

Two lectures, one lab/tutorial (three hours); one term

Prerequisite: BIOLOGY 2B03 and permission of the instructor. BIOCHEM 3G06 or 3G03 and 3GG3 are recommended.

Antirequisite: ENGINEER 4X03

*Enrolment is limited.*

**BIOLOGY 3UU3 ANIMAL PHYSIOLOGY - CONTROL SYSTEMS**

Nervous function, endocrinology, muscle function and gastro-intestinal physiology.

Two lectures, one lab/tutorial (three hours); one term

Prerequisite: BIOLOGY 2B03 and permission of the instructor. BIOCHEM 3G06 or 3G03 and 3GG3 are recommended.

*Enrolment is limited.*

**BIOLOGY 3V03 TECHNIQUES IN MOLECULAR GENETICS**

A laboratory course involving basic experience in Molecular Genetics.

Two labs (three hours); one term.

Prerequisite: Credit or registration in BIOLOGY 3O03

**BIOLOGY 3Y03 PLANT DEVELOPMENT**

An analysis of development in plants: cytological, genetical and biochemical studies.

Three lectures; one term

Prerequisite: BIOLOGY 2B03, 2C03 and 2D03. BIOLOGY 3BB3 is recommended

Antirequisite: BIOLOGY 4H03

**BIOLOGY 4A03 ADVANCED TOPICS IN ECOLOGY**

Examination of current topics in ecology including conservation biology, ecosystem and landscape ecology, evolutionary ecology and behavioural ecology.

Two lectures, one tutorial (three hours); one term

Prerequisite: One of BIOLOGY 3TT3, 3SS3, or 3J03

**BIOLOGY 4B03 PLANT METABOLISM AND MOLECULAR BIOLOGY**

Analysis of plant cell metabolism and the regulation of metabolism at the biochemical and molecular genetic level.

Three lectures; one term

Prerequisite: Credit or registration in BIOCHEM 3A03 and 3AA3, or 3G03; or credit in BIOCHEM 2A06. BIOLOGY 3H03 and 3B03 are recommended.

Antirequisite: BIOLOGY 4B04 or 4B06

*Offered in alternate years.*

**BIOLOGY 4C09 SENIOR THESIS**

A thesis based upon a research project carried out under the direction of a member of the Faculty.

Prerequisite: Approval of the Chair in the preceding spring term. C.A.A. of at least 9.0 (or a C.A. of at least 8.0) and registration in Level IV of a Biology programme.

Antirequisite: BIOLOGY 4C08, 4F04, 4F06 or PSYCH 4D06

**BIOLOGY 4E03 PRINCIPLES OF EVOLUTIONARY, POPULATION AND QUANTITATIVE GENETICS**

Experimental and theoretical aspects of the genetic basis of evolutionary

changes in populations.

Two lectures, one tutorial; one term

Prerequisite: BIOLOGY 3J03, 2C03, and one of MATH 1A06, 1C06

**BIOLOGY 4F06 SENIOR PROJECT**

Students may enlarge their background in a field of specialization through an experimental or library project under the direction of a member of the Faculty.

Prerequisite: Approval by the Chair in the preceding spring term and registration in a Level IV Biology programme

Antirequisite: BIOLOGY 4C08, 4C09, 4F04 or PSYCH 4D06

**BIOLOGY 4G06 HUMAN ANATOMY**

A study of the human body by dissection, self-teaching modules and video-tapes.

Two labs (two and one half hours); two terms

Prerequisite: A grade of at least B+ in BIOLOGY 3F03 or 3K03, or at least B+ in BIOLOGY 2E03 and co-registration in BIOLOGY 3F03 and 3K03. These are minimum requirements, and final selection by the Chair of the Department of Biology will be based on academic merit.

*Enrolment limit: 16.*

*Offered in alternate years.*

**BIOLOGY 4I03 IMMUNOLOGY**

An introduction to humeral and cellular immunity. The molecular and cellular basis of immunity, and an introduction to immunological techniques.

Two lectures, one tutorial (two hours); one term

Prerequisite: Credit or registration in one of BIOCHEM 3A06, 3A03 and 3AA3, 3B03, 3G06, or both 3G03 and 3GG3

**BIOLOGY 4II3 ADVANCED TOPICS IN IMMUNOLOGY**

This course allows students to build on and put into practice their previous knowledge of the immune system by solving typical immunological problems in a small group, self-learning environment.

Two lectures, one tutorial (two hours); one term

Prerequisite: BIOLOGY 4I03

**BIOLOGY 4J03 FIELD BIOLOGY II**

A second field module chosen from those offered by faculty from McMaster and other Ontario Universities' Biology Departments. This module must differ from any completed for credit in Biology 3R03. Available modules are posted in January of each year. Content and schedules vary annually.

Prerequisite: Permission of the instructor

**BIOLOGY 4L09 SENIOR THESIS FOR CO-OP STUDENTS**

A thesis based upon a research project carried out under the direction of a member of the Biology Department.

Prerequisite: Registration in the Honours Biology and Pharmacology Co-op programme. Approval of the project must be obtained from the Programme Director and the Chair of the Department by the end of preregistration.

**BIOLOGY 4M03 MOLECULAR ASPECTS OF EUKARYOTIC CHROMOSOMES**

Chromatin structure, repeated DNA sequences, concerted evolution of gene families, telomeres, centromeres, gene transfer, oncogenes, transposable elements.

Three lectures; one term

Prerequisite: BIOLOGY 3O03 and BIOCHEM 3A06, (or both 3A03 and 3AA3), or 3G06, (or both 3G03 and 3GG3)

**BIOLOGY 4P03 MEDICAL MICROBIOLOGY**

Bacterial diseases: identification, epidemiology and treatment.

Three lectures; one term

Prerequisite: BIOLOGY 3E03

*Offered in alternate years.*

**BIOLOGY 4PP3 ENVIRONMENTAL MICROBIOLOGY**

Study of interaction of microorganisms with their environment with emphasis on topics of ecological significance including plant-microbe interactions, nutrient cycling and waste treatment.

Two lectures, one lab/tutorial (three hours); one term

Prerequisite: BIOLOGY 3E03

*Offered in alternate years.*

**BIOLOGY 4Q03 ENVIRONMENTAL PLANT PHYSIOLOGY**

The examination of environmental constraints on plant growth and development. An emphasis will be placed upon experimentation and analysis of recent literature.

Two lectures, one lab (three hours); one term

Prerequisite: BIOLOGY 2D03 and one of BIOLOGY 3B03 or 3TT3; or permission of the instructor

*Offered in alternate years.*



**BIOLOGY 4R03 HUMAN GENETICS**

The Human Genome will be considered using both genetic and molecular approaches. Topics include: genetic diseases, prenatal diagnosis, gene therapy, cytogenesis and genetic counselling.

Two lectures, one tutorial (two hours); one term

Prerequisite: Credit or registration in Biology 3I03

**BIOLOGY 4S03 TOXICOLOGY OF AQUATIC ENVIRONMENT**

Chemistry, mechanisms of toxicity, and ecotoxicology of environmental pollutants in aquatic environments.

Two lectures, one lab (three hours); one term

Prerequisite: Six units of Level III or IV Biology laboratory courses. BIOCHEM 3G06 or 3G03 and 3GG3 are recommended.

*Offered in alternate years.*

*Offered in 1993-94.*

**BIOLOGY 4T03 ADVANCED NEUROBIOLOGY**

Selected topics in neurobiology at the molecular and cellular level including growth factors and neuronal development, ion channels, neurotransmitter functions, learning and memory, and neurological disorders.

Two (or one) lecture(s), one (or two) tutorial(s); one term

Prerequisite: BIOLOGY 3HH3, 3P03, and one of BIOCHEM 3A06, 3A03, 3AA3, or 3G03 and 3GG3. One of BIOLOGY 3UU3 or PSYCH 3F03 is strongly recommended.

**BIOLOGY 4V03 VIROLOGY**

The viruses of animals, bacteria, and plants, with emphasis on the molecular biology of virus replication and the diversity of virus-cell interactions.

Two lectures, one tutorial (two hours); one term

Prerequisite: BIOCHEM 3G03

**BIOLOGY 4X03 ENVIRONMENTAL PHYSIOLOGY**

Advanced physiology of animals with an emphasis on interactions with and adaptation to the environment.

Two lectures, one lab (three hours); one term

Prerequisite: One of BIOLOGY 3U06, 3U03, 3UU3, 3MM3, and permission of the instructor

*Enrolment is limited.*

**BIOLOGY 4Y03 ECOLOGY OF INLAND WATERS**

Physical, chemical and biological interrelationships of inland waters, including aspects of pollution.

Two lectures; one lab; one term

Prerequisite: BIOLOGY 2F03, one of BIOLOGY 2D03 or 2E03, and one of BIOLOGY 3SS3 or 3TT3

**PHARMAC 4B03 DRUGS AND BEHAVIOUR**

Behavioural measures to study drug action and the use of drugs to study the organization and physiochemical mechanisms in normal and abnormal behaviour.

Three lectures or two lectures and one tutorial; one term

Prerequisite: PHARMAC 3A06 or BIOLOGY 3AA3

---

**BUSINESS**

---

**Faculty Notes:**

- The following courses are offered by the School of Business as electives. Eligible students will be registered in courses on a first-come/first-served basis.
- BUSINESS 1A03 is open only to students registered in Business I.
- BUSINESS 3V03, 3W06, 3X03, 3Y03 and 3Z03 are open to students registered in Level III or Level IV of programmes other than Commerce, and Engineering and Management. BUSINESS 3Z03 is not open to students registered in the degree programme in Labour Studies.

---

**Courses**

---

**BUSINESS 1A03 INTRODUCTION TO BUSINESS**

This is a broad, integrative course that will introduce students to the basic principles and practices of business. Major topics to be considered include: business and economic systems, accounting, finance, marketing, human resources management, labour relations, management science and information systems. Special emphasis will be placed upon how these topics are interrelated and upon international and ethical considerations. The relationships among business, government and society will be considered.

Prerequisite: Registration in Business I

*Enrolment is limited*

**BUSINESS 3V03 BUSINESS LAW**

An introduction to the relevance of law to the Canadian Business environment. Basic concepts of the judicial process and legal procedures, contracts, primary sources of law, and other aspects of the relationship between business and law will be examined.

Three lectures; one term

Prerequisite: ECON 1A06

Antirequisite: COMMERCE 4PD3

*Enrolment limit: 45*

**BUSINESS 3W06 ACCOUNTING**

An introduction to the basic principles and practices of accounting. Major topic areas to be considered include the economic valuation model, the fundamental concepts underlying, and the operation of, the traditional accounting model, external financial reporting and the preparation and use of accounting information for management planning and control.

Three lectures; two terms

Prerequisite: ECON 1A06

Antirequisite: COMMERCE 2AA3

*Enrolment Limit: 90*

**BUSINESS 3X03 BUSINESS FINANCE**

An introduction to the theory and practice of business finance. An examination of the major financial decisions that businesses face: the problems of determining the overall level of sources and uses of funds by the firm, the evaluation of alternative uses of funds (capital budgeting and working capital management), and the choice among alternative sources of funds. Analytical approaches to assist with these decisions are developed.

Three lectures; one term

Prerequisite: BUSINESS 3W06 or COMMERCE 2AA3, and ECON 1A06

*(BUSINESS 3W06 may be taken concurrently with 3X03)*

Antirequisite: COMMERCE 2FA3

*Enrolment Limit: 45*

**BUSINESS 3Y03 MARKETING**

An introduction to the role that marketing plays in our society and in the Canadian economy. The course will take a macro-marketing viewpoint to deal with theoretical and social aspects of the exchanges that take place between organizations and their publics.

Three lectures; one term

Prerequisite: ECON 1A06

Antirequisite: COMMERCE 2MA3

*Enrolment Limit: 90*

**BUSINESS 3Z03 EMPLOYEE RELATIONS**

An introduction to basic concepts, theories and practice in human resource management. Various problems which arise from the employer-employee relationship as well as the techniques designed to handle them will be considered.

Three lectures; one term

Prerequisite: ECON 1A06

Antirequisite: COMMERCE 3BA3, or 3BB3

*Enrolment Limit: 45*

---

**CANADIAN STUDIES**

---

(SEE MINORS AND THEMATIC AREAS OF STUDY)

---

**CERAMICS**

---

(SEE MATERIALS SCIENCE AND ENGINEERING, CERAMICS)

---

**CHEMICAL ENGINEERING**

---

**Faculty as of January 15, 1993****Chair**

P.E. Wood

**Professor Emeritus**

Leslie W. Shemilt/O.C., B.A.Sc., Ph.D. (Toronto), M.Sc. (Manitoba), D.Hon.C. (AGH, Cracow), F.R.S.C., F.C.A.E., F.C.I.C., F.A.I.Ch.E., F.E.I.C., P.Eng.

**Professors**

Malcolm H.I. Baird/B.Sc. (Glasgow), Ph.D. (Cambridge), F.C.I.C., P.Eng.

John L. Brash/B.Sc., Ph.D. (Glasgow)

Cameron M. Crowe/B.Eng. (McGill), Ph.D. (Cambridge), F.C.I.C., P.Eng.

Irwin A. Feuerstein/B.Chem.Eng. (City College of New York), M.S. (Newark College of Engineering), Ph.D. (Massachusetts)  
 Alvin E. Hamielec/B.A.Sc., M.A.Sc., Ph.D. (Toronto), F.R.S.C., F.C.I.C., P.Eng./NSERC Industrial Research Chair in Polymer Production Technology  
 John F. MacGregor/B.Eng. (McMaster), M.Sc., Ph.D. (Wisconsin), P.Eng.  
 Thomas E. Marlin/B.S. (State University of New York), M.S. (Dayton), Ph.D. (Massachusetts)/NSERC Industrial Research Chair in Process Control  
 Robert H. Pelton/B.Sc., M.Sc. (Guelph), Ph.D. (Bristol)  
 Paul A. Taylor/B.Sc., Ph.D. (Univ. of Wales), P.Eng.  
 John Vlachopoulos/Dipl. Ch. Eng. (Nat. Tech. Univ. of Athens), M.S., D.Sc. (Washington, St. Louis), F.C.I.C., P.Eng.  
 Philip H. Wood/B.A.Sc. (Waterloo), Ph.D. (California Inst. Tech.), P.Eng.  
 Donald R. Woods/B.Sc. (Queen's), M.S., Ph.D. (Wisconsin), F.C.I.C., P.Eng.  
 Joseph D. Wright/B.Sc. (Alberta), Ph.D. (Cambridge), P.Eng./part-time

#### Associate Professors

James M. Dickson/B.A.Sc., M.A.Sc. (Waterloo), Ph.D. (Virginia Tech.)  
 Andrew N. Hrymak/B.Eng. (McMaster), Ph.D. (Carnegie-Mellon).

#### Courses

##### CHEM ENG 2A04 HEAT TRANSFER

Heat transfer in chemical engineering systems. Steady and unsteady state conduction, natural and forced convection, radiant heat transfer, condensation of vapour and boiling.

Three lectures, one tutorial (two hours); second term

Corequisite: CHEM ENG 2F04

##### CHEM ENG 2C02 TECHNICAL COMMUNICATIONS AND MEASUREMENTS

How to obtain, interpret, store, retrieve, manipulate and communicate information. T.V. taping to improve verbal communication, searching the literature, organization, laboratory measurements and treatment of data.

One lecture, first term; one lab (three hours), both terms, alternate weeks  
 Prerequisite: Registration in Level II Chemical Engineering or Chemical Engineering and Management or Chemical Engineering and Society

##### CHEM ENG 2D04 CHEMICAL ENGINEERING PRINCIPLES I

Steady-state mass balances in chemical processes and the first law of thermodynamics. The behaviour of gases and liquids, and their physical equilibria. Recycle in steady state operation.

Three lectures, one tutorial (three hours); first term

Prerequisite: Registration in Level II Chemical Engineering or Chemical Engineering and Management or Chemical Engineering and Society or Honours Applied Chemistry

##### CHEM ENG 2F04 CHEMICAL ENGINEERING PRINCIPLES II

Combined mass and energy balances in the steady and unsteady state. The second law of thermodynamics and physical chemical equilibria. Introduction of process simulation packages.

Three lectures, one tutorial (three hours); second term

Prerequisite: Registration or credit in CHEM ENG 2D04

##### CHEM ENG 2G02 PROBLEM SOLVING

Developing awareness, strategies, creativity, analysis and interpersonal skills in the context of solving homework problems and projects.

Two tutorials (two hours); first term

Corequisite: CHEM ENG 2C02, 2D04

##### CHEM ENG 3D03 CHEMICAL ENGINEERING THERMODYNAMICS

Review of the total energy balance, mechanical energy balance and thermodynamics of one component system. Chemical reaction and phase equilibria of multicomponent systems, with emphasis on non-ideality.

Two lectures, one tutorial (two hours); first term

Prerequisite: CHEM ENG 2F04

##### CHEM ENG 3E04 PROCESS MODEL FORMULATION AND SOLUTION

Formulation of models for various chemical processing units in the steady and unsteady states. Techniques for numerical solution of model equations, including algebraic and ordinary differential equations, both linear and non-linear.

Three lectures; one tutorial (two hours), every other week; first term

Prerequisite: CHEM ENG 2F04

##### CHEM ENG 3G03 SIMULATION, MODELLING AND PROBLEM SOLVING

Executive programs modelling heat exchangers, separators and reactors. Creativity, analysis, heuristics and defining open-ended problems.

One lecture, two tutorials (two hours); second term

Prerequisite: CHEM ENG 2G02 or 2G03 and registration or credit in CHEM ENG 2A04, 3E03 or 3E04, 3K04, 3M04

##### CHEM ENG 3K04 INTRODUCTION TO REACTOR DESIGN

Stoichiometry of multiple reactions, kinetics of homogeneous reactions, interpretation of batch data, design of ideal and nonideal CSTR and plug flow reactors.

Three lectures; one tutorial (two hours); second term

Prerequisite: Registration or credit in CHEM ENG 3D03, 3E03 or 3E04 or registration in Level IV Honours Applied Chemistry

##### CHEM ENG 3L02 INTERMEDIATE LABORATORY SKILLS

Experiments and projects in heat transfer, thermodynamics, mass transfer, process control and fluid mechanics.

one lecture, one lab (three hours); second term

Prerequisite: CHEM ENG 2A04 and registration or credit in CHEM ENG 3D03, 3M04, 3O04

##### CHEM ENG 3M04 MASS TRANSFER AND STAGewise OPERATIONS

Stagewise operations, diffusion, mass transfer coefficients, distillation, differential contacting and absorption.

Three lectures, one tutorial (two hours); first term

Prerequisite: CHEM ENG 2F04

##### CHEM ENG 3O04 FLUID MECHANICS

The laws of statics and dynamics in both compressible and incompressible fluids. Equations of conservation and modern turbulence and boundary layer theory applied to submerged and conduit flow. Similitude, unsteady flow, measuring devices and fluid machinery.

Three lectures, one tutorial or lab (three hours); first term

Prerequisite: MATH 2M06, or MATH 2P04 and 2Q04, any of which may be taken concurrently

##### CHEM ENG 3P03 PROCESS CONTROL

Transient behaviour of chemical processes. Theory and practice of automatic control. Introduction to computer process control.

Three lectures; second term

Prerequisite: MATH 2M06, and registration or credit in CHEM ENG 2A04, 3E03 or 3E04, 3K04, 3O04

##### CHEM ENG 3Q03 INTRODUCTION TO POLYMER SCIENCE

An overview of important synthetic and natural polymers with emphasis on polymer structure, the chemistry of polymer formation. An introduction to polymer characterization.

Three lectures; second term

Prerequisite: CHEM 2O06 or 2B06 or 2D03

##### CHEM ENG 4B03 POLYMER REACTION ENGINEERING

Kinetics of polymerization: step-growth and chain-growth (free radical, anionic, anionic coordination and cationic). Polymerization processes: solution/bulk, suspension, emulsion, gas-phase, slurry and reactive processing. Principles of polymer process and reactor design, optimization and control.

Three lectures; first term

Prerequisite: CHEM ENG 3K04 and 3Q03

##### CHEM ENG 4C03 STATISTICS FOR ENGINEERS

Linear regression analysis in matrix form, non-linear regression, multi-response estimation, design of experiments including factorial and optimal designs. Special emphasis on methods appropriate to engineering problems.

Three lectures; second term

Prerequisite: One of STATS 3M03, 3N03, 3Y03

##### CHEM ENG 4E03 MODELLING AND CONTROL OF CHEMICAL PROCESSES

Modelling, simulation and control of complex process structures (series, parallel, recycle, staged and multivariable) with consideration to applying control, including model-based algorithms, via digital computation.

Three lectures; first term

Prerequisite: CHEM ENG 3E03 or 3E04, 3G03, 3K04, 3M04, 3P03

##### CHEM ENG 4K03 REACTOR DESIGN FOR HETEROGENOUS SYSTEMS

Catalytic kinetics, mass transfer limitations, packed and fluidized bed reactors, two phase reactors.

Three lectures; first term

Prerequisite: CHEM ENG 3K04

##### CHEM ENG 4L02 ADVANCED LABORATORY SKILLS

Experiments and projects in transport phenomena, reaction kinetics, reactor design and process control.

One lab (three hours), one lecture; first term

Prerequisite: CHEM ENG 3L02, and registration in Level IV Chemical Engineering or Chemical Engineering and Management or Chemical Engineering and Society

**CHEM ENG 4M03 SEPARATIONS**

Distillation column design; transport phenomena, laminar, turbulent and unsteady state mass transfer; analogies; absorption, extraction, adsorption, ion exchange, drying, humidification, crystallization.

Three lectures; first term

Prerequisite: CHEM ENG 2A04, 2O04 or 3O04, 3M04

**CHEM ENG 4N04 ENGINEERING ECONOMICS AND PROBLEM SOLVING**

Engineering economics, capital and operating cost estimation, selecting/sizing process equipment, optimization. Ethics, with problem solving components. Self assessment and self-directed learning.

Three lectures, one tutorial (two hours); first term

Prerequisite: CHEM ENG 3G03, 3M04, 3P03

**CHEM ENG 4T03 APPLICATIONS OF CHEMICAL ENGINEERING IN MEDICINE**

Applications of chemical engineering principles to biological systems and medical problems including examples from hemodynamics, blood oxygenation, artificial kidney systems, controlled drug release, biosensors and biomaterials.

Three lectures; second term

Prerequisite: CHEM ENG 2O04 or 3O04, or MECH ENG 3O04, or ENG PHYS 3O03

**CHEM ENG 4W04 CHEMICAL PLANT DESIGN AND SIMULATION**

Projects, often in co-operation with industry, usually involve steady-state computer simulation of an existing process or design of a new process. Plant equipment may be tested to develop simulation models.

Two project labs (three hours); both terms.

*The hours assigned can be freely scheduled to suit those involved in a particular project and may include computation classes, laboratory work, discussions, or individual study.*

Prerequisite: Registration in Level IV Chemical Engineering or Level V Chemical Engineering and Management or Level V Chemical Engineering and Society

**CHEM ENG 4X03 POLYMER PROCESSING**

An introduction to the basic principles of polymer processing, stressing the development of models. Rheology of polymers, extrusion, molding, films, fibers, and mixing. Reactive processing.

Three lectures; first term

Prerequisite: One of CHEM ENG 2A04 or MECH ENG 3R03 or MATLS 3E06, and one of CHEM ENG 2O04 or 3O04 or MECH ENG 3O04

**CHEM ENG 4Y04 UNDERGRADUATE RESEARCH PROJECT**

Research projects with students working on their own under the direction of a Faculty member.

Two labs (three hours); both terms.

*The hours assigned can be freely scheduled to suit those involved in a particular project and may include computation classes, laboratory work, discussions, or individual study.*

Prerequisite: Registration in Level IV Chemical Engineering or Level V Chemical Engineering and Management or Level V Chemical Engineering and Society, and a CA of at least 9.5

**CHEM ENG 4Z03 COLLOIDS, SURFACE PHENOMENA AND UNIT OPERATIONS**

The properties of colloids and surfaces and their use in the design of reactors and separators. Includes stability of colloids, double layer phenomena, wetting, flocculation coagulation, surface equations of change, particle size measurements.

Three lectures; second term

Prerequisite: Registration in final level of an Engineering programme

**ENGINEER 4U03 UNIT OPERATIONS AND PROCESSES IN ENVIRONMENTAL ENGINEERING**

Offered jointly by the Departments of Chemical Engineering and Civil Engineering and Engineering Mechanics. The process capabilities, hardware and design equations, of the physical, chemical and biological processes used to improve water. Emphasis on processes such as bio-oxidation, clarification, coagulation, sludge dewatering and disinfection.

Two lectures, one tutorial (two hours); first term

Prerequisite: CHEM ENG 2O04 or 3O04, or CIV ENG 3Q03 or 3Q04, or MECH ENG 3O04, and registration in Level IV or above of any Engineering programme

For Graduate courses, see the *Calendar of the School of Graduate Studies*.

**CHEMISTRY****Faculty as of January 15, 1993****Chair**

B.E. McCarry

**Professors Emeriti**

Arthur N. Bourns/O.C., B.Sc., D.Sc. (*Acadia*), Ph.D. (*McGill*), D.Sc. (*Acadia, McGill, University of New Brunswick, McMaster*), LL.D. (*Brock*), F.R.S.C., F.C.I.C.

Alfio Corsini/B.Sc., Ph.D. (*McMaster*), F.C.I.C.

Donald R. Eaton/M.A., D.Phil. (*Oxford*)

Ronald J. Gillespie/B.Sc., Ph.D., D.Sc. (*London*), F.R.S., F.R.S.C., F.R.S.C. (U.K.), F.C.I.C.

Ronald P. Graham/M.A. (*Queens*), A.M., Ph.D. (*Columbia*), F.C.I.C.

Gerald W. King/B.Sc., Ph.D., D.Sc. (*London*), F.R.S.C., F.R.S.C. (U.K.), C.Chem. (U.K.), F.C.I.C.

David B. MacLean/B.Sc. (*Acadia*), Ph.D. (*McGill*), F.R.S.C., F.C.I.C.

Ian D. Spenser/B.Sc. (*Birmingham*), Ph.D., D.Sc. (*London*), F.R.S.C., F.R.S.C. (U.K.), F.C.I.C.

Henry G. Thode/C.C., M.B.E., B.Sc., LL.D. (*Regina, Saskatchewan*), Ph.D. (*Chicago*), D.Sc. (*Toronto, British Columbia, Acadia, Laval, Royal Military College, McGill, Queens, McMaster, York*), F.R.S., F.R.S.C., F.C.I.C.

Richard H. Tomlinson/B.Sc. (*Bishops*), Ph.D. (*McGill*), F.C.I.C.

**Professors**

Richard F.W. Bader/B.Sc., M.Sc. (*McMaster*), Ph.D. (*M.I.T.*), F.R.S.C., F.C.I.C.

Alexander D. Bain/B.Sc. (*Toronto*), M.Sc. (*British Columbia*), Ph.D. (*Cambridge*)

Russell A. Bell/B.Sc. (*Wellington*), M.S. (*Wisconsin*), Ph.D. (*Stanford*), F.C.I.C.

Ronald F. Childs/B.Sc. (*Bath University of Technology*), Ph.D., D.Sc. (*Nottingham*)

Peter T. Dawson/B.Sc. (*Birmingham*), Ph.D. (*Cambridge*)

John E. Greedan/B.A. (*Bucknell*), Ph.D. (*Tufts*), F.C.I.C.

Orville E. Hileman, Jr./B.S.Ed. (*Bowling Green State*), Ph.D. (*Case Institute of Technology*), F.C.I.C.

Adam P. Hitchcock/B.Sc. (*McMaster*), Ph.D. (*British Columbia*), F.C.I.C.

David A. Humphreys/B.Sc., M.Sc. (*London*), Ph.D. (*McMaster*), F.C.I.C.

Geraldine A. Kenney-Wallace/L.R.I.C., A.R.I.C. (*London*), M.Sc., Ph.D. (*British Columbia*), F.R.S.C.

Joseph D. Laposi/B.Sc. (*St. Louis*), M.S. (*Chicago*), Ph.D. (*Loyola*)

William J. Leigh/B.Sc., M.Sc., Ph.D. (*Western*), F.C.I.C.

Colin J.L. Lock/B.Sc., Ph.D. (*London*), A.R.C.S., D.I.C., F.R.S.C. (U.K.), F.C.I.C.

Michael J. McGlinchey/B.Sc., Ph.D. (*Manchester*), F.C.I.C.

David P. Santry/B.Sc., Ph.D. (*London*)

Gary J. Schrobilgen/B.Sc. (*Dubuque, Iowa*), M.Sc. (*Brock*), Ph.D. (*McMaster*)

Johan K. Terlouw/B.Sc., M.Sc., Ph.D. (*Utrecht*)

John Warkentin/B.Sc., M.Sc. (*Manitoba*), Ph.D. (*Iowa State*), F.C.I.C.

Nick H. Werstiuik/B.Sc. (*Alberta*), M.A., Ph.D. (*Johns Hopkins*), F.C.I.C.

**Associate Professors**

Brian E. McCarry/B.Sc. (*British Columbia*), Ph.D. (*Stanford*)

A. John Yarwood/B.Sc., Ph.D. (*Birmingham*)

**Assistant Professors**

Jacques Barbier/M.Sc. (*Toronto*), Ph.D. (*ANU*)

Michael A. Brook/B.Sc. (*Toronto*), Ph.D. (*McGill*)

Randall S. Dumont/B.Sc. (*Western*), Ph.D. (*Toronto*)

Paul H.M. Harrison/B.A. (*Oxford*), Ph.D. (*Alberta*)

Harald D.H. Stover/B.Sc. (*Darmstadt*), Ph.D. (*Ottawa*)

**Associate Members**

I. David Brown/(*Physics*) B.Sc., Ph.D. (*London*) F.C.I.C.

Richard M. Epan/(*Biochemistry*) AB (*Johns Hopkins*), Ph.D. (*Columbia*)

Walter F. Kean/(*Medicine*) M.B., Ch.B. (*Glasgow*) F.R.C.P.(C), F.A.C.P.

Robert H. Pelton/(*Chemical Engineering*) M.Sc. (*Guelph*), Ph.D. (*Bristol*)

**Department Notes**

- \*Indicates this course is not necessarily offered every session.
- Students not in a Science programme should note that CHEM 1A06 is a prerequisite for CHEM2D03 and CHEM2D03 is a prerequisite for BIOCHEM 2E03.

**Courses****CHEM 1A06 INTRODUCTORY CHEMISTRY**

*First Term:* An introduction to inorganic chemistry; molecular structure and equilibrium. *Second Term:* An introduction to organic chemistry and kinetics. The laboratory is designed to illustrate the lecture material and co-ordinates with it.

Three lectures, one tutorial, one lab (three hours) every other week; two terms  
Prerequisite: OAC Chemistry

**CHEM 1C03 GENERAL CHEMISTRY**

A general-interest course in Chemistry discussing topics relevant to society and the environment.

Three lectures; one term  
Prerequisite: A minimum of one high school Chemistry course  
Antirequisite: CHEM 1A06, 1B06 or 1E03; Registration in Science or Engineering programmes

**CHEM 1E03 GENERAL CHEMISTRY FOR ENGINEERING I**

An introductory course for Engineering students, emphasizing molecular structure and equilibria. A laboratory provides experience in experimental techniques and accurate measurement.

Three lectures, one tutorial (one hour), one lab (three hours) every other week; first term  
Prerequisite: OAC Chemistry; registration in an Engineering programme  
Antirequisite: CHEM 1A06

**CHEM 2A03 ANALYTICAL CHEMISTRY I**

An introduction to the basic principles of analytical chemistry, with particular emphasis on solution equilibria and classical methods of analysis.

Two lectures, two labs (three hours); one term  
Prerequisite: Credit or co-registration in CHEM 2P06 or 2R03  
Antirequisite: CHEM 2K03, 2M05, 2N03

**CHEM 2B06 ORGANIC CHEMISTRY**

A systematic treatment of mono- and di-functional organic compounds and an introduction to spectroscopic techniques for structure determination.

Two lectures, one lab (three hours); two terms  
Prerequisite: Registration in a Chemistry or B.Sc. Physical Science programme  
Antirequisite: CHEM 2D03, 2O06

**CHEM 2C03 STRUCTURE AND REACTIONS OF THE MAIN GROUP ELEMENTS**

Comparative chemistry of the non-transition elements; introduction to symmetry.

Three lectures, one lab (three hours); one term  
Prerequisite: Registration in a Biochemistry, Chemistry or B.Sc. Physical Science programme, or permission of the instructor  
Antirequisite: CHEM 2F03 or 2W03

**CHEM 2D03 INTRODUCTORY ORGANIC CHEMISTRY**

An introduction to the chemistry of monofunctional aliphatic and aromatic compounds.

Three lectures, one lab (three hours) every other week, one tutorial every other week; one term  
Prerequisite: CHEM 1A06 or registration in a Chemical Engineering programme  
Antirequisite: CHEM 2B06, 2O06

**CHEM 2M05 ANALYTICAL CHEMISTRY**

An introduction to classical and modern analytical techniques with an emphasis on applications in Engineering.

One lecture, one lab (three hours), first term; two lectures, one lab (three hours); second term  
Prerequisite: Registration in a Chemical Engineering programme  
Antirequisite: CHEM 2A03, 2K03, 2N03, 3K03

**CHEM 2N03 ANALYTICAL CHEMISTRY**

An introduction to the basic principles of analytical chemistry with application to selected classical and instrumental methods of analysis.

Two lectures, one lab (three hours); one term  
Prerequisite: One of CHEM 2P06, 2Q06, 2R03 or 2T06, any of which may be taken concurrently  
Antirequisite: CHEM 2A03, 2K03, 2M05, 3K03

**CHEM 2O06 ORGANIC CHEMISTRY**

An introduction to organic chemistry with emphasis on the reactions of functional groups and an introduction to spectroscopic techniques for structure determination.

Three lectures, one lab (three hours) every other week; one tutorial (two hours) every other week; two terms

Prerequisite: CHEM 1A06 with a grade of at least C-, or registration in a programme in which CHEM 2O06 is required  
Antirequisite: CHEM 2B06 or 2D03

**CHEM 2P06 THERMODYNAMICS**

An introduction to the basic principles of thermodynamics, with applications to physical and chemical equilibria, including electrochemistry.

Two lectures, one lab (three hours) or tutorial; two terms  
Prerequisite: CHEM 1A06 and one of MATH 1A06, 1C06, or registration in a programme in Ceramics, Materials or Metallurgical Engineering  
Anti-requisite: CHEM 2Q06, 2R03, PHYSICS 2H03

**CHEM 2R03 GENERAL PHYSICAL CHEMISTRY**

A survey of thermodynamic and kinetic principles and their application to biological systems.

Three lectures; one term  
Prerequisite: CHEM 1A06 and MATH 1A06 or 1C06 or ARTS & SCI 1D06  
Antirequisite: CHEM 2P06, 2Q06, 2T06 or PHYSICS 2H03

**CHEM 2W03 INORGANIC CHEMISTRY**

Introductory inorganic chemistry of silicates, metals, their oxides and sulphides.

Three lectures; one term  
Prerequisite: CHEM 1A06 or registration in a Ceramic, Chemical, Materials or Metallurgical Engineering programme  
Antirequisite: CHEM 2C03, 2F03, 3E06, 3Q03

**CHEM 3A03 ANALYTICAL CHEMISTRY II**

An introduction to modern instrumental methods of analysis.

Three lectures, one lab (three hours); one term  
Prerequisite: CHEM 2A03, or both CHEM 2N03 and CHEM 2P06 or 2R03

**CHEM 3B03 QUANTUM CHEMISTRY**

An introduction to quantum mechanics and spectroscopy.

Two lectures, one tutorial or one lab (three hours); first term  
Prerequisite: CHEM 2P06 (or 2R03 with a grade of at least B-) and one of MATH 2O03, 2N03 or 2P04  
Antirequisite: CHEM 3L03 or 3U03

**CHEM 3C03 STATISTICAL THERMODYNAMICS AND CHEMICAL KINETICS**

Introduction to statistical thermodynamics, chemical kinetics in gaseous, condensed and interfacial systems. First half of CHEM 3KK6.

Three lectures, one lab (three hours); first term  
Prerequisite: CHEM 2P06 (or 2R03 with a grade of at least B-) and credit or registration in CHEM 3B03, PHYSICS 3Q03, 3M06 or 3M03 and 3MM3  
Antirequisite: CHEM 3KK6 or 4K06

**CHEM 3D03 ORGANIC CHEMISTRY**

A mechanistically oriented discussion of mono- and polyfunctional organic compounds with emphasis on applications to synthesis.

Three lectures, one lab (three hours); one term  
Prerequisite: CHEM 2B06 or 2O06  
Antirequisite: CHEM 3F03

**CHEM 3E06 TRANSITION METAL INORGANIC CHEMISTRY**

The properties, structures, and reactions of inorganic compounds, with emphasis on transition metal chemistry; introduction to organometallic chemistry. Equivalent to CHEM 3Q03 plus 3P03.

Two lectures, one lab (three hours); two terms  
Prerequisite: CHEM 2C03 or CHEM 2W03 with a grade of at least B-  
Antirequisite: CHEM 3Q03 or 3P03

**CHEM 3F03 BIO-ORGANIC CHEMISTRY**

Topics in bio-organic chemistry; a sequel to Chemistry 2O06.

Two lectures, one lab (three hours); one term  
Prerequisite: CHEM 2B06 or CHEM 2O06  
Antirequisite: CHEM 3D03

**CHEM 3I03 INDUSTRIAL CHEMISTRY**

A survey of the chemical industry. Products obtained from petroleum, natural gas and soda ash. Petrochemicals, synthetic and natural polymers.

Three lectures; one term  
Prerequisite: One of CHEM 2B06, 2D03, 2O06, and one of CHEM 2C03, 2F03 or 2W03, or registration in Level IV of a Chemical Engineering programme

**CHEM 3KK6 STATISTICAL THERMODYNAMICS, CHEMICAL KINETICS AND REACTION RATE THEORY**

Introduction to statistical thermodynamics, chemical kinetics in gaseous, condensed and interfacial systems. Chemical reaction rate theory.

Three lectures, one lab (three hours); two terms

Prerequisite: One of CHEM 2P06 or 2Q06 or, 2R03 with a grade of at least B- or CHEM 2T06, and credit or registration in one of CHEM 3B03, PHYSICS 3Q03, 3M06 or 3M03 and 3MM3

Antirequisite: CHEM 3C03 or 4K06

#### **CHEM 3P03 TRANSITION METAL CHEMISTRY**

The chemistry of the heavier transition elements. An introduction to organometallic chemistry and bio-inorganic chemistry. The second half of CHEM 3E06. Two lectures, one lab (three hours); second term

Prerequisite: CHEM 3Q03

Antirequisite: CHEM 3E06

#### **CHEM 3Q03 INORGANIC CHEMISTRY**

The properties, structures and reactions of inorganic compounds with emphasis on transition metal chemistry. The first half of CHEM 3E06.

Two lectures, one lab (three hours); first term

Prerequisite: CHEM 2C03 or CHEM 2W03 with a grade of at least B-

Antirequisite: CHEM 3E06

#### **CHEM 4A03\* ADVANCED ORGANIC CHEMISTRY**

A discussion of some modern advances in organic chemistry including such topics as aromaticity, molecular rearrangements, and organic photochemistry.

Two lectures; one term

Prerequisite: CHEM 3D03 or 3F03

#### **CHEM 4B03 CHEMICAL APPLICATIONS OF SPECTROSCOPY**

The applications of spectroscopy to the solution of chemical problems, quantum states and spectra; theory of microwave, infrared, Raman and electronic spectra; gas and tunable lasers.

Two lectures; second term

Prerequisite: CHEM 3B03 or 3U03, and CHEM 4L03

#### **CHEM 4C03\* SOLID STATE CHEMISTRY**

Structure and properties of crystalline solids. Topics include crystal chemistry and crystal symmetry, introduction to space groups, defects in ionic crystals, non-stoichiometry, electronic structure and properties of semiconductors and metals.

Two lectures; one term

Prerequisite: CHEM 3E06 or 3Q03

#### **CHEM 4D03 ORGANIC STRUCTURE AND SYNTHESIS**

Application of spectroscopic methods to structure determination. Synthetic methodology in organic chemistry.

Two lectures; one term

Prerequisite: CHEM 3D03 or 3F03

#### **CHEM 4DD3 MECHANISTIC BIOLOGICAL CHEMISTRY**

Amino acid, nucleic acid, enzyme and coenzyme chemistry with emphasis on molecular reaction mechanisms.

Two lectures; one term

Prerequisite: CHEM 3D03 or 3F03

#### **CHEM 4G06 SENIOR THESIS**

A thesis based on a project under the direction of a Chemistry Department faculty member.

Prerequisite: Registration in Level IV of an Honours programme in Chemistry. With Departmental approval, students who are registered in Level IV of a Major programme in the Faculty of Science which requires Science Inquiry, and who have a C.A.A. of at least 7.0 can select Chemistry 4G06 as Science Inquiry. Those enrolled in the Chemistry Major programme prior to September 1992 and who have a C.A.A. of at least 7.0, will be considered, if sufficient projects are available.

Prerequisite (*Beginning September 1994*): Registration in Level IV of an Honours programme in Chemistry with a C.A. of at least 6.0. With Departmental approval, students who are registered in Level IV of Honours programmes in Science who have a C.A. of at least 6.0 will be considered, subject to the availability of suitable projects.

#### **CHEM 4I03 INQUIRY IN CHEMISTRY**

Seminars and directed readings dealing with the impact of Chemistry on society.

Two lectures; one term

Prerequisite: Registration in Level IV of an Honours programme in the Faculty of Science which requires Science Inquiry.

*Enrolment is limited; preference is given to students registered in Honours Chemistry (Complementary Studies Option).*

*First offered in 1994-95.*

#### **CHEM 4L03 SPECTROSCOPY**

A course introducing group theory and aspects of molecular spectroscopy.

Two lectures; first term

Prerequisite: CHEM 3B03

#### **CHEM 4P03\* ADVANCED ANALYTICAL CHEMISTRY**

A course dealing with modern topics in analytical chemistry.

Two lectures; one term

Prerequisite: One of CHEM 2M05, 2N03, 3A03, and CHEM 2P06 or 2R03

#### **CHEM 4Q03\* ADVANCED QUANTUM MECHANICS**

Further applications of quantum mechanics to problems of chemical interest.

Two lectures; one term

Prerequisite: One of CHEM 3B03 or PHYSICS 3M06 or both 3M03 and 3MM3

#### **CHEM 4R03\* ADVANCED TRANSITION METAL CHEMISTRY**

A selection from the following topics: mechanisms of reactions involving transition metal ions; homogeneous catalysis; applications of NMR and other physical methods; organometallic chemistry; ligand field theory.

Two lectures; one term

Prerequisite: CHEM 3E06 or 3Q03

#### **CHEM 4S03\* ADVANCED MAIN GROUP CHEMISTRY**

A selection from the following topics: chemistry of selected main group elements, electron deficient compounds, Mössbauer spectroscopy, theory and application of nuclear and radiation chemistry.

Two lectures; one term

Prerequisite: CHEM 3E06 or 3Q03

#### **CHEM 4TA3 INSTRUMENTATION AND RADIOCHEMISTRY**

Instrumentation, interfacing and measurement system theory. Radiochemistry. The first half of CHEM 4T06.

Two lectures, one lab (four hours); first term

Prerequisite: CHEM 3A03 or registration in Level IV of Honours Applied Chemistry

#### **CHEM 4TB3 ADVANCED INSTRUMENTAL ANALYSIS**

Advanced instrumental methods of analysis, with emphasis on general principles and applications of computers to chemical analysis. The second half of CHEM 4T06.

Two lectures, one lab (four hours); second term

Prerequisite: CHEM 3A03 or registration in Level IV of Honours Applied Chemistry

#### **CHEM 4T06 INSTRUMENTAL ANALYSIS**

Instrumentation, interfacing and measurement system theory. Advanced instrumental methods of analysis including radiochemistry, with emphasis on general principles of instrumentation and applications of computers to chemical analysis.

Two lectures, one lab (four hours); two terms

Prerequisite: CHEM 3A03 or registration in Level IV of Honours Applied Chemistry

#### **CHEM 4Y03\* STATISTICAL THERMODYNAMICS**

Principles of statistical thermodynamics and their applications in chemistry.

Two lectures, one term

Prerequisite: CHEM 3C03 or 3KK6

Antirequisite: CHEM 3Y03 or PHYSICS 3K04

For Graduate Courses see *Calendar of the School of Graduate Studies*.

## CHINESE

Courses in *Chinese* are administered within the Department of Modern Languages of the Faculty of Humanities. Information and counselling may be obtained from the instructor (Togo Salmon Hall, Room 611).

### Courses

#### **CHINESE 1Z06 BEGINNER'S INTENSIVE CHINESE**

An intensive beginner's course in modern standard (Mandarin) Chinese designed for students with no prior knowledge of the language. Equal emphasis will be placed on speaking, reading and grammar. Five hundred and fifty Chinese characters will be taught.

Five hours (including lab practice); two terms

Prerequisite: Open, except to dialect speakers

Antirequisite: CHINESE 1ZZ6

#### **CHINESE 1ZZ6 BEGINNER'S INTENSIVE CHINESE FOR DIALECT SPEAKERS**

An intensive beginner's course in modern standard (Mandarin) Chinese designed for students who understand a Chinese dialect or Standard Chinese. Speaking, reading and grammar are equally emphasized.

## 136 CIVIL ENGINEERING

Five hours (including lab practice); two terms

Antirequisite: CHINESE 1Z06

Students with prior knowledge of the language as determined by a placement test may be required to take an appropriate alternative.

### CHINESE 2Z06 INTERMEDIATE INTENSIVE CHINESE

This course aims to develop the student's communicative skills and to further an understanding of Chinese culture.

Four hours; two terms

Prerequisite: CHINESE 1Z06 or 1ZZ6, or permission of the instructor

### CHINESE 3Z03 ADVANCED CHINESE

This course continues the study of written and spoken Standard Chinese and the Chinese culture as begun in CHINESE 1Z06/1ZZ6 and 2Z06. Literary materials will be used for oral presentations and short essays.

Three hours; one term

Prerequisite: CHINESE 2Z06, or permission of the instructor

## CIVIL ENGINEERING AND ENGINEERING MECHANICS

### Faculty as of January 15, 1993

#### Chair

A. Ghobarah

#### Professors Emeriti

Gunhard, Æ. Oravas/B.Eng., M.S. (Civil Eng., Eng. Mech), Ph.D. (Michigan)

Alan A. Smith/B.Sc. (Glasgow), Ph.D. (Strathclyde), P.Eng.

#### Professors

Robert G. Drysdale/B.Sc. (C.E.) (Manitoba), M.A.Sc., Ph.D. (Toronto),  
F.C.S.C.E., P.Eng.

Ahmed Ghobarah/B.Sc. (Cairo), M.Eng., Ph.D. (McMaster), P.Eng.

Frederick L. Hall/B.A. (Amherst), M.Sc. (M.I.T.), Ph.D. (Chicago)

Arthur C. Heidebrecht/B.Sc. (Alberta), M.S., Ph.D. (Northwestern), F.C.S.C.E.,  
P.Eng.

Robert M. Korol/B.A.Sc. (Toronto), M.A.Sc., Ph.D. (Waterloo), F.C.S.C.E.,  
P.Eng.

Farooque A. Mirza/B.Sc. (Karachi), B.Eng. (McGill), M.Eng., Ph.D. (British  
Columbia)

William M. Mansour/B.Sc. (Cairo), M.Sc., Ph.D. (Toronto), P.Eng.

Keith L. Murphy/B.A.Sc. (Toronto), M.Sc., Ph.D. (Wisconsin); P.Eng.

Gilles G. Patry/B.A.Sc., M.A.Sc. (Ottawa), Ph.D. (California, Davis), P.Eng.

Stan Pietruszczak/B.Sc., M.Sc. (Warsaw), Ph.D. (Polish Acad. Sci)

Wai K. Tso/B.Sc. (London), M.S., Ph.D. (Caltech.), P.Eng.

#### Associate Professors

Brian L. Allen/B.Sc. (Alberta), M.S., Ph.D. (California, Berkeley), P.Eng.

Brian Baetz/B.A.Sc., M.A.Sc. (Toronto), Ph.D. (Duke), P.Eng.

Peter L. Dold/B.Sc.Eng. (Chemical), Ph.D. (Cape Town), WTC Chair, Environ-  
mental Systems Engineering

Robert G. Horvath/B.A.Sc. (Windsor), M.E.Sc. (Western Ont.), Ph.D. (Toronto),  
P.Eng.

K.S. Sivakumaran/B.Sc. (C.Eng.) (Sri Lanka), M.Eng. (Asian Inst. Tech.),  
Ph.D. (Calgary), P.Eng.

Dieter Stolle/B.Eng., M.Eng., Ph.D. (McMaster), P.Eng.

Ioannis K. Tsanis/Dip.Civ.Eng. (Aristoteles Univ., Thessaloniki), M.A.Sc.,  
Ph.D. (Toronto), P.Eng.

John C. Wilson/B.Eng., M.Eng. (McMaster), Ph.D. (Caltech.), P.Eng.

#### Assistant Professors

John C. Doering/B.Sc. (C.Eng.) (Queen's), Ph.D. (Dalhousie), P.Eng.

Bhagwant N. Persaud/B.S. (Iowa), M.Eng., Ph.D. (Toronto)/part-time

### Department Note:

All civil engineering courses are open to students registered in a civil engineering programme, subject to prerequisite requirements. Prior permission of the Department is necessary for students from other engineering departments and other faculties.

### Courses

#### CIV ENG 2A02 SURVEYING AND MEASUREMENT

Introduction to measurement and computational techniques of surveying, the

theory of measurement and errors, adjustment of observations.

One lecture, one lab (three hours) or one tutorial (two hours); first term

#### CIV ENG 2C04 STRUCTURAL MECHANICS

Unsymmetrical bending, combined axial and flexural loading, shear stresses in thin-walled members, shear centre, plastic deformation, residual stress. Transformations of stress and strain; failure criteria; deflections of statically indeterminate beams; energy methods; Castigliano's theorem, column stability.

Three lectures, one lab (three hours); second term

Prerequisite: Credit or registration in ENGINEER 2P04

#### CIV ENG 2D03 GEOLOGY FOR ENGINEERS

Composition of earth; classification of rocks and minerals; weathering; geomorphology; subsurface exploration; groundwater; earth movements; case studies.

Two lectures each week, one lab (three hours) or tutorial (two hours), every other week; second term

#### CIV ENG 2E03 COMPUTER APPLICATIONS IN CIVIL ENGINEERING

Computers in analysis and design; computer languages, numerical techniques including error analysis, root finding and interpolation; matrix manipulation, eigenvalues and differential equations.

Two lectures, one tutorial (two hours); first term

Prerequisite: ENGINEER 1D04, and PHYSICS 1D03, and credit or registration in ENGINEER 2P04

#### CIV ENG 2F03 GEOTECHNICAL ENGINEERING I

Composition of soils, soil identification and classification; compaction; seepage theory; effective stress concept; stresses and displacements using elastic solutions; consolidation theory; numerical solutions.

Two lectures, one lab (three hours) or one tutorial (two hours) every other week; second term

Prerequisite: Credit or registration in CIV ENG 2O03

(Last time offered 1993-1994)

#### CIV ENG 2I03 COMMUNICATIONS IN CIVIL ENGINEERING

Oral and written communication in context of civil engineering activity. A professional liaison programme involving site visits.

Two lectures, one lab or one tutorial; first term

#### CIV ENG 2J03 ECOLOGICAL ASPECTS OF ENVIRONMENTAL ENGINEERING

Natural systems, processes; mass balance. Global interactions of biosphere, element cycles, energy balances, climate. Ecological systems; community structure. Modelling of natural systems. Man's perturbations.

Two lectures, one tutorial (two hours); second term

Limited Enrolment.

#### CIV ENG 2O03 FLUID MECHANICS

Fluid properties; hydrostatics; continuity, momentum and energy equations; potential flow; laminar and turbulent flow; flow in closed conduits; open channel flow.

Two lectures, one tutorial (one hour), one lab (two hours), every other week; second term

Prerequisite: Credit or registration in ENGINEER 2P04 and MATH 2M06

#### CIV ENG 3A03 GEOTECHNICAL ENGINEERING I

Composition of soils, soil identification and classification; compaction; seepage theory; effective stress concept; stresses and displacements using elastic solutions; consolidation theory; numerical solutions.

Two lectures, one lab (three hours) or one tutorial (two hours) every other week; first term

Prerequisite: CIV ENG 2O03

Antirequisite: CIV ENG 2F03

(First time offered 1994-1995)

#### CIV ENG 3B03 GEOTECHNICAL ENGINEERING II

Shear strength characteristics and failure criteria for soils; direct shear, triaxial, plane strain and field tests; earth pressure theory; bearing capacity theory; slope stability and embankment analysis.

Two lectures, one lab (three hours) or one tutorial (two hours), every other week; second term

Prerequisite: Credit or registration in CIV ENG 3A03 or CIV ENG 2F03

#### CIV ENG 3D03 GEOLOGY FOR ENGINEERING

Composition of earth; classification of rocks and minerals; weathering; geomorphology; subsurface exploration; groundwater; earth movements; case studies.

Two lectures, one lab (three hours) or tutorial (two hours), every other week; first term

(Last time offered in 1993-1994)

**CIV ENG 3G03 STRUCTURAL ANALYSIS**

Energy methods, moment area, virtual work; analysis of indeterminate structures; moment distribution, influence lines.

Two lectures, one lab (three hours); first term

Prerequisite: CIV ENG 2C04

**CIV ENG 3J04 REINFORCED CONCRETE DESIGN**

Introduction to concrete technology; design by limit states methods to ensure adequate capacities for bending moment, shear and diagonal tension, axial force, bond and anchorage; and design to satisfy serviceability requirements for deflection and cracking; practical design requirements; interpretation of building code for behaviour of structures.

Three lectures, one lab (three hours); second term

Prerequisite: Credit or registration in CIV ENG 3G03

**CIV ENG 3K03 INTRODUCTION TO TRANSPORTATION ENGINEERING**

Traffic flow characteristics; capacity and control for interrupted and uninterrupted flow roadways; travel demand forecasting.

Two lectures, one tutorial (two hours); second term

Prerequisite: ENGINEER 1D04

**CIV ENG 3M04 MUNICIPAL HYDRAULICS**

Open channel flow: classification; hydraulic cross-sections; hydraulic jump, design of culverts. Analysis/design of water distribution networks. Analysis and design of wastewater collection systems.

Three lectures, one lab (three hours); second term

Prerequisite: CIV ENG 2O03 and MATH 2M06, and credit or registration in MATH 3J04

**CIV ENG 3Q03 WATER QUALITY MODELLING**

Physical, chemical and biological characteristics of water. Stoichiometry, reaction kinetics, and material balances. Mathematical modelling of physical systems. Water quality in rivers. Water quality standards.

Two lectures, one lab (three hours); first term

Prerequisite: CIV ENG 2J03, 2O03 and MATH 2M06

**CIV ENG 3S03 STEEL STRUCTURES**

Introduction to design in steel, tension and compression members, plate buckling aspects, beam instability, beam design, beam-columns, bolted and welded connections. Applications employing steel structures building code.

Two lectures, one tutorial (two hours); second term

Prerequisite: Credit or registration in CIV ENG 3G03

**CIV ENG 4A04 ENGINEERING HYDROLOGY**

Hydrologic cycle; climate; precipitation; hydrologic abstractions; streamflow analysis; unit hydrograph; frequency analysis; hydrologic routing; rainfall-runoff modelling; urban runoff models; design storms; snow and ice hydrology.

Three lectures, one tutorial (three hours); first term

Prerequisite: CIV ENG 3M04

**CIV ENG 4B03 ENGINEERING SYSTEMS**

Mathematical models and systems; economic comparison of projects; optimization; linear, non-linear and dynamic programming; simulation modelling.

Two lectures, one tutorial (two hours) or lab (three hours); first term

Prerequisite: Registration in Level IV of Civil Engineering programmes

**CIV ENG 4C03 ENVIRONMENTAL PROTECTION**

Environmental assessment; energy and elemental cycles; population control; global environmental concerns; solid waste management; hazardous waste management; air quality and control; environmental legislation; environmental economics.

Two lectures, one tutorial (two hours); second term

**CIV ENG 4D04 GEOMETRIC HIGHWAY DESIGN**

Design of various types and classes of streets and highways. Theory and practice in design of intersections, interchanges, arterial highways, and freeways. Design concepts.

Three lectures, one lab (two hours); first term

Prerequisite: CIV ENG 3K03

**CIV ENG 4G03 PAVEMENT MATERIALS AND HIGHWAY DESIGN**

Components of highway pavements; ground water and drainage for highway facilities; soil compaction and stabilization; aggregates; bituminous and concrete materials, flexible pavement design; concrete pavement design; interlocking pavement structures.

Two lectures, one lab (three hours); second term

Prerequisite: CIV ENG 3B03

**CIV ENG 4H03 LAND USE AND TRANSPORTATION**

Quantitative models to predict transportation flows and land use patterns in urban areas, including gravity-type models, the Lowry model and discrete choice models.

Three lectures; first term

Prerequisite: CIV ENG 3K03

Cross-list: GEOG 4H03

**CIV ENG 4K04 MODERN METHODS OF STRUCTURAL ANALYSIS**

Stiffness analysis; development and application of structural analysis. Introduction to finite element method. Influence lines, elastic stability analysis of frames with and without sway effects. Application of computer programs.

Three lectures, one tutorial (two hours); first term

Prerequisite: CIV ENG 3G03 and MATH 3J04

**CIV ENG 4L04 DESIGN OF WATER RESOURCES SYSTEMS**

Investigation, planning, analysis, and design of water resources systems. Stormwater systems; floodplain analysis; network systems; reservoir analysis, flood control; river engineering.

Two lectures, one tutorial, one lab (three hours); second term

Prerequisite: CIV ENG 3M04

**CIV ENG 4R04 STRUCTURAL SYNTHESIS**

Structural design process, gravity and lateral loading requirements, structural performance criteria, choice of structural systems. Approximate analysis of different structural systems, such as frames and shear walls and slabs. Analysis of actual buildings.

Three lectures, one lab (three hours); first term

Prerequisite: CIV ENG 3G03, 3J04, 3S03

**CIV ENG 4S04 FOUNDATION ENGINEERING**

Principles of foundation design; bearing capacity, settlement and location, footings, deep foundations, piles, pile groups and drilled piers; geotechnical techniques and case histories.

Three lectures, one tutorial (two hours); first term

Prerequisite: CIV ENG 3B03

**CIV ENG 4W04 DESIGN OF LOW RISE BUILDINGS**

Structural systems and load distribution, design of masonry, wood, cold-formed steel and braced and unbraced steel frames.

Three lectures, one tutorial (two hours); second term

Prerequisite: CIV ENG 3G03, 3J04, 3S03

**CIV ENG 4Y04 BRIDGES AND OTHER HEAVY CIVIL STRUCTURES**

Introduction to bridge engineering; design of post/prestressed concrete structures; calculation of ultimate strength and serviceability. Plate girders; composite construction. Applications to heavy civil structures.

Three lectures, one lab (three hours) or one tutorial (two hours); second term

Prerequisite: CIV ENG 3G03, 3J04, 3S03

For Graduate courses, see *Calendar of the School of Graduate Studies*.

**CLASSICS****Faculty as of January 15, 1993****Chair**

Katherine M. D. Dunbabin

**Professors Emeriti**

Harold F. Guite/B.A., M.A. (London)

Thomas F. Hoey/B.A. (Montreal), M.A. (Toronto), Ph.D. (Harvard), S.T.L., Ph.L. (Immaculate Conception Seminary, Montreal)

Alexander G. McKay/B.A. (Toronto), M.A. (Yale), A.M., Ph.D. (Princeton), F.R.S.C.

Donald M. Shepherd/M.A. (Queen's), Ph.D. (Chicago)

**Professors**

Katherine M. D. Dunbabin/M.A., D. Phil. (Oxford)

Daniel J. Geagan/A.B. (Boston), Ph.D. (Johns Hopkins)/History & Classics

Howard Jones/B.A. (London), M.A., Ph.D. (Indiana)

Paul Murgatroyd/B.A., M.A. (Cambridge), Ph.D. (London)

George M. Paul/M.A. (Oxford), Ph.D. (London)

William J. Slater/M.A., Ph.D. (St. Andrews)

**Associate Professors**

Peter Kingston/B.A., Ph.D. (London)

**Assistant Professors**

Johnson B. Clinard/B.A. (North Carolina), M.A. (Columbia), Ph.D. (North Carolina)

Evan Haley/A.B. (Dartmouth), Ph.D. (Columbia)/Classics & History

Ann Harrison/A.B. (Bryn Mawr; American School of Classical Studies), A.M., Ph.D. (Michigan)



**Instructors**

Ken Belcher/part-time

**Department Note:**

The following courses are available as electives to qualified students in any programme:

**a. Classical Archaeology and Art History**

CLASSICS 2A03, 2B03, 2C03, 3G03, 3H03, 3R03, 3S03

**b. Ancient History and Society**

CLASSICS 2G06, 2U03, 2V03, 2Z03, 3LL3, 3MM3, 3UU3, 3VV3, 3WW3

**c. Ancient Philosophy**

CLASSICS 2P06, 4C03, 4J03

**d. Classical Literature In Translation**

CLASSICS 2D03, 2H03, 2HH3, 3C03, 3I03

**e. Greek Language and Literature**

GREEK 1Z06, 2A03, 2AA3, 2R03, 3A03, 3BB3, 4A03, 4BB3,

**f. Latin Language and Literature**

LATIN 1Z06, 2A03, 2F03, 2G03, 2R03, 3BB3, 3R03, 4BB3, 4R03

**CLASSICS ...****Courses**

*No language other than English is required for courses listed under Classics.*

**CLASSICS 1B06 MYTHOLOGY AND LITERATURE OF GREECE AND ROME**

A study of ancient literature based on myth and legends such as the Trojan War, tales of heroes such as Hercules, and other aspects of life in the Classical World. Readings in English translation from a variety of Greek and Roman authors, with special attention to epic poetry and drama.

Two lectures, one tutorial; two terms

Antirequisite: CLASSICS 1A06

**CLASSICS 1L06 HISTORY AND ARCHAEOLOGY OF THE ANCIENT WORLD**

The history of the Ancient Near East, Greece, and Rome based on documentary sources and archaeological evidence.

Two lectures, one tutorial; two terms

Cross-list: HISTORY 1L06

**CLASSICS 2A03 INTRODUCTION TO CLASSICAL ARCHAEOLOGY**

A study of the history and methodology of Greek and Roman archaeology illustrated with materials from excavated sites.

Three lectures; one term

Prerequisite: Registration in Level II and above

**CLASSICS 2B03 GREEK ART**

The architecture, sculpture and painting of the Greek and Hellenistic world.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: ART HIST 2B03

**CLASSICS 2C03 ROMAN ART**

The architecture, sculpture, and painting of the Roman world.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: ART HIST 2C03

**CLASSICS 2D03 GREEK AND ROMAN MYTHOLOGY**

A study of the myths of Greek and Roman gods and heroes, their explanation according to theories on the nature of myths, and their use by Greek and Roman authors, particularly Homer and Vergil.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: COMP LIT 2M03

**CLASSICS 2G06 THE HISTORY OF GREECE AND ROME**

Greece from the rise of the city-states to Alexander; Rome from the Middle Republic through the early Empire. Attention will be given to political, military and social developments in the light of both literary and archaeological evidence.

Three hours (lectures and discussion groups); two terms

Prerequisite: Registration in Level II and above

Cross-list: HISTORY 2L06

**CLASSICS 2H03 THE THEATRE OF GREECE AND ROME**

The social history of the theatre in Greece and Rome. Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: COMP LIT 2H03

**CLASSICS 2HH3 GREEK AND ROMAN DRAMA**

Readings from selected Greek and Roman tragedies and comedies.

Three lectures; one term

Prerequisite: Registration in Level II and above. CLASSICS 2H03 is recommended.

Cross-list: COMP LIT 2HH3

**CLASSICS 2P06 ANCIENT GREEK PHILOSOPHY**

A study of Western philosophical thought from its earliest beginnings to the triumph of Christianity in the Roman Empire, with emphasis on Plato and Aristotle.

Three lectures; two terms

Prerequisite: Registration in Level II and above

Cross-list: PHILOS 2A06

**CLASSICS 2U03 GREEK SOCIETY**

A description and analysis of selected aspects of the social life of Greece. The topics surveyed include work and leisure, slavery, marriage and family life, the roles of women, religion, law, social structure and social mobility.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Alternates with CLASSICS 2V03.***CLASSICS 2V03 ROMAN SOCIETY**

A description and analysis of selected aspects of the social life of Rome. The topics surveyed include work and leisure, slavery, marriage and family life, the roles of women, religion, law, social structure and social mobility.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Alternates with CLASSICS 2U03.***CLASSICS 2Z03 GREEK AND ROMAN RELIGION**

A study of the role of religion in Greek and Roman public and private life.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Offered in alternate years.*

Cross-list: RELIG ST 2Z03

**CLASSICS 3C03 GREEK AND ROMAN EPIC**

A survey of epic poetry, including the origins, Homer and Greek epic, Vergil and Roman epic.

Three lectures; one term

Prerequisite: CLASSICS 1A06 or 1B06 or 2D03

*Offered in alternate years.***CLASSICS 3G03 LATE ANTIQUE AND EARLY CHRISTIAN ART**

The art and architecture of the later Roman Empire, and the birth of Christian art (A.D. 200-600).

Three lectures; one term

Prerequisite: CLASSICS 2C03 or ART HIST 2G03

Cross-list: ART HIST 3G03

*Alternates with CLASSICS 3H03.***CLASSICS 3H03 ARCHAIC GREEK ART**

The formative period of Greek Art, from its rebirth after the Dark Ages to the Persian Wars (c. 1000-480 B.C.), and its relationship to the art of the Near East.

Three lectures; one term

Prerequisite: CLASSICS 2B03

Cross-list: ART HIST 3H03

*Alternates with CLASSICS 3G03.***CLASSICS 3I03 TOPICS IN GREEK AND ROMAN LITERATURE**

Previous topics include: Greek and Roman Elegiac and Lyric Poetry, The Legend of the Trojan War, Satire. Consult the Department concerning the topic to be offered.

Three lectures; one term

Prerequisite: Six units of Classics

Cross-list: COMP LIT 3I03

*CLASSICS 3I03 may be repeated, if on a different topic, to a total of six units.***CLASSICS 3LL3 THE HELLENISTIC AGE**

The successors of Alexander, the world of the monarchies and their absorption into the Roman Empire. Political, cultural and social achievements in the light of modern historical research will be emphasized.

Three hours (lectures and discussion groups); one term

Prerequisite: Registration in Level II and above

Cross-list: HISTORY 3LL3

*Offered in alternate years.***CLASSICS 3MM3 THE ROMAN EMPIRE**

Rome, Italy and the provinces from the creation of an autocracy by Augustus

until the end of the 2nd century A.D.: developments in government, society, defence and economy; the Romanization of the provinces. Archaeological evidence and new approaches to problems will be considered.

Three hours (lectures and discussion groups); one term

Prerequisite: Six units of Classics

Cross-list: HISTORY 3MM3

*Offered in alternate years.*

### CLASSICS 3R03 THE ARCHAEOLOGY OF GREEK CITIES

An examination of major Greek archaeological sites, focusing on selected sanctuaries and settlements from the Bronze Age to the Hellenistic period.

Three lectures; one term

Prerequisite: One of CLASSICS 2A03, 2B03, 2F03, 3S03

*Alternates with CLASSICS 3S03.*

### CLASSICS 3S03 THE ARCHAEOLOGY OF THE CITY OF ROME AND ROMAN ITALY

The growth of the city of Rome, from its origins to the triumph of Christianity, and an examination of the archaeological remains of Pompeii, Ostia and other cities of Roman Italy.

Three lectures; one term

Prerequisite: One of CLASSICS 2A03, 2C03, 2F03, 3R03

*Alternates with CLASSICS 3R03.*

### CLASSICS 3UU3 GREEK SOCIETY IN THE AGE OF PERICLES

A description and analysis of selected aspects of the social life of Athens in the second half of the 5th century B.C., based upon contemporary literature, documents and artifacts. Lectures will deal in greater depth with topics introduced in CLASSICS 2U03, as well as others peculiar to Periclean Athens: work and leisure, education, religion, marriage and family life, the roles of women, war and peace, social structure and social mobility.

Three lectures; one term

Prerequisite: Six units of Classics courses, including 2U03; or CLASSICS 1L06 or 2G06

Cross-list: HISTORY 3UU3

*Alternates with CLASSICS 3VV3.*

### CLASSICS 3VV3 ROMAN SOCIETY IN THE AGE OF AUGUSTUS

A description and analysis of selected aspects of the social life of Rome at the end of the 1st century B.C. based upon contemporary literature, documents and artifacts. Lectures will deal in greater depth with topics introduced in CLASSICS 2V03, as well as others peculiar to Augustan Rome: work and leisure, education, religion, marriage and family life, the roles of women, war and peace, social structure and social mobility.

Three lectures; one term

Prerequisite: Six units of Classics courses, including 2V03; or CLASSICS 1L06 or 2G06

Cross-list: HISTORY 3VV3

*Alternates with CLASSICS 3UU3.*

### CLASSICS 3WW3 TOPICS IN GREEK AND ROMAN SOCIETY

Previous topics include: Women in Greek Society, Slavery in Greek and Roman Antiquity, Money and Money-Making in the Roman World. Consult the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: CLASSICS 2G06, or six units of Classics courses, including 2U03 or 2V03

Cross-list: HISTORY 3WW3

*Offered in alternate years.*

*CLASSICS 3WW3 may be repeated, if on a different topic, to a total of six units.*

### CLASSICS 3X03 TOPICS IN ANCIENT ART AND ARCHAEOLOGY

Previous topics include: Hellenistic and Roman Painting. Consult the Department concerning the topic to be offered.

Seminar (two hours); one term

Prerequisite: CLASSICS 2B03 or 2C03, and registration in Level III or IV of a programme in Classics

Cross-list: ART HIST 3X03

*Offered in alternate years.*

*CLASSICS 3X03 may be repeated, if on a different topic, to a total of six units.*

### CLASSICS 4C03 PLATO

Critical examination of Plato's writings with reference to selected central philosophical issues.

One lecture, one seminar (two hours); one term

Prerequisite: CLASSICS 2P06 and registration in Level III or IV of any programme

Cross-list: PHILOS 4C03

*Offered in alternate years.*

### CLASSICS 4D06 SPECIAL TOPICS IN GREEK HISTORY

Investigations into Greek social history and its interpretation.

Seminar (two hours); two terms

Prerequisite: Six units from CLASSICS 2G06, 2U03, 3LL3, 3UU3, and registration in Level III or IV of any Honours programme in Classics

Cross-list: HISTORY 4D06

*Enrolment is limited.*

### CLASSICS 4I06 SPECIAL TOPICS IN ROMAN HISTORY

Problems in the history of the Roman Empire.

Seminar (two hours); two terms

Prerequisite: Six units from CLASSICS 2G06, 2V03, 3MM3, 3VV3, and registration in Level III or IV of any Honours programme in Classics

Cross-list: HISTORY 4I06

*Enrolment is limited.*

### CLASSICS 4J03 ARISTOTLE

A systematic study of Aristotle's major doctrines.

Seminar (two and a half hours); one term

Prerequisite: CLASSICS 2P06 and registration in Level III or IV of any programme

Cross-list: PHILOS 4J03

*Offered in alternate years.*

### CLASSICS 4LL6 THEMES IN ANCIENT HISTORY

An examination of at least two selected themes in Ancient History, particularly the history of the Greco-Roman world, with emphasis on the use of source materials, primary and secondary, literary and non-literary.

Seminar (two hours); two terms

Prerequisite: Six units from CLASSICS 2G06, 3LL3, 3MM3, 3UU3, 3VV3 and registration in Level IV of any honours programme in Classics

Cross-list: HISTORY 4LL6

*Enrolment is limited.*

### CLASSICS 4T06 THESIS

Reading and research in Classics supervised by a Department member. A major paper is required as well as a formal oral examination.

Tutorials; two terms

Prerequisite: Registration in Level IV of any Honours programme in Classics, and permission of the Department

## GREEK...

### Notes:

- Students should note that the Department has classified its Greek language courses under the following categories:

#### Introductory Level Language Course

GREEK 1Z06

#### Intermediate Level Language Courses

GREEK 2A03, 2AA3, 2R03

- Students with OAC Ancient Greek should normally register in GREEK 2A03 or 2R03, but, with special permission, may register in GREEK 1Z06.

## Courses

### GREEK 1Z06 BEGINNER'S INTENSIVE GREEK

A rapid introduction to the grammar of Classical Greek. Passages of simple Greek are read in the second term.

Five hours (lectures and tutorials); two terms

Prerequisite: Open except to graduates of OAC Ancient Greek, who must have special permission to register in the course.

*This course, with a grade of at least B-, is accepted as a prerequisite for admission to any Honours programme in Classics, or, with a grade of at least C-, for admission to the B.A. programme in Classics.*

### GREEK 2A03 INTERMEDIATE GREEK I

A study of selected passages from Greek authors designed to develop a student's proficiency in reading Greek.

Three lectures; one term

Prerequisite: OAC Ancient Greek or GREEK 1Z06. Students using this course as a Humanities I requirement will also register for GREEK 2R03 or an additional three units of Level II Greek to be taken in Term II.

### GREEK 2AA3 INTERMEDIATE GREEK II

A study of selected passages from Greek authors designed to further the development of the student's proficiency in reading Greek.

Three lectures; one term

Prerequisite: GREEK 2A03

### GREEK 2R03 GREEK LANGUAGE

A study of Greek grammar and style based chiefly upon reading selected

passages from the works of Xenophon and translation from English to Greek.  
Two lectures; two terms

Prerequisite: OAC Greek or GREEK 1Z06

*Students using this course as a Humanities I requirement will also register for an additional three units of Level II Greek.*

#### **GREEK 3A03 GREEK HISTORIANS**

Selected readings from Greek historical authors, such as Herodotus and Thucydides. The course will also include grammatical exercises.

Three lectures; one term

Prerequisite: Six units of Level II Greek

*Alternates with GREEK 4A03.*

#### **GREEK 3BB3 TOPICS IN GREEK LITERATURE I**

Previous topics include: Homer, Aristophanes, Greek Tragedians. Consult the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: Six units of Level II Greek including GREEK 2A03

*GREEK 3BB3 may be repeated, if on a different topic, to a total of six units.*

#### **GREEK 4A03 ATTIC ORATORS**

Selected readings from the speeches of Attic orators, such as Lysias and Demosthenes. The course will also include grammatical exercises.

Three lectures; one term

Prerequisite: Six units of Level II Greek Alternates with GREEK 3A03.

#### **GREEK 4BB3 TOPICS IN GREEK LITERATURE II**

Consult the Department for the topic to be offered.

Three lectures; one term

Prerequisite: Six units of Level II Greek, including 2A03

*GREEK 4BB3 may be repeated, if on a different topic, to a total of six units.*

*Alternates with GREEK 3BB3.*

#### **GREEK 4K03 GUIDED READING IN GREEK AUTHORS**

Selected readings from Greek authors supervised by a member of the Department.

Tutorials; one term

Prerequisite: Six units of Level II Greek, including GREEK 2A03 and registration in Level III or IV of any Honours programme in Classics, and permission of the Department

*GREEK 4K03 may be repeated, if on a different topic, to a total of six units.*

## **LATIN ...**

### **Notes:**

- Students should note that the Department has classified its Latin language courses under the following categories:

#### **Introductory Level Language Course**

LATIN 1Z06

#### **Intermediate Level Language Courses**

LATIN 2A03, 2R03

#### **Advanced Level Language Courses**

LATIN 3R03, 4R03

- Students with OAC Latin should normally register in LATIN 2A03 or 2R03, but, with special permission, may register in LATIN 1Z06.

## **Courses**

### **LATIN 1Z06 BEGINNER'S INTENSIVE LATIN**

An introduction to the grammar of Classical Latin. Practice in reading simple Latin passages.

Five hours (lectures and tutorials); two terms

Prerequisite: Open except to graduates of OAC Latin who must have special permission to register in the course

*This course, with a grade of at least B-, is accepted as a prerequisite for admission to any Honours programme in Classics, or, with a grade of at least C-, for admission to the B.A. programme in Classics.*

### **LATIN 2A03 INTERMEDIATE LATIN**

A study of selected passages from Latin authors designed to develop a student's proficiency in reading Latin.

Three lectures; one term

Prerequisite: OAC Latin or LATIN 1Z06 Students using this course as a HUMANITIES I requirement will also register for LATIN 2R03 or an additional three units of Level II Latin to be taken in Term II.

### **LATIN 2F03 CATULLUS AND HORACE**

Selected readings from the poems of Catullus and Horace.

Three lectures; one term

Prerequisite: LATIN 2A03

*Alternates with LATIN 2G03.*

### **LATIN 2G03 VERGIL**

Selected readings from the Aeneid.

Three lectures; one term

Prerequisite: LATIN 2A03

*Alternates with LATIN 2F03.*

### **LATIN 2R03 LATIN LANGUAGE**

A study of Latin grammar and style based chiefly upon reading selected passages from the works of Cicero and translation from English to Latin.

Two lectures; two terms

Prerequisite: OAC Latin or LATIN 1Z06

*Students using this course as a Humanities I requirement will also register for an additional three units of Level II Latin.*

### **LATIN 3BB3 TOPICS IN LATIN LITERATURE I**

Previous topics include: Roman Verse Satire, Poetry of the Neronian Age, Petronius. Consult the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: Six units of Level II Latin including LATIN 2A03

*LATIN 3BB3 may be repeated, if on a different topic, to a total of six units.*

### **LATIN 3R03 ADVANCED LATIN LANGUAGE STUDY I**

A study of Latin grammar and style, and practice in Latin composition.

Three lectures; one term

Prerequisite: Nine units of Level II Latin including LATIN 2R03

*Alternates with LATIN 4R03.*

### **LATIN 4BB3 TOPICS IN LATIN LITERATURE II**

Consult the Department for the topic to be offered.

Three lectures; one term

Prerequisite: Six units of Level II Latin, including 2A03

*LATIN 4BB3 may be repeated, if on a different topic, to a total of six units.*

*Alternates with LATIN 3BB3.*

### **LATIN 4K03 GUIDED READING IN CLASSICAL LATIN AUTHORS**

Selected readings from Classical Latin authors supervised by a member of the Department.

Tutorials; one term

Prerequisite: Six units of Level II Latin, including LATIN 2A03 and registration in Level III or IV of any Honours programme in Classics, and permission of the Department

*LATIN 4K03 may be repeated, if on a different topic, to a total of six units.*

### **LATIN 4KK3 GUIDED READING IN MEDIEVAL LATIN AUTHORS**

Selected readings from Medieval Latin authors supervised by a member of the Department.

Tutorials; one term

Prerequisite: Six units of Level II Latin, including LATIN 2A03 and registration in Level III or IV of any Honours programme in Classics, and permission of the Department

*LATIN 4KK3 may be repeated, if on a different topic, to a total of six units.*

### **LATIN 4R03 ADVANCED LATIN LANGUAGE STUDY II**

A study of Latin grammar and style, and practice in Latin composition.

Three lectures; one term

Prerequisite: Nine units of Level II Latin, including LATIN 2R03

*Alternates with LATIN 3R03.*

For Graduate Courses see *Calendar of School of Graduate Studies.*

## **COMMERCE**

### **Faculty as of January 15, 1993**

#### **Chair, Marketing Area**

Robert G. Cooper

#### **Chair, Finance and Business Economics Area**

Trevor Chamberlain

#### **Chair, Accounting Area**

Bernadette E. Lynn

#### **Chair, Human Resources and Labour Relations Area**

Joseph B. Rose

#### **Chair, Management Science and Information Systems Area**

George Steiner

**Professors Emeriti**

- Robert C. Joyner/B.A., M.A., Ph.D. (Toronto)/Organizational Behaviour  
 Winston H. Mahatoo/B.A. (London), B.Sc., M.Sc. (McGill), Ph.D. (Montreal)/Marketing  
 William J. Schlatter/A.B., A.M., Ph.D. (Illinois), C.P.A./Accounting  
 Andrew Z. Szendrovits/M.A., Ph.D. (Kolozsvar)/Production and Management Science  
 George W. Torrance/B.A.Sc., M.B.A. (Toronto), Ph.D. (State University of New York at Buffalo), P. Eng./Management Science

**Professors**

- Roy J. Adams/B.A. (Pennsylvania State), M.A., Ph.D. (Wisconsin)/Industrial Relations  
 Naresh C. Agarwal/B.A., M.A. (Delhi), Ph.D. (Minnesota)/Human Resources  
 Peter M. Banting/B.A., M.B.A. (McMaster), Ph.D. (Michigan State)/Marketing  
 M.W. Luke Chan/B.Sc. (Prince Edward Island), M.A., Ph.D. (McMaster)/Finance and Business Economics/Associate Dean (External Relations)  
 Robert G. Cooper/B.Eng., M.Eng. (McGill), M.B.A., Ph.D. (Western Ontario)/Marketing/Chair, Marketing and International Business Area/Lawson Mardon Chair in Industrial Marketing and Technology Management  
 Haim Falk/B.Ac. (Hebrew), M.B.A. (Tel-Aviv), Ph.D. (Hebrew), C.P.A./Accounting/Distinguished Chair in Accounting  
 Harish C. Jain/B.Com. (Delhi), M.B.A. (Indiana), Ph.D. (Wisconsin)/Human Resources and Labour Relations  
 Clarence C.Y. Kwan/Ph.D. (Ottawa), M.B.A. (McMaster), Ph.D. (Toronto), P. Eng./Finance  
 Robert F. Love/B.A.Sc. (Toronto), M.B.A. (Western Ontario), Ph.D. (Stanford), P. Eng./Management Science  
 Dean C. Mountain/B.A. (McMaster), M.A., Ph.D., (Western Ontario)/Finance and Business Economics  
 Mahmut Parlak/B.Sc., M.Sc. (Middle East Technical University), Ph.D. (Waterloo)/Management Science  
 Joseph B. Rose/B.B.A. (Adelphi), M.B.A. (California), Ph.D. (State University of New York at Buffalo)/Industrial Relations/Chair of the Human Resources and Labour Relations Area  
 Randolph E. Ross/B.A. (Waterloo Lutheran), M.B.A. (Michigan State), D.B.A. (Indiana)/Marketing  
 George Steiner/M.Sc. (Budapest), Ph.D. (Waterloo)/Production and Management Science/Chair of the Management Science and Information Systems Area  
 William G. Truscott/B.S.E. (Princeton), M.B.A. (McMaster), D.B.A. (Indiana), P. Eng./Production and Management Science/Dean of the School of Business  
 George O. Wesolowsky/B.A.Sc. (Toronto), M.B.A. (Western Ontario), Ph.D. (Wisconsin)/Management Science

**Associate Professors**

- Prakash L. Abad/B.Tech. (Indian Institute of Technology), M.S., M.B.A., Ph.D. (Cincinnati)/Management Science  
 Norman P. Archer/B.Sc. (Alberta), Ph.D. (McMaster), M.S. (New York)/Management Science/Co-ordinator, Ph.D. Programme (Management Science/Systems)  
 Christopher K. Bart/B.A., M.B.A. (York), Ph.D. (Western Ontario), C.A./Business Policy  
 Min S. Basadur/B.A.Sc. (Toronto), M.B.A. (Xavier), Ph.D. (Cincinnati), P. Eng./Organizational Behaviour (Half-time)  
 Trevor W. Chamberlain/B.Sc. (California, Berkeley), M.B.A. (McGill), Ph.D. (Toronto), C.A./Finance/Chair, Finance and Business Economics Area C.S.  
 Sherman Cheung/B.S. (Louisiana State), M.S., Ph.D. (Illinois)/Finance and Business Economics  
 Kenneth R. Deal/B.S., M.B.A., Ph.D. (State University of New York at Buffalo)/Marketing and Management Science  
 Richard W. Deaves/B.A., M.A., Ph.D. (Toronto)/Finance and Business Economics  
 James C. Gaa/B.A. (Michigan State), A.M., Ph.D. (Washington, St. Louis), Ph.D. (Illinois)/Accounting  
 Rick D. Hackett/B.Sc. (Toronto), M.A. (Windsor), Ph.D. (Bowling Green State)/Human Resources  
 Elko J. Kleinschmidt/Dip. Ing. (Staatliche Ingenieurschule, Hannover), M.B.A., Ph.D. (McGill)/Marketing and International Business  
 Itzhak Krinsky/B.A., M.A. (Tel Aviv), Ph.D. (McMaster)/Finance and Business Economics

- John W. Medcof/B.A. (New Brunswick), M.A. (Toronto), Ph.D. (Toronto)/Organizational Behaviour/Associate Dean (Academic)  
 G. John Miltenburg/B.Eng.Mgt., M.B.A. (McMaster), M.Eng. (Toronto), Ph.D. (Waterloo), P. Eng./Production and Management Science  
 Ali R. Montazemi/H.N.D. (Teesside Polytechnic, U.K.), M.Sc. (Southampton), Ph.D. (Waterloo)/Information Systems  
 Thomas E. Muller/M.B.A. (Simon Fraser), Ph.D. (British Columbia)/Marketing  
 Yufei Yuan/B.S. (Fudan), Ph.D. (Michigan)/Information Systems  
 F. Isik Zeytinoglu/B.A., M.A. (Bogazici), M.S., Ph.D. (Pennsylvania)/Industrial Relations

**Assistant Professors**

- Y.C. Lillian Chan/B.B.A. (Chinese University of Hong Kong), Ph.D. (Virginia Polytechnic Institute and State University)/Accounting  
 Stephen Drew/B.A. (Cambridge), B.Sc. (London), Ph.D. (Cambridge)/Business Policy and International Business  
 Scott J. Edgett/B.B.A. (Prince Edward Island), M.B.A. (McMaster), Ph.D. (Bradford)/Marketing  
 Diwakar Gupta/B.Tech. (Indian Institute of Technology), M.A.Sc. (Windsor), Ph.D. (Waterloo)/Production and Management Science  
 Jason Lee/B.Sc. (Calgary), Ph.D. (Alberta)/Finance  
 Bernadette E. Lyrin/B.A. (Carlow College), M.A. (Pittsburgh), Ph.D., M.B.A. (McMaster), C.M.A./Accounting/Chair, Accounting Area  
 S.M. Khalid Nainar, B.A., M.A. (Delhi), Ph.D. (Florida)/Accounting  
 Mohamed M. Shehata/B.Com. (Tanta), M.S. (Ain-Shams), M.B.A. (North Texas State), Ph.D. (Florida)/Accounting  
 D. Wayne Taylor/B.A. (Toronto), M.P.A., Ph.D. (York), P. Admin, P. Mgr./Business and Public Policy  
 Hugh A.L. Thomas/B.A. (Alberta), M.B.A. (Hong Kong), Ph.D. (New York)/Finance  
 Willi Wiesner/ B.A. (Wilfrid Laurier), M.A.Sc., Ph.D. (Waterloo)/Human Resources

**Lecturers**

- Christopher C. Costanza/B.Com., M.B.A. (McMaster), C.A./Accounting (Half-time)  
 Elizabeth A. Csordas/B.Sc. (Windsor), M.B.A. (McMaster), C.M.A./Accounting/M.B.A. Programme Advisor  
 David E. D'Agostino/B.Eng., M.B.A. (McMaster)/Marketing/Assistant to the Dean (Administrative)  
 Nicholas A. Mastroiusti/B.Sc. (Western Ontario), M.B.A. (McMaster), C.A./Taxation (Half-time)  
 Barbara M.C. Pitts/B.A. (McMaster), B.Ed., (Brock), M.B.A. (McMaster)/Organizational Behaviour  
 Marvin G. Ryder/B.A., B.Sc. (Carleton), M.B.A. (McMaster)/Marketing and Business Policy/Assistant to the Dean (Computing)  
 Tiina Salisbury/B.Com., M.B.A. (McMaster)/Management Science and Information Systems  
 Terry Seawright/ B.A.Sc. (Toronto), M.B.A. (McMaster)/Marketing  
 Paul M. Stillman/B.Sc. (McMaster), LL.B. (Osgoode Hall)/Business Law (Half-time)  
 Linda White/B.Com., M.B.A. (McMaster) C.M.A./Accounting

**Faculty Notes:**

1. Commerce courses are open only to students registered in Commerce or the Engineering and Management programme, and to students registered in degree programmes in Labour Studies when such courses are specified as part of the programme. Students who are not eligible for Commerce courses should refer to the Business course listings.
2. Normally, Level II and Level III Commerce courses are scheduled for three lectures; one term, while Level IV Commerce courses are two lectures; one term. Courses offered in evenings are one lecture; one term.
3. In most Level IV Commerce courses, section size will be restricted to a maximum of 30 students; students will be admitted on a first-come basis.

**Courses****COMMERCE 2AA3 FINANCIAL ACCOUNTING I**

An introduction to the basic principles and practices of financial accounting. Examination of income measurement and asset and liability valuation to provide an understanding of financial accounting information.  
 Prerequisite: ECON 1A06

**COMMERCE 2BA3 ORGANIZATIONAL BEHAVIOUR**

An introduction to the analysis of behaviour in the administration of organized

enterprises. The consequences of the organization's goals, technology, structure, environment and managerial styles are examined. Applications are made of studies of perception, problem solving, communication and group processes to the leadership, design and development of organizations.

#### COMMERCE 2FA3 FINANCIAL INSTRUMENTS AND INSTITUTIONS

An introduction to both micro and macro aspects of Finance. At the micro level, some of the basic concepts and elementary theories in Finance will be explored in order to provide an understanding of investment and financing decisions. At the macro level, various financial instruments and functions of financial institutions in Canada will be described.

Prerequisite: ECON 1A06 and COMMERCE 2AA3

#### COMMERCE 2MA3 INTRODUCTION TO MARKETING

An introduction to marketing as a field of study, market structure, marketing institutions, marketing concepts and strategies. Stress is placed upon the analytical, managerial, and conceptual aspects of the subject.

Prerequisite: ECON 1A06

#### COMMERCE 2QA3 COMPUTER-AUGMENTED STATISTICAL ANALYSIS

An introduction to the application of statistical analysis in managerial decision-making. The concepts of statistical analysis are applied to a variety of topics, including decision-making, estimation by sampling, hypothesis testing, analysis of variance, simple linear and multiple regression and forecasting.

Prerequisite: MATH 1L03 or STATS 1L03, and one of MATH 1M03 or 1A06, and one of COMP SCI 1A03 or 1BA3

#### COMMERCE 3AA3 COST AND MANAGERIAL ACCOUNTING I

An introduction to concepts underlying the use of cost accounting information for managerial planning and control, and for inventory valuation. The nature and analysis of costs, and the usefulness and limitations of accounting data for decision-making will be discussed.

Prerequisite: COMMERCE 2AA3

#### COMMERCE 3AB3 FINANCIAL ACCOUNTING II

A first course in intermediate financial accounting dealing with the theory and practice of financial statement preparation and reporting. The emphasis will be on asset valuation and the related impact on income measurement.

Prerequisite: COMMERCE 2AA3

#### COMMERCE 3BA3 INDUSTRIAL RELATIONS

An introduction to the structure and process whereby labour, management and the public interact to produce terms and conditions of employment. Topics include the development, structure and objectives of organized labour, management philosophy and policy in industrial relations and governmental policy.

Prerequisite: COMMERCE 2BA3

#### COMMERCE 3BB3 HUMAN RESOURCE MANAGEMENT

An introduction to all major facets of the Human Resource Management function, including planning, staffing, training and development, performance appraisal, career pathing, compensation, health and safety, and labour relations.

Prerequisite: COMMERCE 2BA3

#### COMMERCE 3FA3 INTRODUCTION TO MANAGERIAL FINANCE

An examination of the nature and administration of the finance function. The emphasis is on the development of basic concepts pertaining to the investment problem in asset management, and the financing problem in short and long-range sources of funds, capital structure, and dividend policy.

Prerequisite: COMMERCE 2FA3

#### COMMERCE 3FB3 SECURITIES ANALYSIS

The emphasis is on the analysis of marketable securities, especially equities. Topics include: the mechanics of the secondary markets, the investment characteristics of securities, investment strategies to improve rates of return, and the techniques of securities analysis and valuation. In addition, the course introduces portfolio considerations and the 'efficient markets' literature.

Prerequisite: COMMERCE 2FA3

#### COMMERCE 3MA3 INTRODUCTION TO MARKETING RESEARCH

An introduction to the role and methods of marketing research. Among topics considered are measurement, sample selection, questionnaire development, data collection, and analysis and interpretation of data.

Prerequisite: COMMERCE 2MA3, and 2QA3 or STATS 3Y02 or 3Y03

#### COMMERCE 3MB3 CONSUMER MOTIVATION

An analysis of the motivations underlying consumer choice behaviour such as

store patronage, brand loyalty, and new-product adoption. Specifically, the course will trace the role of perception, learning, attitudes, personality, reference groups, social class and culture in the consumer decision process.

Prerequisite: COMMERCE 2MA3

#### COMMERCE 3QA3 DECISION SCIENCE FOR MANAGERS

This course is a study of analytical approaches that assist managerial decision-making; it provides coverage of decision theory and an introduction to optimization methods, computer simulation and the general approach of management science.

Prerequisite: COMMERCE 2QA3

#### COMMERCE 3QB3 BUSINESS DATA PROCESSING

An introduction to commercial data processing technology: I/O devices; storage; processors; software; its deployment in transaction/file processing and reporting systems; and the analysis and design of such systems.

Prerequisite: COMP SCI 1A03 or 1BA3, and/or registration in a Commerce or an Engineering and Management programme

### Level IV Commerce Courses ...

In most Level IV Commerce courses, section size will be restricted to a maximum of 30 students; students will be admitted on a first-come basis.

#### Courses

#### COMMERCE 4AA3 COST AND MANAGERIAL ACCOUNTING II

A consideration of more complex topics in management planning and control including cost behaviour determination, production planning, cost allocations, variance analysis, performance evaluation for responsibility centres as well as manufacturing entities.

Prerequisite: COMMERCE 3AA3

#### COMMERCE 4AB3 FINANCIAL ACCOUNTING III

A second course in intermediate financial accounting dealing with reporting issues as they relate to liabilities and owners' equity. The concepts underlying recognition, measurement and disclosure are examined in general and as applied to items such as bonds, taxes, leases and pensions.

Prerequisite: COMMERCE 3AB3

#### COMMERCE 4AC3 FINANCIAL ACCOUNTING IV

An advanced accounting course considering specific problems of accounting for the corporate entity, such as, business combinations, intercorporate investments, consolidated financial statements, accounting for foreign operations and foreign currency transactions, segment reporting.

Prerequisite: COMMERCE 4AB3

#### COMMERCE 4AD3 AUDITING

An examination of the attest function in accounting including ethical, legal, and statutory influences in the development of auditing standards. The nature of control structures and of audit evidence is examined. The nature, scope, and application of auditing procedures are examined through a selective analysis of asset, liability, revenue, and expense items.

Prerequisite: COMMERCE 3AB3

#### COMMERCE 4AE3 ACCOUNTING INFORMATION SYSTEMS

Consideration of the principles underlying the role of accounting as an information system for planning and controlling business operations. The emphasis is on internal control in both manual and automated systems. Topics include controls over the system development process, the auditor's use and analysis of internal control, and the role of the accountant in controlling an accounting information system.

Prerequisite: COMMERCE 3AA3, 3AB3 and 3QB3

#### COMMERCE 4AF3 SEMINAR IN ACCOUNTING THEORY

A review of accounting theory as a background for applying underlying concepts to current accounting problems. Emphasis is on current literature, with a major term paper required.

Prerequisite: Registration or credit in COMMERCE 4AB3

#### COMMERCE 4AG3 ADVANCED ACCOUNTING TOPICS

This course extends the knowledge base of earlier accounting courses and deals with specific advanced accounting topics, such as accounting for changing prices and not-for-profit accounting, the conceptual framework and standard setting and fiduciary accounting.

Prerequisite: COMMERCE 4AC3, 4AF3

*Available summers 1994, 1995, 1996, 1997 subject to sufficient enrolments and availability of qualified instructors.*

*Continuing Students refer to School of Business: Continuing Students.*

**COMMERCE 4AH3      ADVANCED AUDITING**

This course considers a number of advanced topics concerning both the auditor and the audit profession. It builds on the knowledge of the audit task derived in earlier courses as well as on the technical skills and breadth of knowledge obtained in earlier accounting courses.

Prerequisite: COMMERCE 4AC3, 4AD3

*Available summers 1994, 1995, 1996, 1997 subject to sufficient enrolments and availability of qualified instructors.*

*Continuing Students refer to School of Business: Continuing Students.*

**COMMERCE 4AI3      COMPUTER CONTROL AND AUDITING**

This course introduces the student to the field of EDP auditing through lectures, readings and hands-on experience with EDP audit software.

Prerequisite: COMMERCE 4AC3, 4AD3

*Available summers 1994, 1995, 1996, 1997 subject to sufficient enrolments and availability of qualified instructors.*

*Continuing Students refer to School of Business: Continuing Students.*

**COMMERCE 4BA3      BEHAVIOURAL ISSUES  
IN MANAGEMENT**

Detailed analysis of employee motivation and reward systems; organizational structure; leadership and decision-making; group processes; and management of conflict and change.

**COMMERCE 4BB3      PERSONNEL SELECTION**

This course considers the strategies and problems in personnel decisions in the context of the Canadian environment. Topics include job analysis and manpower planning, methods of personnel recruitment and selection, human rights legislation in Canada and the U.S., the practice of recruitment and selection in Canada, decision-making strategies in personnel recruitment and selection, and assessment centres.

Prerequisite: COMMERCE 3BB3

**COMMERCE 4BC3      COLLECTIVE BARGAINING**

A survey of the nature, determinants, and impact of collective bargaining in Canada. Both the procedural and substantive aspects of collective bargaining will be studied.

Prerequisite: COMMERCE 3BA3, or LABR ST 2A03 or 2A06

**COMMERCE 4BD3      SETTLEMENT OF  
INDUSTRIAL DISPUTES**

The nature and the role of industrial conflict as well as the techniques which have been developed to control the incidence of conflict in union-management situations.

Prerequisite: COMMERCE 3BA3, or LABR ST 2A03 or 2A06.

*COMMERCE 4BC3 recommended.*

**COMMERCE 4BE3      COMPENSATION ADMINISTRATION**

Various aspects of the process of developing and administering a compensation plan for an organization are discussed. Considerable emphasis is placed on the applications of concepts and theories to actual organizational contexts. Topics include economic and behavioural theories of compensation, job evaluation, incentive systems, fringe benefits, and compensation plans for managerial and professional employees.

Prerequisite: COMMERCE 3BB3

**COMMERCE 4BF3      LABOUR LAW AND POLICY**

An analysis of the concepts and fundamentals of Canadian labour law and analysis of Canadian labour policy.

Prerequisite: COMMERCE 3BA3 and subject to space availability

Cross-list: LABR ST 3C03

**COMMERCE 4BG3      PUBLIC SECTOR  
COLLECTIVE BARGAINING**

This course examines unionization and collective bargaining for employees in the public and para-public sectors. The topics covered include the origin and growth of public sector unions, models of public sector bargaining, legal aspects of bargaining rights and impasse resolution, bargaining issues and bargaining outcomes, and empirical studies of the effectiveness of dispute resolution procedures.

Prerequisite: COMMERCE 4BC3 and subject to space availability

Cross-list: LABR ST 4C03

**COMMERCE 4BH3      COMPARATIVE  
INDUSTRIAL RELATIONS**

A discussion of industrial relations policies and practices in several selected countries. Topics will include the development, structure, objectives and strategies of labour and management organizations.

Prerequisite: COMMERCE 3BA3 and subject to space availability

Cross-list: LABR ST 4D03

**COMMERCE 4FA3      MANAGERIAL FINANCE**

A managerial point of view is established by the application of basic financial theory and analysis to actual case situations. Lectures are used to complement case discussions. The course is useful for students interested in general management, as well as for those wishing to attain a degree of specialization in Finance.

Prerequisite: COMMERCE 3FA3

**COMMERCE 4FB3      FINANCIAL THEORY**

This course explores the theoretical and conceptual foundations of Finance. Topics include: utility maximization and choices involving risk; the quantification of risk and return, concepts of value; the investment, financing and dividend decisions of firms; asset pricing in perfect and imperfect markets.

Prerequisite: COMMERCE 3FA3

**COMMERCE 4FC3      PORTFOLIO THEORY  
AND MANAGEMENT**

The selection and management of investment portfolios is analyzed with mathematical models. The course covers recent developments in portfolio theory, with a view to applications by individual and institutional investors.

Prerequisite: COMMERCE 3FA3

**COMMERCE 4MC3      NEW PRODUCT MARKETING**

This course covers concepts, methods and strategies for new products. Topics include: the new product process; project selection; market information for new products; launch strategies; new product strategy; portfolio analysis and product positioning.

Prerequisite: COMMERCE 3MA3

**COMMERCE 4MD3      INDUSTRIAL MARKETING**

To give the student an overall view of the marketing of industrial goods and services, this course utilizes techniques and concepts from introductory marketing courses and applies them to the special problems encountered in the industrial market.

Prerequisite: COMMERCE 3MA3

**COMMERCE 4PA3      BUSINESS POLICY:  
STRATEGIC MANAGEMENT**

This case course focuses primarily upon the concept of corporate strategy formulation and implementation by exploring the functions and nature of general management and the role of the CEO within an organization. The course integrates and builds upon the learning experiences of previous functional area courses within a broader strategic analysis framework.

Prerequisite: Registration in fourth year of a Commerce programme or fifth year of an Engineering and Management programme

**COMMERCE 4PB3      TAXATION**

The principles of Canadian federal income taxation are examined in considerable detail through a reading of both the statute law and the common law. Emphasis is placed on the application of the law to the situations of individuals and businesses. Topics include: administration, liability for income tax, computation of income, computation of taxable income and computation of tax.

Prerequisite: COMMERCE 3AB3 and 3FA3

**COMMERCE 4PC3      ADVANCED CANADIAN  
INCOME TAXATION**

This course continues the study of Canadian federal income taxation with an in-depth coverage of selected provisions of the Income Tax Act pertaining to business activities, particularly the activities of corporations.

Prerequisite: COMMERCE 4PB3

**COMMERCE 4PD3      COMMERCIAL LAW**

This course emphasizes those areas of law which are most relevant to business activity. Particular attention is given to the law relating to contracts and business organizations. Other areas of study include sources of law, the judicial process, real and personal property, torts, agency, credit and negotiable instruments.

**COMMERCE 4PE3      INTERNATIONAL BUSINESS**

A survey of theories, concepts, and corporate strategies relevant to the actual conditions and problems of international investment, trade, finance, and other related areas. Topics include balance of payments, foreign exchange, political risk, joint venture, global strategy, international personnel, and international development.

**COMMERCE 4QA3      PRODUCTION/OPERATIONS**

An introduction to the production/operations function with emphasis on the use of quantitative analysis to assist decision-making. Topics include: layout of facilities, aggregate planning, scheduling, inventory control and quality control.

Prerequisite: COMMERCE 3QA3, or registration in an Engineering and Management programme

Antirequisite: MECH ENG 4C03



## 144 COMPARATIVE LITERATURE

### COMMERCE 4QB3 ANALYSIS OF PRODUCTION OPERATIONS PROBLEMS

An examination of analytical approaches to problems in the field of production/operations. The course will provide in-depth coverage of a limited number of topics. These topics may be selected from among: layout and location of facilities, scheduling, inventory control and materials handling.

Prerequisite: COMMERCE 4QA3, or MECH ENG 4C03

### COMMERCE 4QC3 QUANTITATIVE ANALYSIS FOR BUSINESS

An examination of the techniques of management science and their application to business problems. Topics include: linear programming, integer programming, and optimization problems on networks.

Prerequisite: COMMERCE 3QA3, or registration in an Engineering and Management programme

## COMPARATIVE LITERATURE

*Comparative Literature* courses are administered within the Department of Modern Languages of the Faculty of Humanities.

*Co-ordinator*, Togo Salmon Hall, Room 611

### Department Notes:

1. Comparative Literature is the study of literature from the point of view of more than one national literature and/or in conjunction with any other intellectual discipline. It is designed to meet the needs of those students who wish to study literary texts as an intercultural and often interdisciplinary phenomenon.
2. Courses are organized to cover six areas of comparative literary study:
  - I *Literary and Cultural History*  
COMP LIT 1A06, 2D03, 2G03, 2M03, 3I03, 4AA3
  - II *Literary Forms*  
COMP LIT 2H03, 2HH3, 3CC3, 3D03, 3DD3, 3E03
  - III *Cultural Periods*  
COMP LIT 2A03, 2AA3, 3B06, 3J03, 4AA3
  - IV *Literary Theory*  
COMP LIT 3Q03, 3QQ3, 4B03
  - V *Literature and Other Disciplines*  
COMP LIT 3L03, 4C03
  - VI *General*  
COMP LIT 4E03
3. No language other than English is required for courses listed under Comparative Literature.

### Courses

#### COMP LIT 1A06 THE EUROPEAN LITERARY TRADITION

An introduction to the origins and continuity of the Western literary tradition from the Bible and classical literature to modern literature, as seen in representative texts. Attention is given to the development of critical skills in reading and writing.

Two lectures, one tutorial; two terms

Prerequisite: OAC English

#### COMP LIT 2A03 MODERN EUROPEAN LITERATURE I

A study of the central themes and ideas shaping the Enlightenment and Romanticism through the reading of representative works. Three lectures; one term

Prerequisite: COMP LIT 1A06

#### COMP LIT 2AA3 MODERN EUROPEAN LITERATURE II

A study of the central themes and forms of major literary movements from Romanticism to Postmodernism through the reading of representative works. Three lectures; one term

Prerequisite: COMP LIT 1A06

#### COMP LIT 2D03 BIBLICAL TRADITIONS IN LITERATURE

A study of the influence of the Bible on Western literatures, especially English. Approaches may include the examination of symbolism, imagery, typology, doctrinal themes and narrative structures.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: ENGLISH 2D03

*Enrolment is limited.*

#### COMP LIT 2G03 BIBLICAL LITERATURE

A survey introduction to biblical literature (Old Testament, New Testament and selected Apocrypha and Pseudepigraphica) and the history of biblical interpre-

tation to meet the particular needs of students of Western literature.

Two lectures, one tutorial; one term

Prerequisite: Registration in Level II and above

Cross-list: RELIG ST 2VV3

#### COMP LIT 2H03 THE THEATRE OF GREECE AND ROME

The social history of the theatre in Greece and Rome.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: CLASSICS 2H03

#### COMP LIT 2HH3 GREEK AND ROMAN DRAMA

Reading of selected Greek and Roman tragedies and comedies.

Three lectures; one term

Prerequisite: Registration in Level II and above COMP LIT 2H03 is recommended

Cross-list: CLASSICS 2HH3

#### COMP LIT 2M03 GREEK AND ROMAN MYTHOLOGY

A study of the myths of Greek and Roman gods and heroes, their explanation according to theories on the nature of myths and their use by Greek and Roman authors particularly Homer and Vergil.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: CLASSICS 2D03

#### COMP LIT 3B06 FROM ROMANTICISM TO MODERNISM

An introduction to the major intellectual and aesthetic currents in Europe from the beginning of the 19th century to approximately 1920.

Three lectures; two terms

Prerequisite: Registration in Level III or IV of any programme in the Faculty of Humanities

#### COMP LIT 3CC3 MODERN EUROPEAN DRAMA FROM BRECHT TO THE PRESENT

A study of representative plays by ten major dramatists, including Garcia Lorca, Cocteau, Frisch, Sartre, Weiss, Genet, Dario Fo.

Seminar (two hours), plus play readings; one term

Prerequisite: Six units of Level II Drama

Cross-list: DRAMA 3CC3

*Alternates with COMP LIT 3E03.*

#### COMP LIT 3D03 TOPICS IN LITERARY GENRES I

Previous topics include: Lyric Poetry, The Folk Tale. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: Registration in Level III or IV of a Comparative Literature programme

*COMP LIT 3D03 may be repeated, if on a different topic, to a total of six units.*

#### COMP LIT 3DD3 TOPICS IN LITERARY GENRES II

Previous topics include: the 19th-Century Novel, the Renaissance Epic. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: Registration in Level III or IV of a Comparative Literature programme

*COMP LIT 3DD3 may be repeated, if on a different topic, to a total of six units.*

#### COMP LIT 3E03 MODERN EUROPEAN DRAMA FROM IBSEN TO PIRANDELLO

A study of representative plays by eight major dramatists, including Strindberg, Chekhov, Gorki, Wedekind and Kaiser.

Seminar (two hours), plus play readings; one term

Prerequisite: Six units of Level II Drama

Cross-list: DRAMA 3C03

#### COMP LIT 3I03 TOPICS IN GREEK AND ROMAN LITERATURE

Previous topics include: The Poet and Society, Greek and Roman Elegiac and Lyric Poetry, The Legend of the Trojan War, Satire. Consult the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: Six units of Classics; or permission of the Department of Classics

Cross-list: CLASSICS 3I03

*COMP LIT 3I03 may be repeated, if on a different topic, to a total of six units.*

#### COMP LIT 3J03 STUDIES IN 16TH-CENTURY LITERATURE

A study of the prose and poetry of the first phase of the English Renaissance with some emphasis on the work of More and Sidney, and subsidiary reading of continental writers influential in England such as Petrarch, Pico, Erasmus, Castiglione, Machiavelli and Montaigne.



Three lectures; one term

Prerequisite: Registration in Level III or IV of a Comparative Literature programme

Cross-list: ENGLISH 3I03

### COMP LIT 3L03 LITERATURE AND FILM

An examination of the particular characteristics of both literature and film and the relationships between them through a detailed study of selected novels, short stories and plays and the films that have been based on them.

Three lectures, plus one weekly film screening; one term

Prerequisite: Registration in Level III or IV of a programme in Drama or Literature DRAMA 2X06 is recommended.

Cross-list: ART HIST 3CC3, DRAMA 3H03 and ENGLISH 3CC3

### COMP LIT 3Q03 THE HISTORY AND THEORY OF CRITICISM

A survey of the main developments in the theory and practice of literary criticism from Plato to the early 20th century.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a Comparative Literature programme

Cross-list: ENGLISH 3Q03

### COMP LIT 3QQ3 MODERN CRITICAL THEORY

The theory and practice of literary criticism from Eliot to the present.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a Comparative Literature programme

Cross-list: ENGLISH 3QQ3

### COMP LIT 4AA3 TOPICS IN LITERARY MOVEMENTS

Previous topics include: European Romanticism. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: Registration in Level III or IV of a Comparative Literature programme

COMP LIT 4AA3 may be repeated, if on a different topic, to a total of six units.

### COMP LIT 4B03 TOPICS IN LITERARY METHODOLOGY

Previous topics include: Psychoanalytic Criticism, Feminist Theory. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: Registration in Level III or IV of a Comparative Literature programme

COMP LIT 4B03 may be repeated, if on a different topic, to a total of six units.

### COMP LIT 4C03 LITERATURE AND OTHER DISCIPLINES

Previous topics include: Literature and Ethnography, Literature and Philosophy. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: Registration in Level III or IV of a Comparative Literature programme

COMP LIT 4C03 may be repeated, if on a different topic, to a total of six units.

### COMP LIT 4E03 TOPICS IN COMPARATIVE LITERATURE ]

Previous topics include: Utopia in European Literature. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: Registration in Level III or IV of a Comparative Literature programme

Offered in alternate years.

COMP LIT 4E03 may be repeated, if on a different topic, to a total of six units.

### COMP LIT 4I13 INDEPENDENT STUDY

The student will prepare, under the supervision of a faculty member, a research paper involving independent study in an area where the student has already demonstrated competence.

Tutorials; one term

Prerequisite: Registration in Level IV of a Comparative Literature or Literary Studies programme, and permission of the Independent Study Committee

## COMPUTER ENGINEERING

(SEE ELECTRICAL AND COMPUTER ENGINEERING)

## COMPUTER SCIENCE AND SYSTEMS

### Faculty as of January 15, 1993

#### Chair

Gerald L. Keech

#### Professors

Gerald L. Keech/ B.A.Sc. (Toronto), M.Sc., Ph.D. (McMaster)

Peter E. Lauer/B.A. (Alabama), M.A. (Emory), Ph.D. (Queen's, Belfast)

Patrick J. Ryan/ B.Sc. (Toronto), Ph.D. (Brown)

William F. Smyth/B.A. (Toronto), M.Sc. (Ottawa), Ph.D. (Curtin), C.Eng., F.B.C.S., F.I.C.A.

#### Associate Professors

Ivan Bruha/Dipl. Ing. (CVUT, Prague), RNDr (Charles, Prague), Ph.D. (CVUT, Prague)

Frantisek Franek/M.Sc., RNDr (Charles, Prague), Ph.D. (Toronto)

Robin E. Griffin/B.Sc., Ph.D. (McMaster)/part-time

Ryszard Janicki/M.Sc. (Warsaw), Ph.D., D.Hab. (Polish Acad. Sci.)

Derek J. Kenworthy/B.A., M.A., D.Phil. (Oxford)

W.F. Skipper Poehlman/B.S. (Niagara), B.Sc. (Brock), M.Sc., Ph.D. (McMaster)

Kenneth A. Redish/B.Sc. (London), F.B.C.S./part-time

Nicholas Soltseff/B.Sc., Ph.D. (Sydney), C.Eng., F.B.C.S.

Jeffrey I. Zucker/B.Sc. (Witwatersrand), Ph.D. (Stanford)

#### Assistant Professors

Tao Jiang/B.Sc. (Univ. of Sci. and Tech. of China, Hefei), Ph.D. (Minnesota)

Barbara E. Ley/B.Sc. (Brock), M.Sc., Ph.D. (Toronto)/part-time

Sanzheng Qiao/B.S., M.S. (Shanghai Teacher's College) M.S., Ph.D. (Cornell)

Grant Sheng/B.Sc. (Toronto), M.E.S. (York), Ph.D. (Wageningen)/part-time

#### Lecturers

Anthony Hurst/B.L.A. (Guelph), M.Sc. (McMaster)

David R. Walker/Mus.Bac. (Toronto)/part-time

#### Associate Members

Norman P. Archer/ (Business) B.Sc. (Alberta), M.S. (New York), Ph.D. (McMaster)

Hoda A. ElMaraghy/ (Mechanical Engineering) B.Sc. (Cairo), M.Eng., Ph.D. (McMaster), P.Eng.

William J. Garland/ (Engineering Physics) M.Eng., Ph.D. (McMaster), P.Eng.

T. Z-Q. Luol/ (Electrical and Computer Engineering) B.Sc. (Peking), Ph.D. (M.I.T.)

Daniel C. McCrackin/ (Electrical and Computer Engineering) B.Eng., M.Eng., Ph.D. (McMaster)

Ali R. Montazemi/ (Business) H.N.D. (Teesside Polytechnic, U.K.), M.Sc. (Southampton), Ph.D. (Waterloo)

David L. Parnas/ (Electrical and Computer Engineering) B.S., M.S., Ph.D. (Carnegie Instit. of Technology)

Alexander Rosa/ (Mathematics) M.S. (Kiev), Ph.D. (Slovak Acad. Sciences)

Naresh K. Sinha/ (Electrical and Computer Engineering) B.Sc. (Eng.) (Banaras), C.Eng., Ph.D. (Manchester), F.I.E.E., P.Eng.

George Steiner/ (Business) Ph.D. (Waterloo)

Barna Szabados/ (Electrical and Computer Engineering) Dip. Eng. (Grenoble), M.Eng., Ph.D. (McMaster), P.Eng.

Yufei Yuan/ (Business) B.S. (Fudan), Ph.D. (Michigan)

### Department Notes

1. The following are suggested Computer Science options for students not in Computer Science programmes:

**Science-oriented students:** COMP SCI 1MA3, 1MB3, 2MF3 and 2SB3, 3MG3, 3SC3, 3CA3, 3SD3.

**Business-oriented students:** COMP SCI 1BA3, 1MB3, 2ME3, 4EC3.

**Social Sciences and Humanities students:** COMP SCI 1ZA3 provides an introduction to computer use.

2. MATH 1AA6, 1C06, 1N06 or ARTS & SCI 1D06 can serve as an equivalent prerequisite for upper level Computer Science courses in which MATH 1A06 is a prerequisite.

**Courses****COMP SCI 1BA3 INTRODUCTION TO COMPUTING & COMPUTER USE FOR BUSINESS**

Organization of microcomputers; analytical and logical problem solving skills development using structured BASIC and electronic spreadsheets; an introduction to descriptive statistics and the use of word processing.

Three lectures, one tutorial; one term

Prerequisite: Registration in the School of Business and one OAC Mathematics credit, or one of MATH 1K03, 1L03, 1M03, STATS 1L03

Antirequisite: COMP SCI 1MA3 or ENGINEER 1D04

**COMP SCI 1MA3 INTRODUCTION TO COMPUTER PROGRAMMING**

Organization and characteristics of computers; introduction to packages; algorithmic development, stepwise refinement, modularization, searching and sorting methods, problem solving; data types, arithmetic/logical expressions, looping, arrays, subprogrammes, input/output, style, and program testing.

Three lectures, one tutorial; one term

Prerequisite: OAC Calculus or MATH 1K03, and another OAC Mathematics or MATH 1L03 or STATS 1L03, or MATH 1M03

Antirequisite: ENGINEER 1D04

**COMP SCI 1MB3 INTRODUCTION TO COMPUTER SCIENCE**

Programming as a discipline; recursion, structured data types, structured programming, analysis of algorithms, computational complexity, searching and sorting methods; introduction of a structured language.

Three lectures; one term

Prerequisite: One of COMP SCI 1MA3, ENGINEER 1D04, or a grade of B- or better in COMP SCI 1BA3 or a grade of A- or better in COMP SCI 1ZA3, and credit or registration in one of MATH 1A06, 1B03, or both MATH 1M03 and STATS 1L03 or MATH 1L03. Students having credit in COMP SCI 2SB3 will lose that credit.

Antirequisite: COMP SCI 2SB3

**COMP SCI 1ZA3 INTRODUCTION TO COMPUTING & COMPUTER USE**

Organization of microcomputers; analytical and logical problem solving skills development using structured BASIC and electronic spreadsheets; an introduction to descriptive statistics and the use of word processing.

Three lectures, one tutorial; one term

Prerequisite: One OAC Mathematics credit, or MATH 1K03, 1L03, 1M03, or STATS 1L03 is recommended

Antirequisite: Registration in the School of Business, or COMP SCI 1BA3, 1MA3, ENGINEER 1D04

**COMP SCI 2MC3 DATA STRUCTURES AND ALGORITHMS I**

State-transition diagrams and matrices, stacks, queues and lists. Advanced testing techniques and analysis of hashing algorithms. File structures, file handling; update and retrieval.

Three lectures; one term

Prerequisite: COMP SCI 1MB3, and either MATH 1A06 or both MATH 1M03 and STATS 1L03 or MATH 1L03

**COMP SCI 2MD3 DATA STRUCTURES AND ALGORITHMS II**

Commonly used abstract data types such as lists, stacks, queues, sets, and trees and their applications and efficient implementations; fast sorting, matching, and graph algorithms and complexity; a lower bound technique; general algorithm design and analysis.

Three lectures, one term

Prerequisite: COMP SCI 2MC3

**COMP SCI 2ME3 DESIGN OF INFORMATION SYSTEMS I**

Introduction to structured system design, emphasizing the software development process in the business environment: management systems; system analysis, design, implementation, and maintenance. Features COBOL.

Three lectures; one term

Prerequisite: COMP SCI 1MB3

**COMP SCI 2MF3 INTRODUCTION TO COMPUTER ARCHITECTURE**

Introduction to the structure of computer systems; organization of central processing units, memory subsystems and input/output devices; introduction to machine language, assembler programming and system software.

Three lectures; one term

Prerequisite: One of COMP SCI 1MA3, ENGINEER 1D04, or a grade of at least B- in COMP SCI 1BA3 or 1ZA3

**COMP SCI 2MJ3 DISCRETE STRUCTURES**

An introduction to the basic concepts of discrete mathematics and discrete structures needed in many areas of computer science. Logic, combinatorics, graph theory and their applications are included.

Three lectures; one term

Prerequisite: Two OAC Mathematics credits, or one OAC Mathematics credit and one of MATH 1K03, 1L03, STATS 1L03, or both MATH 1K03 and STATS 1L03 or MATH 1L03, or one of MATH 1A06, 1AA6, 1C06, 1M03

**COMP SCI 2SB3 ADVANCED PROGRAMMING TECHNIQUES**

Algorithms for the solution of common scientific problems and their efficient implementation in FORTRAN, analysis and estimation of both computational error and program efficiency.

Three lectures; one term

Prerequisite: One of COMP SCI 1MA3, ENGINEER 1D04 and one of MATH 1A06, 1M03, 1N06 and one of MATH 1B03, 1H05, 1L03, STATS 1L03

Antirequisite: COMP SCI 2MC3

**COMP SCI 3CA3 COMPUTER ORGANIZATION AND ASSEMBLER PROGRAMMING**

A second course in computer organization with particular emphasis on assembly language programming and software development tools.

Two lectures, one lab; one term

Prerequisite: COMP SCI 3MG3

**COMP SCI 3EA3 INTRODUCTION TO SOFTWARE ENGINEERING**

Methodologies for the development and maintenance of large programs. Problem specification, program design, implementation, software reliability, testing and modularity. One large team project.

Three lectures; one term

Prerequisite: COMP SCI 2MC3

**COMP SCI 3GA3 INTRODUCTION TO COMPUTER GRAPHICS**

Principles of computer graphics. Data structures and algorithms, hardware and software systems for graphics. Object modelling and display techniques: visual realism, perspective, visibility and shading.

Three lectures; one term

Prerequisite: Credit or registration in MATH 3B03 and COMP SCI 2MD3

**COMP SCI 3IA3 LIST PROCESSING AND LOGIC PROGRAMMING**

Data and control structures for AI systems: symbolic expressions; LISP (lists, list processing functions, forms); POP-11 (user stack, structures, matching, macros, backtracking); resolution principle; basic PROLOG.

Three lectures; one term

Prerequisite: COMP SCI 2MD3 and 2MJ3

**COMP SCI 3MG3 COMPUTER SYSTEM ARCHITECTURE**

Computer systems involving both hardware and software components; control, storage and input/output systems; assemblers, loaders, compilers; introduction to operating systems and virtual memory techniques.

Three lectures; one term

Prerequisite: COMP SCI 1MB3 and 2MF3, or COMP ENG 2HA3

**COMP SCI 3MH3 PRINCIPLES OF OPERATING SYSTEMS**

The purpose, systematic design and implementation of modern operating systems; synchronization of concurrent processes, resource sharing, job scheduling, resource protection, privacy and inter-process communication.

Three lectures; one term

Prerequisite: COMP SCI 2MD3, and 3MG3

**COMP SCI 3MI3 ORGANIZATION OF PROGRAMMING LANGUAGES**

A comparative study of programming languages emphasizing the run-time behaviour of programs. Introduction to formal methods of language definition.

Three lectures; one term

Prerequisite: COMP SCI 2MD3

**COMP SCI 3MP6 PROJECT**

Supervised by faculty members, teams of 2-3 students implement, write up and defend a substantial project, which will normally not originate in the Computer Science Department.

Two terms, occasional tutorials, no lectures

Prerequisite: Registration in Level III of the B.Sc. programme in Computer Science

**COMP SCI 3SC3 SCIENTIFIC INFORMATION PROCESSING**

Techniques of data acquisition and storage. Interpretation and graphical representation of data. Production of technical documents and scientific papers. Telecommunication as a means of acquiring and disseminating scientific knowledge.

Three lectures; one term

Prerequisite: One of COMP SCI 1MB3, 2SB3

**COMP SCI 3SD3 COMPUTER SIMULATION TECHNIQUES**

Techniques for the application of computer simulation software to scientific and

engineering problems, especially queuing and network problems.

Three lectures; one term

Prerequisite: One of COMP SCI 1MB3, 2SB3 or COMP ENG 2YA4

**COMP SCI 3TA3 INTRODUCTION TO AUTOMATA AND FORMAL LANGUAGE THEORY**

Language, classification, definition and properties. Grammars and automata. Regular, context-free and context-sensitive languages. Parallel automata and Petri nets. Applications.

Three lectures; one term

Prerequisite: COMP SCI 2MD3 and one of MATH 2F03, 2J06 or COMP SCI 2MJ3

**COMP SCI 4CB3 SUPERCOMPUTING SYSTEM ARCHITECTURES**

A study of early performance enhancement techniques: pipelining, RISC, VLIW, prefetch, cache; modern high performance systems: mini-, micro-, mainframe supercomputers, array processors; parallelization considerations and vectorization methods.

Two lectures, one lab; one term

Prerequisite: COMP SCI 3MG3 or COMP ENG 3HB3 or credit or registration in PHYSICS 4D06

*Not offered in 1993-1994.*

**COMP SCI 4CC3 ADVANCED OPERATING SYSTEMS**

Modern operating systems: large-scale interactive to small real-time systems; microcomputer/mainframe interconnections; message passing techniques; networks; languages for implementation of distributed operating systems.

Three lectures; one term

Prerequisite: COMP SCI 3MH3

Corequisite: COMP SCI 4CB3

**COMP SCI 4CD3 DISTRIBUTED SYSTEM ARCHITECTURES**

Distributed systems: real-time, agent-oriented, heterogeneous, multi-computer, multi-processor; coupling schemes: loose, tight; networking, clustering, software protocols; communication strategies, client/server approaches.

Two lectures; one lab; one term

Prerequisite: COMP SCI 3MG3 and 3MH3

*Not offered in 1993-1994.*

**COMP SCI 4EB3 DATABASE MANAGEMENT SYSTEM DESIGN**

Concepts and structures for the design of database management systems. Topics include: data models, data normalization, data-description languages, query facilities, file organization and security.

Three lectures; one term

Prerequisite: COMP SCI 2MD3 or COMP ENG 2YA4

**COMP SCI 4EC3 DESIGN OF INFORMATION SYSTEMS II**

Advanced software development in the business/industrial environment. Comparative analysis of alternatives to structured design, especially object-oriented techniques.

Three lectures; one term

Prerequisite: COMP SCI 2ME3 or registration in Level IV of a Computer Science programme

**COMP SCI 4ED3 SOFTWARE ENGINEERING APPLICATIONS**

A continuation of COMP SCI 3EA3. Use of advanced software specification techniques and software tools to support program development. A large-scale team project produces high-quality production software.

Three lectures; one term

Prerequisite: COMP SCI 3EA3

**COMP SCI 4GB3 COMPUTATIONAL GEOMETRY**

Discrete geometry from an algorithmic point of view. Searching, subdivision, proximity and intersection. Applications to problems in object modelling, computer graphics, and computer vision.

Three lectures; one term

Prerequisite: Credit or registration in MATH 3B03, and credit in COMP SCI 2MD3 or a grade of at least B- in COMP SCI 1MB3 or 2SB3

**COMP SCI 4IB3 INTRODUCTION TO ARTIFICIAL INTELLIGENCE**

AI disciplines: perception, pattern recognition, machine learning, image processing, scene analysis, speech processing; problem solving, production systems, backtracking, graph search techniques, GPS, STRIPS, PLANNER; PROLOG.

Three lectures; one term

Prerequisite: COMP SCI 3IA3

**COMP SCI 4IC3 THE ARCHITECTURE OF EXPERT SYSTEMS**

"Hands-on" experience in the design and development of knowledge-based systems applying human expertise to specific areas of problem-solving; knowledge representations; knowledge engineering, and knowledge-based programming.

Three lectures; one term

Prerequisite: COMP SCI 3IA3

**COMP SCI 4ID3 ADVANCED TOPICS IN ARTIFICIAL INTELLIGENCE**

Current trends in the field of artificial intelligence. Topics include knowledge representation and acquisition, language understanding, models of cognition and perception, machine learning.

Three lectures; one term

Prerequisite: COMP SCI 4IB3

*Not offered in 1993-1994.*

**COMP SCI 4MP6 PROJECT FOR COMBINED PROGRAMMES**

Under the supervision of a faculty member, teams of 2-3 students implement, write up and defend a substantial project, in the area of the combined programme.

Two terms, Occasional tutorials, No lectures

Prerequisite: Registration in Level IV or V of any combined Honours or combined Major Computer Science programme

Antirequisite: COMP SCI 3MP6, 4CP6, 4EP6, 4IP6, 4TP6, 4ZP6

**COMP SCI 4TB3 COMPILER CONSTRUCTION**

Formal description of programming language syntax and semantics. Compiler concepts and techniques, compiler-compiler methods.

Three lectures; one term

Prerequisite: COMP SCI 3MI3

Antirequisite: COMP ENG 4HF3

**COMP SCI 4TC3 RECURSIVE FUNCTION THEORY AND COMPUTABILITY**

Turing machines, recursive and primitive recursive functions, decidability and undecidability with applications to formal language theory, logic and algebra.

Three lectures; one term

Prerequisite: COMP SCI 3TA3

Antirequisite: MATH 4S03

**COMP SCI 4TD3 DESIGN AND ANALYSIS OF ALGORITHMS**

Techniques for the design and analysis of algorithms, especially divide-and-conquer, greedy, and backtracking algorithms. An introduction to computational complexity. Analysis of particular algorithms of practical or theoretical importance in computer science.

Three lectures; one term

Prerequisite: COMP SCI 2MD3, 2MJ3 and one of MATH 2B06, 2F03, 2J06

**COMP SCI 4Z03 DIRECTED READINGS**

Directed readings in an area of computer science of interest to the student and the instructor.

Prerequisite: Permission of the Chair of the Department and registration in Level IV of an Honours programme in Computer Science

**COMP SCI 4ZP6 PROJECT**

Under the supervision of a faculty member, teams of two to three students implement, write up and defend a substantial project in one of the areas of specialization.

Occasional tutorials, no lectures; two terms

Prerequisite: Registration in Level IV of Honours Computer Science or Computer Science Major

Antirequisite: COMP SCI 3MP6, 4CP6, 4EP6, 4IP6, 4MP6, 4TP6

**DRAMA**

**Faculty as of January 15, 1993**

Chair

Brian Pocknell

Professors

Antony Hammond/B.A. (*New Zealand*), M.A., Ph.D., (*Auckland*)

Daniel Lipton/part-time

Richard Monette/part-time

Graham Petrie/M.A. (*St. Andrews*), B.Litt. (*Oxford*)

Ronald W. Vince/B.A. (*McMaster*), M.A. (*Rice*), Ph.D., (*Northwestern*)

David William/part-time

Associate Professor

Brian S. Pocknell/M.A. (*Manchester*), D. de l'U. (*Paris-Sorbonne*)/French & Drama Assistant

**Professors**

Stephen B. Johnson/B.A. (*Guelph*), M.A. (*Toronto*), Ph.D. (*New York*)

**Lecturer**

Elizabeth M. Inman/B.A. (*London*)

**Instructors**

Doreen DelVecchio/B.A., M.A., Ph.D. (*McMaster*)/part-time

Gillian Helfield/B.A. (*Western*), M.F.A. (*York*)/part-time

Viv Moore/B.F.A. (*York*)/part-time

Lisbie Rae/B.A. (*McMaster*), M.A. (*Guelph*)/part-time

N. Terry D. Shrive/part-time

**Associate Members**

Laurel A. Braswell-Means/English/B.A., M.A. (*Arkansas*), M.A., Ph.D. (*Toronto*)

Floriano Minelli/Modern Languages/B.A., M.A. (*Western*), Ph.D. (*Brown*)/(*Hispanic Studies*)

Richard E. Morton/English/B.A. (*Wales*), B.Litt. (*Oxford*)

W. Graham Roebuck/English/B.A. (*Durham*), M.A. (*McMaster*), Ph.D. (*London*)

George Thomas/Modern Languages/B.A., Ph.D. (*London*)/(*Russian*)

David C. Wilson/Physical Education/B.Ed. (*Bristol*), M.A. (*York*)

**Department Note:**

**Practicum Courses:** Practicum courses are open only to students registered in Drama programmes. Each practicum course carries one unit of academic credit, and requires 24 hours of instruction over a six-week or a 12-week period. Students registered in an Honours or a Combined Honours programme in Drama may include up to six units of practicum courses in their programmes; students registered in a three-level programme in Drama may take up to three units of practicum courses. No student may register in more than two practicum courses in a single academic session. Practicum courses must be taken as work over and above the total number of units required for the degree programme. Details regarding the following practicum courses can be obtained from the Drama Chair.

DRAMA 2EE1/Mind-Body Integration (Same as PR 30)

DRAMA 2G01/Modern Dance I (Same as PR 21)

DRAMA 3GG1/Jazz Dance I (Same as PR 25)

DRAMA 3HH1/Social Dance (Same as PR 22)

DRAMA 3I01/Folk Dance (Same as PR 20)

**Courses****DRAMA 1A06 INTRODUCTION TO DRAMA**

An exploration of theatrical media. Emphasis will be placed on the study of plays from major periods of Western drama. The relationship of theatre to film, opera and other performing arts will be introduced.

Two lectures, one tutorial; two terms

**DRAMA 2A06 THE ART OF ACTING**

An exploration of the theories and methods that inform the actor's art, designed to expose the student to the range and complexity of performance styles used in the contemporary theatre. The class will be organized around the preparation of performances using Realist, Epic and Collective approaches.

Two studio (three hours); two terms

Prerequisite: DRAMA 1A06, with a grade of at least B-Students wishing to take this course must complete a departmental application form during preregistration to guarantee consideration.

*Enrolment is limited and is by selection, based on academic achievement.*

**DRAMA 2D06 THE DRAMATIC TEXT**

An examination of the different kinds of texts produced for dramatic purposes (both performance and reading) from the Greeks to the present, including plays, musical scores, texts for film and television, and other forms of production documents. Problems arising from the transmission of texts will be discussed, as well as how theatrical texts can be studied to yield maximum information.

Three hours (lectures and discussion groups); two terms

Prerequisite: DRAMA 1A06

**DRAMA 2M06 HISTORY OF THEATRICAL PERFORMANCE IN THE WESTERN WORLD**

A survey of the traditions of Western theatrical production from Classical Greece to the present, including architecture, design, stage machinery, the organization of production, the training and preparation of the actor, and the expectation of the audience. Some emphasis will be placed on the social context of theatre, and on research methods and problems.

Two lectures, plus evening lab; two terms

Prerequisite: DRAMA 1A06

**DRAMA 2X06 THE ART OF THE FILM**

An introduction to film style and technique through a detailed critical analysis of major works from the silent period to the present day.

Two lectures, plus one weekly film screening; two terms

Prerequisite: Six units from the Faculty of Humanities and registration in Level II and above

Cross-list: ART HIST 2X06

**DRAMA 3A03 TOPICS IN ACTING**

A study of the styles of acting used to interpret historical texts in performance, including the study and presentation of scenes from Classical Greece and Medieval Britain.

Two studio (three hours); one term

Prerequisite: DRAMA 2A06

Antirequisite: DRAMA 3A06

**DRAMA 3AA3 ACTING SHAKESPEARE**

A study of the styles of acting used to interpret historical texts, emphasizing the study and presentation of scenes from the plays of Shakespeare and his contemporaries.

Two studio (three hours); one term

Prerequisite: DRAMA 2A06

Antirequisite: DRAMA 3A06

**DRAMA 3B03 INDEPENDENT STUDY IN DRAMA I**

Students who wish to undertake independent study must consult the Drama Chair prior to registration.

One term

Prerequisite: Registration in a programme in Drama and permission of the Department

**DRAMA 3C03 MODERN EUROPEAN DRAMA FROM IBSEN TO PIRANDELLO**

A study of representative plays by eight major dramatists, including Strindberg, Chekhov, Gorki, Wedekind and Kaiser.

One seminar (two hours), plus play readings; one term

Prerequisite: Six units of Level II Drama

Cross-list: COMP LIT 3E03

*Offered in alternate years.*

**DRAMA 3CC3 MODERN EUROPEAN DRAMA FROM BRECHT TO THE PRESENT**

A study of representative plays by ten major dramatists, including Garcia Lorca, Cocteau, Frisch, Sartre, Weiss, Genet, Dario Fo.

One seminar (two hours), plus play readings; one term

Prerequisite: Six units of Level II Drama

Cross-list: COMP LIT 3CC3

*Offered in alternate years.*

**DRAMA 3D03 TECHNICAL ASPECTS OF THE THEATRE**

A survey of the theory and practice of all the technical skills involved in a theatrical production: set design, set construction, lighting, sound, carpentry, properties, costumes. Technical assistance with Drama productions.

Two hours, first term; one hour (workshop), second term

Prerequisite: Registration in a programme in Drama and permission of the Department.

*Students wishing to take this course must complete a departmental application form during preregistration to guarantee consideration.*

*Enrolment is limited.*

**DRAMA 3E03 PRODUCTION AND STAGE MANAGEMENT**

A study of the organizational skills involved in a theatrical production. In addition to lecture/discussion, each student will be involved in two productions during the academic year, once as producer and once as stage manager.

Two hours, first term; one hour (workshops), second term

Prerequisite: Registration in a programme in Drama and permission of the Department.

*Students wishing to take this course must complete a departmental application form during preregistration to guarantee consideration.*

*Enrolment is limited.*

**DRAMA 3F03 OPERA II: ROMANTIC TO MODERN**

An analysis of selected operatic works from 1850 to the present, tracing the evolution of opera as a theatrical and musical form.

Three lectures; one term

Prerequisite: One of DRAMA 2D06, 2M06. DRAMA 3I03 is recommended.

*Offered in alternate years.*

**DRAMA 3FF3 STUDIES IN OPERA**

Previous topics include: Giuseppe Verdi, The Gramophone and the Voice. Consult the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: One of DRAMA 2D06, 2M06. One of DRAMA 3F03, 3I03 is recommended.

*Offered in alternate years.*

*DRAMA 3FF3 may be repeated, if on a different topic, to a total of six units.*

**DRAMA 3G03 PERFORMANCE HISTORY BEFORE 1800**

An examination of issues in the study of Western theatrical tradition.

Three lectures; one term

Prerequisite: One of DRAMA 2D06, 2M06

*Offered in alternate years.*

**DRAMA 3GG3 COMPARATIVE THEATRE**

A comparison of two or more theatrical traditions.

Three lectures; one term

Prerequisite: One of DRAMA 2D06, 2M06

*Offered in alternate years.*

**DRAMA 3H03 LITERATURE AND FILM**

An examination of the particular characteristics of both literature and film and the relationships between them through a detailed study of selected novels, short stories and plays and the films that have been based on them.

Three lectures, plus one weekly film screening; one term

Prerequisite: Registration in Level III of IV of a programme in Drama or Literature or Art History. DRAMA 2X06 is recommended.

Cross-list: ART HIST 3CC3, COMP LIT 3L03, ENGLISH 3CC3

*Offered in alternate years.*

**DRAMA 3I03 OPERA I: RENAISSANCE TO ROMANTIC**

An analysis of selected operatic works from 1600 to 1850, exploring the nature of opera as a theatrical and musical form.

Three lectures; one term

Prerequisite: One of DRAMA 2D06, 2M06

*Offered in alternate years.*

**DRAMA 3J03 TOPICS IN FILM**

Previous topics include: Genre Studies, Film Comedy. Consult the Department concerning topic to be offered.

Two lectures, plus one weekly film screening; one term

Prerequisite: DRAMA 2X06

Cross-list: ART HIST 4S03

*DRAMA 3J03 may be repeated, if on a different topic, to a total of six units.*

**DRAMA 3L03 MODERN EUROPEAN THEATRE HISTORY**

A study of the major influences that have shaped the growth of modern theatre movements in Europe from the late nineteenth century to the present.

One seminar (two hours); one term

Prerequisite: Six units of Level II Drama

*Offered in alternate years.*

**DRAMA 3LL3 AMERICAN AND CANADIAN THEATRE HISTORY**

A study of the development of theatrical performance in the United States and Canada.

Seminar (two hours); one term

Prerequisite: Six units of Level II Drama

*Offered in alternate years.*

**DRAMA 3P06 PLAYS IN PERFORMANCE**

This course is offered in conjunction with the McMaster Stratford Seminars. In addition to regular evening classes, students are required to spend five full-time days in Stratford participating in the seminars, researching, and attending performances of the set plays.

Two, two-hour lectures/seminars weekly, Spring/Summer session only

Prerequisite: Registration in Level II and above

*DRAMA 3P06 may be repeated, if on a different topic, to a total of 12 units.*

**DRAMA 3R03 THE AMERICAN CINEMA I**

A survey of some of the predominant features of the American Cinema from its beginning to 1950. Emphasis will be placed both on the artistic value of the films and on their social significance and impact.

Two lectures, plus one weekly film screening; one term

Prerequisite: DRAMA 2X06; or permission of the Department

Cross-list: ART HIST 3F03

**DRAMA 3RR3 THE AMERICAN CINEMA II**

A survey of some of the predominant features of the American Cinema from 1950 to the present day. Emphasis will be placed both on the artistic value of the films and on their social significance and impact.

Two lectures, plus one weekly film screening; one term

Prerequisite: DRAMA 2X06; or permission of the Department

Cross-list: ART HIST 3FF3

**DRAMA 3T03 TOPICS IN NATIONAL CINEMAS I**

Previous topics include: Soviet and East European Cinema. Consult Department concerning topic to be offered.

Two lectures, plus one weekly film screening; one term

Prerequisite: DRAMA 2X06

*DRAMA 3T03 may be repeated, if on a different topic, to a total of six units.*

Cross-list: ART HIST 3T03 and Modern Languages 3T03.

**DRAMA 3TT3 TOPICS IN NATIONAL CINEMAS II**

Previous topics include: Canadian Cinema and French Cinema. Consult Department concerning topic to be offered.

Two lectures, plus one weekly film screening; one term

Prerequisite: DRAMA 2X06

*DRAMA 3TT3 may be repeated, if on a different topic, to a total of six units.*

Cross-list: ART HIST 3TT3

**DRAMA 3Z03 INDEPENDENT STUDY IN PRACTICAL THEATRE ]**

Students who wish to undertake independent study must consult the Drama Chair prior to registration.

One term

Prerequisite: Registration in a programme in Drama and permission of the Department

**DRAMA 4A06 PRINCIPLES OF STAGE DIRECTING**

Play analysis, schedule planning, rehearsal techniques, technical stagecraft required to bring a play to performance. Direction of a play for performance under the supervision of the instructor.

Class meets twice a week, total five hours; two terms

Prerequisite: (In 1993-94): DRAMA 3A06 and registration in Level III or IV of an Honours programme in Drama.

Prerequisite: (In 1994-95): DRAMA 2A06 and one of 3A03, 3AA3, 3D03 or 3E03; and registration in Level III or IV of an Honours programme in Drama.

*Students wishing to take this course must complete a departmental application form during preregistration to guarantee consideration.*

*Enrolment is limited and is based on academic achievement.*

*The Department reserves the right to limit any student's involvement in the Lunch Hour theatre season.*

**DRAMA 4B03 INDEPENDENT STUDY IN DRAMA II**

Students who wish to undertake independent study must consult the Drama Chair prior to registration.

One term

Prerequisite: Registration in a programme in Drama and permission of the Department

**DRAMA 4C03 STUDIES IN THEATRE AND FILM**

Senior seminar: A comparative examination of the stage and film adaptations of selected texts.

Seminar (two hours), plus weekly film screening; one term

Prerequisite: Registration in Level IV of an Honours programme in Drama

*Offered in alternate years.*

**DRAMA 4CC3 STUDIES IN THE THEORY AND PRACTICE OF DRAMA**

Senior seminar: A close examination of a selected text, or selected texts, from the textual, historical and theatrical points of view, leading to a workshop production of that play by members of the seminar.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in Drama

*Offered in alternate years.*

**DRAMA 4E03 STUDIES IN THE THEORY OF DRAMA AND THEATRE**

Senior seminar: An examination of theoretical documents from the Greeks to the present.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in Drama

*Offered in alternate years.*

**DRAMA 4EE3 STUDIES IN CONTEMPORARY DRAMA**

Senior seminar: An examination of selected plays from western drama written since 1956.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in Drama

*Offered in alternate years.*

**DRAMA 4FF3 STUDIES IN FILM**

Senior seminar: An examination of selected films.

## 150 ECONOMICS

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in Drama

Cross-list: ART HIST 4FF3

Offered in alternate years.

The following courses, offered by other departments, directly pertain to the study of Drama. These are recommended as electives. With the approval of the Chair of the Department of Drama, a limited number of courses from this list may be available as substitutes for Drama courses, and counted toward the fulfilment of a programme in Drama. Students are advised that there may be restrictions on enrolment in these courses.

CLASSICS 2H03	THEATRE OF GREECE AND ROME
CLASSICS 2HH3	GREEK AND ROMAN DRAMA
ENGLISH 2B06	DEVELOPMENT OF ENGLISH DRAMA
ENGLISH 3P03	MODERN DRAMA IN ENGLISH
ENGLISH 3K06	SHAKESPEARE
ENGLISH 3XX3	TOPICS IN DRAMA
FRENCH 3BB3	CONTEMPORARY QUEBEC THEATRE
FRENCH 3Q03	17TH-CENTURY FRENCH LITERATURE I
MODERN LANG 3D03	RUSSIAN DRAMA SINCE 1800
MODERN LANG 3G03	GERMAN DRAMA
MODERN LANG 3I03	ITALIAN THEATRE
MODERN LANG 4L03	SURVEY OF SPANISH THEATRE
PHYS ED 4J03	PERSPECTIVES IN DANCE: DANCE IN CONTEMPORARY SOCIETY
WOMEN ST 3B03	TOPICS IN WOMEN AND THE ARTS I: THEATRE AND FILM

## ECONOMICS

### Faculty as of January 15, 1993

#### Chair

Alan Harrison

#### Associate Chair

Martin J. Browning

#### Professors Emeriti

John E.L. Graham/B.A. (Toronto), M.A., B.Litt. (Oxford)  
William D.G. Hunter/B.A. (Oxford), M.A. (Edinburgh)  
R. Craig McIvor/B.A. (Western), M.A., Ph.D. (Chicago), F.R.S.C.  
William R. Scammell/B.Comm.Sc. (Queen's, Belfast), Ph.D. (Wales)  
Robert W. Thompson/B.A. (Toronto), M.A. (Queen's), Ph.D. (London)  
David M. Winch/ B.Sc. (Econ.), Ph.D. (London), M.A. (Cambridge), F.R.S.C.

#### Professors

Syed Ahmad/M.A., LL.B. (Aligarh), M.Sc. (Econ.), D.Sc. (Econ.) (London)  
Martin J. Browning/B.Sc., M.Sc. (London)  
John B. Burbidge/B.A., Ph.D. (McGill)  
Kenneth S. Chan/B.Sc. (Toronto), M.A., Ph.D. (Brown)  
Frank T. Denton/B.A., M.A. (Toronto), F.R.S.C., F.S.S.  
David H. Feeny/B.A. (Northern Illinois), M.A., Ph.D. (Wisconsin-Madison)  
Peter J. George/B.A., M.A., Ph.D. (Toronto)  
Alan Harrison/B.A., M.A., Ph.D. (Essex)  
James A. Johnson/M.A., Ph.D. (Minnesota)  
Atif A. Kubursi/B.A., (American University, Beirut), M.A., Ph.D. (Purdue)  
Stuart Mestelman/B.A. (Pittsburgh), M.S., Ph.D. (Purdue)  
Ernest H. Oksanen/A.M. (Michigan), B.A., Ph.D. (Queen's)  
Martin J. Osborne/B.A. (Cambridge), Ph.D. (Stanford)  
Yorgos Y. Papageorgiou/Dipl. Arch. Eng. (National Technical, Athens), M.C.P., Ph.D. (Ohio State), D.Sc. (Louvain)  
A. Leslie Robb/B.A., M.A. (British Columbia), Ph.D. (Essex)  
William M. Scarth/B.A. (Queen's), M.A. (Essex), Ph.D. (Toronto)  
Byron G. Spencer/B.A. (Queen's), Ph.D. (Rice)  
Michael R. Veall/B.A. (McMaster), M.A. (Western), Ph.D. (M.I.T.)  
James R. Williams/ M.A., Ph.D. (Minnesota)

#### Associate Professors

David W. Butterfield/B.S., M.S. Eng. (Calif. Inst. of Tech.), A.B., M.A., Ph.D. (California-Berkley)  
Donald A. Dawson/A.M. (Chicago), Ph.D. (Western), N.D.C.

Martin D. Dooley/B.A. (Indiana), M.S., Ph.D. (Wisconsin-Madison)  
Stephen R.G. Jones/B.A. (Cambridge), Ph.D. (California-Berkeley)  
Melvin L. Kliman/B.A. (Manitoba), M.A. (Queen's), Ph.D. (Minnesota)  
Peter J. Kuhn/B.A. (Carleton), Ph.D. (Harvard)  
John E. Leach/B.A. (Alberta), M.A., Ph.D. (Queen's)  
Wayne Lewchuk/M.A. (Toronto), Ph.D. (Cambridge)  
Lonnie J. Magee/B.A. Math. (Waterloo), M.A., Ph.D. (Western)  
R. Andrew Muller/B.A. (McGill), M.A., Ph.D. (Toronto)  
J. Douglas Welland/B.A. (McMaster), M.A., Ph.D. (Minnesota)

#### Assistant Professors

Peter J. McCabe/A.B. (Boston College), Ph.D. (Northwestern)

#### Associate Members

M. Luke Chan/(Business) B.Sc. (University of Prince Edward Island), M.A., Ph.D. (McMaster)  
Jeremiah E. Hurley/(Clinical Epidemiology and Biostatistics) B.A. (John Carroll), M.A., Ph.D. (Wisconsin-Madison)  
I. Krinsky/(Business) B.A., M.A. (Tel-Aviv), Ph.D. (McMaster)  
D.C. Mountain/B.A. (McMaster), M.A., Ph.D. (Western)  
Gregory L. Stoddart/(Clinical Epidemiology and Biostatistics) B.A. (Western), Ph.D. (British Columbia)

### Department Notes:

- Not all the Economics courses listed in this Calendar are taught every year. Students are advised to consult the timetable published by the Office of the Registrar, or the Department handbook for information on current offerings.
- Students with strong academic records, particularly those from other departments, may be permitted to enrol in courses for which they have not completed all prerequisites. In cases where prerequisites are incomplete, consultation with a departmental counsellor is required. If approval is granted, the counsellor will arrange for a permission slip from the Department Chair.
- Registration in all courses marked \*\* listed as selected topics, independent research, individual readings, and honours essays requires written permission of the Department. Registration with appropriate permission must be completed no later than the last day for registration as stated in this Calendar in the section *Sessional Dates*.

### Courses

#### ECON 1A06 INTRODUCTORY ECONOMICS

An introduction to the method and theory of economics, and their application to the analysis of contemporary economic problems.

Three hours; two terms

#### ECON 2B03 ANALYSIS OF ECONOMIC DATA I

Application of statistical concepts to the analysis of economic data, with attention to Canadian sources. Regression analysis is emphasized. Topics may also include index numbers.

Three hours; one term

Prerequisite: ECON 1A06 with a grade of at least C-, and MATH 1K03 (or OAC Calculus) and one of MATH 1L03 or STATS 1L03 or 2D03 (or OAC Finite Math)  
Antirequisite: ECON 3O06, CHEM ENG 4C03, COMMERCE 2QA3, GEOG 2LL3, POL SCI 2F06, PSYCH 2G03 or 2R03, SOCIOLOGY 2Y03 or 3H06, or any Statistics course other than STATS 1L03 or 2D03; or a COMMERCE 2QA3 requirement

#### ECON 2C03 ASIAN-PACIFIC ECONOMIES

Economic conditions and factors influencing economic growth in selected countries in the Asia-Pacific region. Topics include government policies related to exchange rates and trade and development, as well as the Japanese style of management, the bonus system and job tenure.

Three hours; one term

Prerequisite: ECON 1A06 with a grade of at least C-.

This course cannot be used to satisfy Economics requirements by students enrolled in Economics programmes or offering Economics as a Minor.

#### ECON 2D03 ECONOMIC ISSUES

Applications of economics to important public issues, from a general interest perspective. Since topics vary from year to year, interested students should consult the Economics department for further details.

Three hours; one term

Prerequisite: ECON 1A06 with a grade of at least C-

This course cannot be used to satisfy Economics requirements by students enrolled in Economics programmes or offering Economics as a Minor.



**ECON 2G03 INTERMEDIATE MICROECONOMICS I**  
Elements of consumer behaviour; production and cost, price and output determination under various market structures; employment of inputs.  
Three hours; one term

Prerequisite: ECON 1A06 with a grade of at least C-, or ECON 1A06 and registration in a Commerce programme; OAC Calculus or MATH 1K03 or equivalent. Students without credit in MATH 1M03 or equivalent are strongly advised to take it concurrently with ECON 2G03.  
Antirequisite: ECON 2L06

**ECON 2GG3 INTERMEDIATE MICROECONOMICS II**  
Price and output determination under various noncompetitive market structures; factor input markets; general equilibrium; welfare; topics in consumer theory.  
Three hours; one term

Prerequisite: ECON 2G03  
Antirequisite: ECON 2L06

**ECON 2H03 INTERMEDIATE INCOME AND EMPLOYMENT THEORY I**  
National income accounting, determinants of national income, employment, the rate of interest and the price level; introduction to open economy.  
Three hours; one term

Prerequisite: ECON 1A06 with a grade of at least C-, or ECON 1A06 and registration in a Commerce programme; OAC Calculus or MATH 1K03 or equivalent. Students without credit in MATH 1M03 or equivalent are strongly advised to take it concurrently with ECON 2H03.  
Antirequisite: ECON 2M06

**ECON 2HH3 INTERMEDIATE INCOME AND EMPLOYMENT THEORY II**  
Selected topics from macroeconomics policies, issues in unemployment and inflation in open and closed economies, components of aggregate demand and supply and economic growth.  
Three hours; one term

Prerequisite: ECON 2H03  
Antirequisite: ECON 2M06

**ECON 2K03 ECONOMIC HISTORY OF CANADA**  
A survey of the changing structure of the Canadian economy from the colonial period to the present; early significance of primary production for export markets; emerging domestic markets and industrialization; government's role in promoting the development of the national economy.  
Three hours; one term

Prerequisite: At least C- in ECON 1A06

**ECON 2T03 ECONOMICS OF TRADE UNIONISM AND LABOUR**  
Topics will include the economics of the labour market, of trade unionism, of work, the impact of trade unions on the labour market, economic theories of strikes and trade unions and the state.  
Lectures and discussion; one term

Prerequisite: ECON 1A06  
Cross-list: LABR ST 3B03  
*Enrolment is limited.*

**ECON 3A03 ADVANCED ECONOMIC THEORY I**  
Mathematically oriented approaches to the analysis of the behaviour of individual consumers, workers and firms.  
Three hours; one term

Prerequisite: MATH 1M03 and an average of at least 7.0 in ECON 2G03, 2GG3 (2L06), 2H03, 2HH3 (or 2M06); ECON 3G03

**ECON 3AA3 ADVANCED ECONOMIC THEORY II**  
Comparative static and dynamic analysis of macroeconomic models.  
Three hours; one term

Prerequisite: MATH 1M03 and an average of at least 7.0 in ECON 2G03, 2GG3 (or 2L06); 2H03, 2HH3 (or 2M06); ECON 3G03

**ECON 3B03 PUBLIC SECTOR ECONOMICS**  
Theory and practice of public finance. Topics are selected from growth of the public sector, market failure, theory of public goods, incentive mechanisms, logic of group decisions and the political process, theory of benefit-cost analysis, intergovernmental fiscal relations, government budgeting.  
Three lectures; one term

Prerequisite: ECON 2G03 or 2L06  
Antirequisite: ECON 3C06

**ECON 3C03 PUBLIC SECTOR ECONOMICS: TAXATION**  
Theory and practice of public finance: analysis and comparison of the efficiency, equity and distribution effects of the taxation of income, wealth and

expenditure, analysis of social insurance, intergovernmental fiscal relations.  
Three hours; one term

Prerequisite: ECON 2G03 or 2L06  
Antirequisite: ECON 3C06

**ECON 3D03 LABOUR ECONOMICS**  
Introduction to the economics of the labour market; demand for labour by the firm and industry; supply of labour by the individual; investment in human capital.  
Three hours; one term

Prerequisite: ECON 2G03 or 2L06

**ECON 3E03 TOPICS IN LABOUR ECONOMICS**  
Topics will vary from year to year. The following are given as examples: economic goals and effects of unions; labour mobility; labour force participation; wage differentials; discrimination; unemployment.  
Three hours; one term

Prerequisite: ECON 3D03, and ECON 2B03 or 3O06 or an equivalent Statistics course

**ECON 3F03 METHODS OF INQUIRY IN ECONOMICS**  
Inquiry courses are designed to develop skills basic to systematic investigation of public issues. These skills include those involved in formulating questions, gathering and interpreting evidence from a variety of sources, evaluating arguments, and reaching well-considered conclusions. This course includes lectures and exercises on advanced methods of library research and an introduction to computers.  
Three hours; one term

Prerequisite: Registration in Level III or Level IV of an Honours Economics or Combined Honours Economics programme

**ECON 3G03 INTRODUCTION TO ADVANCED ECONOMIC THEORY**  
An introduction to the application of mathematics in economic theory.  
Three hours; one term

Prerequisite: One of OAC Finite Math, MATH 1B03 or 1L03, or STATS 1L03; MATH 1M03 or equivalent; and an average of at least 7.0 in ECON 2G03, 2GG3 (or 2L06), 2H03, 2HH3 (or 2M06)

**ECON 3H03 INTERNATIONAL MONETARY ECONOMICS**  
Balance of payments and economic problems of an open economy with special reference to Canada; the international financial system and proposals for its reform.  
Three hours (lectures and seminars); one term

Prerequisite: ECON 2H03 or 2M06, and registration in any programme in Economics

**ECON 3HH3 INTERNATIONAL TRADE**  
Real theory of international trade; interregional and international specialization; effect of commercial and industrial policies.  
Three hours; one term

Prerequisite: ECON 2G03 or 2L06, and registration in any programme in Economics

**ECON 3I03 ECONOMIC HISTORY OF THE UNITED STATES**  
Economic analysis of the development of the U.S. economy. Topics include the colonial economy, slavery, transportation, income distribution, foreign trade, technical and institutional change and the Great Depression.  
Three lectures; one term

Prerequisite: ECON 2G03 or 2L06. ECON 2H03 or 2M06 is recommended.

**ECON 3J06 ECONOMIC DEVELOPMENT**  
Analysis of economies of less developed countries. Topics include structural change, dual economies, agriculture, population, savings, financial development, income distribution, trade and policy.  
Three hours; two terms

Prerequisite: ECON 2G03 or 2L06, and ECON 2H03 or 2M06

**ECON 3K03 MONETARY ECONOMICS AND FINANCIAL ORGANIZATION: THEORY AND POLICY**

Objectives, organization and operation of the financial sector; financial intermediaries in the capital market; mechanism of international payments; monetary theory and policy concerning Canadian allocative and stability objectives.  
Three hours; one term

Prerequisite: ECON 2G03 or 2L06, and ECON 2H03 or 2M06

**ECON 3L03 MARXIAN ECONOMICS**  
An examination of the foundations of Marxist economic thought; Marxism as a theory of the capitalist system; the place of Marxian doctrine in contemporary economic analysis.



## 152 ECONOMICS

Three lectures; one term

Prerequisite: ECON 2G03 or 2L06

### **ECON 3LL3 HISTORY OF ECONOMIC THEORY**

Economic thought from earliest times, with emphasis on the major schools from Adam Smith to Alfred Marshall, selected modern trends and controversies.

Three hours; one term

Prerequisite: ECON 2G03 or 2L06; ECON 2H03 or 2M06

Antirequisite: ECON 4C06

### **ECON 3N03 PUBLIC POLICY TOWARD BUSINESS**

The economic effects of federal competition policy and the regulation of business by all levels of government. The impact of government ownership and bail-out activity on the Canadian business environment is also analyzed.

Three hours; one term

Prerequisite: ECON 2G03 or 2L06

Antirequisite: ECON 3N06

### **ECON 3O06 ECONOMIC STATISTICS**

Statistical analysis as a basic research technique in economics, emphasizing estimation and statistical inferences, including linear regression models. Applications are drawn from micro and macroeconomics. Computer-oriented exercises are employed throughout the course.

Three lectures; two terms

Prerequisite: Registration in an Honours Economics programme. ECON 2G03 or 2L06, and ECON 2H03 or 2M06; one of OAC Finite Math, MATH 1L03 or STATS 1L03 or STATS 2D03

Antirequisite: STATS 3D06

*Students with credit in any of CHEM ENG 4C03, COMMERCE 2QA3, GEOG 2LL3, POL SCI 3G03, PSYCH 2G03 or 2R03, SOCIOL 2Y03 or 3H06, or any Statistics courses other than STATS 2D03, may receive only three additional units for ECON 3O06*

### **ECON 3P03 LINEAR ECONOMIC MODELS**

Application and interpretation in economics of linear programming, game theory and inter-industry analysis.

Three hours; one term

Prerequisite: One of OAC Finite Math, MATH 1B03 or 1L03, or STATS 1L03; at least C- in each of MATH 1M03, ECON 2G03 (or 2L06), and 2H03 (or 2M06). Credit in MATH 1A06, 1AA6, 1C06 or 1N06 is accepted in place of C- in MATH 1M03.

### **ECON 3S03 INDUSTRIAL ORGANIZATION**

A study of the structure, conduct and performance of industrial markets.

Three lecture; one term

Prerequisite: ECON 2G03 or 2L06

Antirequisite: ECON 3N06

### **ECON 3U03 ANALYSIS OF ECONOMIC DATA II**

Elaboration of regression techniques developed in ECON 2B03. Problems of inference and interpretation in the analysis of economic data. Introduction to forecasting in economics.

Three hours; one term

Prerequisite: ECON 2G03 or 2L06, and ECON 2H03 or 2M06, and ECON 2B03

Antirequisite: ECON 4G03

### **ECON 3W03 NATURAL RESOURCES**

Competitive and socially optimal exhaustion of nonrenewable resources; market failure as illustrated by mineral cartels, fisheries and forestry; environmental economics.

Three hours (lectures and seminars); one term

Prerequisite: ECON 2G03 or 2L06, and MATH 1M03

### **ECON 3X03 URBAN MODELS AND POLICY ANALYSIS I**

A survey of modern literature on urban social structure. Topics include morphology, adjustments to change, and such phenomena as sudden urban growth and the decline of central cities.

Three lectures; one term

Prerequisite: ECON 2G03 (or 2L06), or GEOG 2B03

Antirequisite: Registration only in Geography and/or GEOG 3X03

### **ECON 3Y03 SELECTED TOPICS I**

Topics will vary from year to year depending on student interests and faculty availability. Students should consult the Department on topics to be offered.

Three hours; one term

Prerequisite: Permission of the Department

### **ECON 3YY3 SELECTED TOPICS II**

As per ECON 3Y03.

Three hours; one term

Prerequisite: Permission of the Department

### **ECON 3Z03 HEALTH ECONOMICS**

Analysis of allocation of resources in health care. Topics include markets for health care, insurance, biomedical research, technology assessment, organization and public policy.

Three hours; one term

Prerequisite: ECON 2G03 or 2L06. ECON 2B03 or another course in statistics is recommended.

### **ECON 4A03\*\* HONOURS SEMINAR IN ECONOMICS**

Students prepare, present and discuss papers under supervision of a faculty member. Several sections will normally be offered. Topics for each section will be announced in January.

Three hours; one term

Prerequisite: ECON 2GG3, 2HH3, 3U03 or 3O06, 3F03 and permission of the Department

### **ECON 4E03 TOPICS IN MICROECONOMICS**

Applications of advanced microeconomic theory. Consult the Economics Department for 1993-94 topic.

Three hours; one term

Prerequisite: At least C- in ECON 3A03

### **ECON 4F03 TOPICS IN MACROECONOMICS**

Applications of advanced macroeconomic theory. Consult the Economics Department for 1993-94 topic.

Three hours; one term

Prerequisite: At least C- in ECON 3AA3

### **ECON 4G03 ECONOMETRICS I**

Development of regression models appropriate to economics. Illustrations from applied micro- and macroeconomics.

Three hours; one term

Prerequisite: ECON 2G03 (or 2L06), and ECON 2H03 (or 2M06), and at least C- in ECON 3O06 or STATS 2D03 and 2MB3 (or 2M03)

### **ECON 4GG3 ECONOMETRICS II**

Special topics in econometrics, including identification in simultaneous equations models in micro- and macroeconomics and topics in the analysis of time series.

Three hours; one term

Prerequisite: ECON 4G03

### **ECON 4M06\*\* DIRECTED RESEARCH I**

A reading and/or research programme supervised by a Department member. A major paper is required. Students should consult the Department concerning admission.

Prerequisite: Permission of the Department

### **ECON 4N03\*\* DIRECTED RESEARCH II**

As per ECON 4M06.

Prerequisite: Permission of the Department

### **ECON 4X03\*\* URBAN MODELS AND POLICY ANALYSIS II**

A survey of modern literature on urban issues. Topics include welfare criteria, externalities, public goods and fiscal policies.

Three lectures; one term

Prerequisite: ECON 3X03 or GEOG 3X03

Cross-list: GEOG 4X03

For Graduate courses, see the *Calendar of the School of Graduate Studies*.

## EIGHTEENTH-CENTURY STUDIES

(SEE MINORS AND THEMATIC AREAS OF STUDY)

# ELECTRICAL AND COMPUTER ENGINEERING

Faculty as of January 15, 1993

## Chair

K.M. Wong

## Professors Emeriti

Colin K. Campbell/B.Sc. (Eng.), Ph.D. (St. Andrews), D.Sc. (Dundee), S.M. (M.I.T.), F.R.S.C., F.R.S.A., F.E.I.C., F.I.E.E.E., P.Eng.  
Arthur S. Gladwin/D.Sc. (Glasgow), Ph.D. (London)  
Reuven Kitai/M.Sc., D.Sc. (Witwatersrand)  
Naresh K. Sinha/B.Sc. (Eng.) (Banaras), C.Eng., Ph.D. (Manchester), F.I.E.E., P.Eng.

## Professors

Robert T.H. Alden/B.A.Sc., M.A.Sc., Ph.D. (Toronto), P.Eng.  
John W. Bandler/B.Sc. (Eng.), Ph.D., D.Sc. (Eng.) (London), A.C.G.I., D.I.C. (Imperial College), C.Eng., F.R.S.C., F.I.E.E., F.I.E.E.E., P.Eng.  
Radek M. Biernacki/M.Sc., Ph.D. (Warsaw)/part-time  
Charles R. Carter/B.A.Sc., M.A.Sc., (British Columbia), Ph.D. (McMaster), P.Eng.  
David R. Conn/B.Sc., M.Sc., Ph.D. (Queen's), NSERC Industrial Research Chair in Monolithic Microwave Integrated Circuits, BNR/NSERC Chair.  
Mohamed A. El-Kady/B.Sc. (Eng.), M.Sc. (Eng.) (Cairo), Ph.D. (McMaster), S.M.I.E.E.E., P.Eng./part-time  
Raymond D. Findlay/B.A.Sc., M.A.Sc., Ph.D. (Toronto), P.Eng.  
Simon Haykin/B.Sc., Ph.D., D.Sc. (Birmingham), F.R.S.C., F.I.E.E.E.  
John Litva/B.Sc. (British Columbia), M.Sc., Ph.D. (Western Ontario)/NSERC Industrial Research Chair in Communication Antennas  
David L. Parnas/B.S., M.S., Ph.D. (Carnegie), Dr.h.c. (ETH Zuerich)  
James P. Reilly/B.A.Sc. (Waterloo), M.Eng., Ph.D. (McMaster), P.Eng.  
Barna Szabados/Dipl.Eng. (Grenoble), M.Eng., Ph.D. (McMaster), P.Eng.  
Kon Max Wong/B.Sc. (Eng.), Ph.D. (London), D.I.C. (Imperial College), P.Eng., C.Eng., F.I.E.E., F.Inst.P., F.S.S.

## Associate Professors

Mark M. Burin/M.Sc. (Brno), Ph.D. (Bratislava)/part-time  
David W. Capson/B.Sc.Eng. (New Brunswick), M.Eng., Ph.D. (McMaster), P.Eng.  
Stephen H. Chisholm/B.A.Sc. (Toronto), Ph.D. (London)  
T.Z-Q. Luo/B.Sc. (Peking), Ph.D. (M.I.T.)  
Terence D. Todd/B.A.Sc., M.A.Sc., Ph.D. (Waterloo)

## Assistant Professors

Youssef H. Dableh/B.Sc.Eng., M.Sc.Eng. (New Brunswick), Ph.D. (McMaster), P.Eng./part-time  
Li Michael Liu/B.Sc.Eng. (China University of Science and Technology), M.Eng. (Beijing University of Science and Technology), Ph.D. (McMaster)/part-time  
Daniel C. McCrackin/B.Eng., M.Eng., Ph.D. (McMaster)  
Peter M. Smith/B.Eng.Mgt., M.Eng., Ph.D. (McMaster)  
Ke-Li Wu/B.Sc., M.Sc. (East China Institute of Technology), Ph.D. (Laval)  
Q.T. Zhang/B.Eng. (Tsinghua), M.Eng. (S.C.T.C.), Ph.D. (McMaster)/part-time

## Associate Members

Alexander A. Berezin/B.Sc., M.Sc., Ph.D. (Leningrad State)  
Ivan Bruha/Dipl.Ing. (CVUT, Prague), RNDr (Charles, Prague), Ph.D. (CVUT, Prague)  
D.T. Cassidy/B.Eng. (McMaster), M.Sc. (Queen's), Ph.D. (McMaster)  
J.S. Chang/M.Eng., B.Eng., B.Edu.Eng. (Japan), Ph.D. (York)  
Hubert deBruin/M.Eng., Ph.D. (McMaster), P.Eng.  
M.A. ElBesawi/B.Sc. (Alexandria), M.Eng., Ph.D. (McMaster)  
Jan Dirk Huizinga/B.Sc., M.Sc., Ph.D. (Groningen)  
Ryszard Janicki/M.Sc. (Warsaw), Ph.D., D.Hab. (Polish Acad. Sci.)  
Paul E. Jessop/B.Sc. (Waterloo), M.A., Ph.D. (Harvard)  
Tao Jiang/B.Sc. (University of Science and Technology of China, Hefei), Ph.D. (Minnesota)  
Adrian Kitai/B.Eng. (McMaster), Ph.D. (Cornell), P.Eng.  
Ali-Reza Montazemi (Business) H.N.D. (Teesside Polytechnic, U.K.), M.Sc. (Southampton), Ph.D. (Waterloo)

Claude Nahmias/B.Sc. (Cairo), Ph.D. (Surrey)  
Lionel David Pengelly/B.A.Sc. (Toronto), M.Sc., Ph.D. (McGill), P.Eng. W.F.  
Skipper Poehlman/B.S. (Niagara), B.Sc. (Brock), M.Sc., Ph.D. (McMaster)  
Sanzheng Qiao/B.S., M.S. (Shanghai Teacher's College), M.S., Ph.D. (Cornell)  
David A. Thompson/B.Sc., Ph.D. (Reading)  
Patrick C. Yip/B.Sc. (Memorial), Ph.D. (McMaster)

## Lecturer

Peter J. Edmonson/Dipl. T. (Mohawk), B.Eng., M.Eng. (McMaster), P.Eng./part-time

## COMPUTER ENGINEERING ...

### Courses

#### COMP ENG 2HA3 DIGITAL CIRCUITS

Number systems; Boolean algebra, switches, logic gates, simplification of Boolean functions, combinational logic, flipflops, analysis and design of clocked sequential circuits.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: Registration in a programme in Computer or Electrical Engineering or Engineering Physics or Physics

#### COMP ENG 2KA3 COMPUTATIONAL METHODS

Computational techniques for solving electrical engineering problems; linear and non-linear equations; eigen decompositions; numerical integration, differentiation; differential equations; interpolation; numerical stability and computational efficiency.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: ENGINEER 1D04, MATH 1H05, 1N06, and registration or credit in ELEC ENG 2BA3

#### COMP ENG 2YA3 DATA STRUCTURES AND COMPUTER ALGORITHMS

Data structures; lists, stacks, trees, file management; sorting algorithms; semi-numeric algorithms; graph algorithms.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: ENGINEER 1D04, and registration in a Computer Engineering programme

#### COMP ENG 3HB3 DIGITAL COMPUTER PRINCIPLES

Elements of digital computers; register transfer logic; memory; operation, organization and control of central processor unit.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: COMP ENG 2HA3

#### COMP ENG 3HC3 MICROPROCESSOR SYSTEMS

Microprocessor architecture, programming, timing, memory interfacing and interrupt handling using 8086; peripheral interfaces including handshaking, PPI, UART, keyboards, CRT, timers and event counters; system bus structures.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: Registration or credit in COMP ENG 3HB3

#### COMP ENG 3KB3 SIMULATION AND OPTIMIZATION I

Optimization-oriented computer-aided engineering; CAD systems; optimization fundamentals and algorithms; non-linear equations; approximation practice; adjoint network gradients; sensitivities, tolerances.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: COMP ENG 2KA3 and ELEC ENG 2DA3

#### COMP ENG 3VA3 SOFTWARE ENGINEERING

Software life-cycle; planning; requirements analysis; the design process and methods; design tools; testing; maintenance; software reliability. Application of design methods in a group project.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: COMP ENG 2YA3 and registration in a Computer Engineering programme

#### COMP ENG 4HD3 ADVANCED COMPUTER DESIGN

Advanced topics in computer design: processor control; I/O implementation; processor and memory acceleration; instruction set design for high level languages; virtual machines; multiprocessing.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: COMP ENG 3HB3

#### COMP ENG 4HE3 ADVANCED REAL TIME COMPUTING SYSTEMS

Real time systems, jobs and tasks; disk management; real time implementation; multiprocessor systems.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: COMP ENG 3HB3

**COMP ENG 4HF3 COMPILER DESIGN AND IMPLEMENTATION**

Lexical analysis; scanner construction; syntax analysis and syntax-directed translation; compiler compilers; intermediate code generation; code generation and optimization.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: Registration in Level IV Computer Engineering or Computer Science

Antirequisite: COMP SCI 4TB3

**COMP ENG 4JA4 THESIS PROJECT**

An experimental investigation or design project to be carried out by the student, to test initiative, grasp of the subject and capacity for independent work.

Two labs (three hours); both terms

Prerequisite: Registration in Level IV of Computer Engineering or Level V of Computer Engineering and Management

**COMP ENG 4KC3 SIMULATION AND OPTIMIZATION II**

Analog IC and system simulation; advanced optimization techniques; design centring, tolerancing and tuning; use of professional CAD software; VLSI and MMIC applications.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: COMP ENG 3KB3

**COMP ENG 4MA3 COMPUTER COMMUNICATION NETWORKS**

Modern communication networks; switching methods; open systems interconnection architecture; design of communication subnetworks; local and metropolitan area networks; communication protocols; Fiberoptic systems; integrated services digital networks.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: ELEC ENG 3AA3

**COMP ENG 4WA3 OPERATING SYSTEM DESIGN**

Systematic design and implementation of operating systems: synchronization of concurrent processes, resource sharing and protection, file systems, memory management and virtual memory.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: COMP ENG 2YA3 and registration in a Computer Engineering programme

**ELECTRICAL ENGINEERING ...****ELEC ENG 2BA3 ELECTRICAL SCIENCE**

Electrostatic fields; Coulomb's Law, electric flux, potential; capacitance; conductors and dielectrics, polarization; magnetic fields; magnetic flux, magnetic circuits, forces and torques; energy concepts; inductance.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: MATH 1H05, 1N06, PHYSICS 1E03, and registration in a programme in Computer Engineering or Electrical Engineering

**ELEC ENG 2DA3 CIRCUITS AND SYSTEMS I**

Mesh and nodal analysis of networks; transient response; steady-state response for sinusoidal inputs using phasors; power in AC circuits; network theorems; dependent sources; transformers; polyphase circuits.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: MATH 1H05, 1N06, PHYSICS 1E03, and registration in a programme in Computer Engineering or Electrical Engineering

**ELEC ENG 2FA3 ELECTRONICS I**

Diodes, bipolar junction transistors, field effect transistors, operational amplifiers: principles of operation; electrical characteristics; circuit models; basic application circuits.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: Registration or credit in ELEC ENG 2BA3 and 2DA3

**ELEC ENG 3AA3 TELECOMMUNICATIONS SYSTEMS I**

Introduction to modern communication systems; data networks, protocol architectures, switching methods, physical communications, amplitude modulation, angle modulation, generation of AM and FM, digital modulation.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: Registration or credit in ELEC ENG 3DB3

**ELEC ENG 3BB3 ELECTROMAGNETIC FIELDS AND WAVES**

Scalar and vector potential fields; Maxwell's equations, boundary conditions, electromagnetic energy and Poynting's theorem, transmission lines; waves.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: ELEC ENG 2BA3

**ELEC ENG 3CA3 FEEDBACK CONTROL SYSTEMS I**

Models of physical systems: transfer functions and block diagrams, characteristics of feedback systems, frequency response, Nyquist criterion for stability.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: ELEC ENG 2DA3 and registration or credit in ELEC ENG 3DB3

**ELEC ENG 3DB3 CIRCUITS AND SYSTEMS II**

Introduction to discrete time signals and systems: z-transforms, discrete and continuous time convolution, frequency response in discrete time systems, Fourier series, Fourier transforms, two-port networks.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: ELEC ENG 2DA3

**ELEC ENG 3FB3 ELECTRONICS II**

Diodes, transistors, operational amplifiers: dynamic operation; dynamic circuit models; multitransistor circuits; frequency response and switching speed; negative feedback; computer software for electronic circuit analysis.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: ELEC ENG 2DA3 and 2FA3

**ELEC ENG 3FC3 ELECTRONICS III**

Non-linear operational amplifier circuits; signal generation; active filters; power amplifiers; power supplies; A/D and D/A conversion; analog multiplexers, sample and hold.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: Registration or credit in ELEC ENG 3FB3

**ELEC ENG 3NA3 AC POWER CONCEPTS**

Polyphase circuits; transformers; voltage control and regulation; introduction to polyphase machines; synchronous generators and motors, squirrel-cage induction motors; applications to small industrial plants.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: ELEC ENG 2BA3 and 2DA3

**ELEC ENG 3SA3 SMALL MOTORS AND DRIVES**

Small motors; direct current, single-phase induction, wound rotor induction, hysteresis, universal, stepper and permanent magnet motors. Elementary speed control techniques.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: Registration or credit in ELEC ENG 3NA3

**ELEC ENG 4AB3 COMMUNICATION SYSTEMS II**

Communication systems in noisy and imperfect channels; random processes; Shannon-Hartley channel capacity law; noise in CW modulation systems including AM, DSBSC and SSB; digital systems, line codes, multiplexing; technology issues.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: ELEC ENG 3AA3, 3BB3 and STATS 3X03

**ELEC ENG 4AC3 DIGITAL COMMUNICATIONS**

Fundamental limits on performance; detection and estimation; digital modulation techniques; error control coding.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: ELEC ENG 3AA3, 4AB3 and MATH 3K03

**ELEC ENG 4CB3 FEEDBACK CONTROL SYSTEMS II**

Design and compensation of control systems using frequency response as well as s-plane methods; Controllability and observability; state variable feedback; asymptotic observers; design of digital control systems; nonlinear systems analysis.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: ELEC ENG 3CA3

**ELEC ENG 4EA3 DIGITAL SIGNAL PROCESSING**

Discrete time systems; z-transforms; Fourier transforms; digital filters; effects of finite register length; least squares filters; matched filters.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: ELEC ENG 3AA3 and 3DB3

**ELEC ENG 4FD3 ELECTRONICS IV**

Integrated circuits: fabrication technologies; design rules; passive and active components; analog and digital circuit design principles; amplifier and logic circuit limitations; computer software aids.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: ELEC ENG 3FC3

**ELEC ENG 4JA4 THESIS PROJECT**

An experimental investigation or design project to be carried out by the student, to test initiative, grasp of the subject, and capacity for independent work.

Two labs (three hours); both terms

Prerequisite: Registration in Level IV of Electrical Engineering or Level V of Electrical Engineering and Management

**ELEC ENG 4NB3 POWER TRANSMISSION AND DISTRIBUTION**

Transmission lines and cables; transformers and distribution stations; power flow control; voltage control; generation system economics; simulations.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: ELEC ENG 3BB3 and 3NA3

**ELEC ENG 4QA3 TECHNICAL WRITING AND ORAL COMMUNICATION**

Writing for, and speaking to, technical and management audiences: resumes, letters of inquiry, technical correspondence, technical description and definition; writing instructions; preparing audiovisual aids.

One lecture, one seminar, one tutorial (three hours); first term

Prerequisite: Registration in Level IV of Computer Engineering or Electrical Engineering, and registration in COMP ENG 4JA4 or ELEC ENG 4JA4

**ELEC ENG 4RA3 TRANSMITTING AND RADIATING SYSTEMS**

Principles of transmission lines, matching and Smith charts; waveguides and resonant cavities; antenna radiation; dipole antennas; antenna arrays.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: ELEC ENG 3BB3

**ELEC ENG 4SB3 POWER ELECTRONICS**

Power circuits with switches; basic rectifier circuits; commutation; trijunctions; inverters; choppers; inverter control.

Two lectures, one lab or tutorial (three hours); first term

Prerequisite: ELEC ENG 3FB3

**ELEC ENG 4UA3 BIOMEDICAL ELECTRONIC INSTRUMENTATION**

Generation and nature of bioelectric potentials; electrodes and other transducers; principles of instrumentation; electrical safety; neuromuscular and cardiovascular instrumentation; ultrasonics and other medical imaging.

Two lectures, one lab or tutorial (three hours); second term

Prerequisite: ELEC ENG 3FB3 or ENGINEER 3N03 or PHYSICS 3B06

For Graduate courses, see the *Calendar of the School of Graduate Studies*.

**ENGINEERING (GENERAL)**

**Department Note:**

Enrolment in these courses by students in programmes other than Engineering, Engineering and Society or Engineering and Management may be limited.

**Courses**

**ENGINEER 1C04 ENGINEERING DESIGN AND COMMUNICATION**

Graphical, written and oral communication in the context of engineering design. The engineer and society. Design projects by individuals and groups, design skills workshops.

Two lectures, one graphics lab (three hours), one design lab (two hours); first term

Prerequisite: Registration in an Engineering programme

**ENGINEER 1D04 ENGINEERING COMPUTATION**

Problem solving using computational techniques. The development of algorithms and their application using a structured computer language to solve problems in analysis, design and elementary optimization. Software packages. Three lectures, one tutorial (two hours); second term

Prerequisite: Registration in an Engineering programme

**ENGINEER 2C03 ELECTRICAL CIRCUITS AND MEASUREMENTS**

Electrostatics and applications, electrical quantities and circuit elements, Kirchhoff's laws and network theory, transient response of circuits, simple measurement devices and transducers, characteristics of motors.

Two lectures, one lab or tutorial; second term

Prerequisite: PHYSICS 1E03, and registration in MATH 2M06, or MATH 2P04 and 2Q04

**ENGINEER 2M04 ELECTRICAL SCIENCE**

An introduction to electricity and magnetism covering electrostatics, electric currents, magnetism and electromagnetism, with applications in circuits and elementary devices.

Three lectures, one lab or tutorial; first and second terms

Prerequisite: PHYSICS 1E03, and registration in MATH 2M06, or MATH 2P04 and 2Q04

**ENGINEER 2O03 STRUCTURE AND PROPERTIES OF ENGINEERING MATERIALS**

The relationships between the structure of solids and their properties are developed by study of specific mechanical, electrical, magnetic and chemical properties, along with the various levels of structural complexity exhibited by solid materials. Student independent study is aided by audio-visual materials and regular tutorial assistance.

Self-paced study; first term

Prerequisite: Completion of at least 12 units of Level I Chemistry, Mathematics or Physics

Antirequisite: MATLS 1A03 and/or 1B03 No credit for students admitted after 1990 into programmes administered by the Department of Materials Science and Engineering.

**ENGINEER 2P04 ENGINEERING MECHANICS 'A'**

Principles of statics as applied to deformable solid bodies. Stress and strain, elastic behaviour of simple members under axial force, bending and torsion. Principal stresses; deflection of beams; statical indeterminacy.

Three lectures, plus one unit comprising tutorials or lectures devoted to applications, at the discretion of the instructor; first term

Prerequisite: PHYSICS 1D03

**ENGINEER 2Q04 ENGINEERING MECHANICS 'B'**

Kinematics and dynamics of particles and rigid bodies. Motion with respect to a rotating frame of reference. Work, energy and momentum principles. Free, damped and forced vibrations of single degree of freedom systems.

Three lectures, plus one unit comprising tutorials or lectures devoted to applications, at the discretion of the instructor; first and second terms

Prerequisite: Credit or registration in ENGINEER 2P04

**ENGINEER 2S03 MECHANICS FOR ELECTRICAL ENGINEERING**

Three dimensional statics. Equivalent force systems in statics and dynamics. Three dimensional and planar kinematics. Principles of mechanics: momenta, work and energy. Dynamics of particles and planar motion of solid bodies.

Three lectures; first term

Prerequisite: PHYSICS 1D03 and registration in any programme in Electrical Engineering

**ENGINEER 2V04 THERMODYNAMICS**

An introduction to the principles of macroscopic, microscopic and statistical thermodynamics and the application of these principles to engineering.

Two lectures; both terms

Prerequisite: CHEM 1A06 or 1E03 and credit or registration in MATH 2M06, or MATH 2P04 and 2Q04

**ENGINEER 2W04 ENGINEERING THERMODYNAMICS**

Introduction to the principles of thermodynamics, application in engineering. Basic concepts: energy systems, cycles, properties of pure substances, entropy. Laws of thermodynamics, power and refrigeration cycles.

Three lectures, one tutorial; second term

Prerequisite: CHEM 1A06 or 1E03 and credit or registration in MATH 2M06, or MATH 2P04 and 2Q04

**ENGINEER 3M03 ELECTRICAL CIRCUITS AND POWER**

Fundamentals of electromechanical energy conversion. Motors and generators, transformers, single and polyphase power circuits, synchronous and induction machines, power measurements.

Two lectures and one lab or tutorial; first term

Prerequisite: ENGINEER 2M04

**ENGINEER 3N03 ELECTRONICS AND INSTRUMENTATION**

Semiconductor devices; diodes, transistors and silicon-controlled rectifiers. Transistor characteristic and load lines. Amplifier circuits with and without feedback. Rectifier and passive filter circuits. Operational amplifiers and active filters. Digital circuits, Microcomputers, Interfacing.

Two lectures, one tutorial (two hours) or one lab (three hours); second term

Prerequisite: ENGINEER 2M04

**ENGINEER 3P03 MECHANICAL BEHAVIOUR OF MATERIALS**

Phenomenological treatment of elastic and plastic deformation, creep, fatigue and fracture; mechanics of engineering materials. Physical processes in metals, ceramics, polymers, concrete, wood and composite materials. Application to mechanical design of structures, welded components and materials selection decisions. Test methods, including non-destructive inspection.

Three lectures; first term

Prerequisite: MATH 2M06, or MATH 2P04 and 2Q04, and ENGINEER 2P04

Antirequisite: Students registered in a programme administered by the Department of Materials Science and Engineering.

**ENGINEER 3Q03 ELECTRONIC PROPERTIES OF SOLIDS**

A conceptual and quantitative study of how electronic properties of solids are based upon microscopic theory. Basic quantum mechanics used as a tool to explain electronic, magnetic and dielectric behaviour of metals, insulators and semiconductors.

Three lectures; first term

Prerequisite: PHYSICS 1E03 and MATH 2M06 or equivalent

**ENGINEER 3R03 PROPERTIES AND SELECTION OF ENGINEERING MATERIALS**

The materials selection process in engineering design. Mechanical properties; fracture mechanics principles. Durability of materials in service; corrosion and wear. Case studies in materials selection.

Three lectures; first term

Prerequisite: ENGINEER 2O03

Antirequisite: Students registered in a programme administered by the Department of Materials Science and Engineering.

**ENGINEER 4A03 TECHNOLOGY AND SOCIETY**

Models of the technology-society relationship and the culture of technology. The control of technology with special emphasis on the role of the engineering profession.

One lecture, one tutorial, one seminar; second term

Prerequisite: Registration in Level III or above in any Engineering programme

**ENGINEER 4B03 ENGINEERING ECONOMICS**

Engineering criteria for decision-making. Money flow. Financial ventures. Personal financing. Total project investment. Production and operations costs. Economic analysis. Financial attractiveness.

Two lectures, one tutorial; second term

Prerequisite: Registration in final level of an Engineering programme

Antirequisite: CHEM ENG 4N04 or students registered in Engineering and Management programmes.

**ENGINEER 4C03 REAL-TIME COMPUTER INTERFACING**

Organization of real-time computers; instrumentation and interfacing for data acquisition and control; computer communication and local area networks; diagnostics for real-time operations.

Two lectures, one lab (three hours); first term

Prerequisite: Registration in Level IV of Manufacturing Engineering or Level V of Civil Engineering and Computer Systems

Antirequisite: COMP ENG 3HB3 or PHYSICS 4D06

**ENGINEER 4H03 ENGINEERING: ITS HISTORY, PHILOSOPHY AND INFLUENCE ON CIVILIZATION**

History and philosophy of engineering from antiquity to modern times, with special emphasis on scientific technology. Cultural significance of engineering to civilization. Nature and problems of industrial technology. Benefits and risks of technological progress. Engineering as a learned profession.

Two lectures, one tutorial (two hours); second term

Prerequisite: Registration in Level III, IV, or V of any Engineering programme

**ENGINEER 4J03 METAL FORMING**

Offered jointly by the Departments of Mechanical Engineering and Materials Science and Engineering. Engineering plasticity applied to rolling, forging, extrusion, wire drawing and sheet metal forming. The role of processing on the optimization of mechanical properties and the design of metal forming processes are discussed together with future developments in the fabrication of both metallic and nonmetallic materials.

Three lectures; second term

Prerequisite: ENGINEER 2O03, and MECH ENG 3A03 or ENGINEER 3P03 or MATLS 3P03

**ENGINEER 4U03 UNIT OPERATIONS AND PROCESSES IN ENVIRONMENTAL ENGINEERING**

Offered jointly by the Departments of Chemical Engineering and Civil Engineering and Engineering Mechanics. The process capabilities, hardware and design equations, of the physical, chemical and biological processes used to improve water. Emphasis on processes such as bio-oxidation, clarification, coagulation, sludge dewaterings and disinfection.

Two lectures, one tutorial (two hours); first term

Prerequisite: CHEM ENG 2O04 or 3O04, or CIV ENG 3Q03 or 3Q04, or MECH ENG 3O04, and registration in Level IV or above of any Engineering programme

**ENGINEER 4X03 CONCEPTS IN BIOMEDICAL ENGINEERING**

Engineering and physical science approach to human physiological systems; cardiovascular system, with specific organ circulations, respiratory systems, overall integration and control.

Three lectures; first term

Prerequisite: Registration in Level III or above of any programme in the Faculty of Engineering or any Honours or Major programme in the Faculty of Science

**ENGINEERING AND MANAGEMENT**

The Engineering and Management Programmes are described in the section *Faculty of Engineering* in this Calendar. These programmes are administered jointly by the School of Business and the Faculty of Engineering and lead to the

B.Eng.Mgt. degree. An Industrial Advisory Council also participates in the education process.

**Operating Committee, as of July 1, 1992:****Programme Director**

R.D. Findlay R.T.H. Alden (*Electrical and Computer Engineering*)

P.M. Banting (*School of Business*)

M. Basadur (*School of Business*)

M.A. Dokainish (*Associate Dean, Academic Programmes - Engineering*)

I.A. Feuerstein (*Chemical Engineering*)

D. Gupta (*School of Business*)

A.C. Heidebrecht (*Provost and Vice-President (Academic)*)

G. Kenney-Wallace (*President and Vice Chancellor*)

B. Latto (*Mechanical Engineering*)

J. Medcof (*Associate Dean, Academic Programmes - Business*)

D.C. Mountain (*School of Business*)

K. Nainar (*School of Business*)

A. Oakie (*Executive in Residence, School of Business*)

A. Petric (*Materials Science and Engineering*)

J.S. Preston (*Engineering Physics*)

G.R. Purdy (*Dean of Engineering*)

W.G. Truscott (*Dean of Business*)

W.K. Tso (*Civil Engineering and Engineering Mechanics*)

**Industrial Advisory Council Members 1992:**

M. Anyas-Weiss (*Ontario Hydro*)

D. Chambers (*Dow USA*)

L. Dececchi (*IBM Canada*)

C. Gladstone (*Cherniak Gblon*)

H. Jaeger (*Agres International Limited*)

R.G. Keen (*Stelco Technical Services Ltd.*)

P. Kundur (*Ontario Hydro*)

D. Ledingham (*Shell Canada Products Ltd.*)

R. Little (*Union Gas Limited*)

R. Lopinski (*Bell Northern Research Ltd.*)

T. Magyarody (*Commercial Union Assurance Company of Canada*)

R.R. Marshall (*Consultant*)

R.G. Norris (*NCR Canada Ltd.*)

L. Phillips (*Canadian Pacific*)

R.L. Reycraft (*Procter & Gamble*)

J. Robertson (*Husky Injection Molding Systems Ltd.*)

W. Schachtschneider (*Bell Canada Real Estate*)

E. Shaw (*Dofasco Inc.*)

H. Sonnenberg (*Xerox Research Centre of Canada*)/Chair

P. Vilks (*Spar Aerospace*)

C. Wilson (*Ford Motor Company of Canada, Limited*)

S. Yong-Lee (*Regional Municipality of Hamilton-Wentworth*)

**Courses****ENGN MGT 2AA2 COMMUNICATION SKILLS**

Writing and speaking; interpersonal communications and skills, team-work, brainstorming, writing memoranda and business letters, organizational strategies, visual elements, formal reports, oral communications, technical talks.

One lecture, one tutorial (two hours); first term

Prerequisite: Registration in an Engineering and Management Programme

**ENGN MGT 3A01 ENGINEERING AND MANAGEMENT SEMINAR I**

Discussion and lectures on issues important to the Engineering and Management programmes, such as communication skills, interpersonal skills and group skills.

One seminar, alternate weeks; both terms

Prerequisite: ENGN MGT 2A01

**ENGN MGT 4A01 ENGINEERING AND MANAGEMENT REPORT**

A written report and oral presentation based on summer work experience and written assessments of communications are required. Guidelines and procedures must be obtained from the Programme Director before the end of Level III.

One seminar, alternate weeks; two terms

Prerequisite: Registration in Level IV of an Engineering and Management programme

**ENGN MGT 4G01 PROBLEM SOLVING, DECISION MAKING AND INTERPERSONAL SKILLS**

An intensive workshop, involving such topics as: awareness of the thinking

process, strategies, creativity, decision-making, criteria selection, self-performance evaluation, group skills, listening. Grade of 'complete' for satisfactory performance. Intensive residential course offered each May; 5 days, 8 hours per day.

Prerequisite: Completion of Level III of an Engineering and Management programme

#### ENGN MGT 5A01 ENGINEERING AND MANAGEMENT REPORT

Writing formal reports: each student will be required to submit a work experience report. Preparing resumes; developing interview and negotiating skills. One lecture; first term

Prerequisite: Registration in the final year of an Engineering and Management Programme.

#### ENGN MGT 5B03 ENGINEERING AND MANAGEMENT PROJECTS

Projects that integrate the engineering and business disciplines, employing case studies provided by the members of the Industrial Advisory Council, or by industry.

One lecture, two tutorials (two hours); first or second term

Prerequisite: Registration in the final year of an Engineering and Management programme

#### ENGN MGT 5G01 TRAINING AND PROBLEM SOLVING

An intensive workshop, involving such topics as: supervision and the principle of training; practicum. Students supervise workshops in the course, ENGN MGT 4G01. Self- and peer-assessment. Grade of 'complete' for satisfactory performance.

Intensive residential course offered each May; 5 days, 8 hours per day.

Prerequisite: Completion of Level IV of an Engineering and Management programme

## ENGINEERING AND SOCIETY

The Engineering and Society Programmes are described in the section *Faculty of Engineering* in this calendar. These programmes lead to the B.Eng.Soc. degree. An Advisory Council participates in the education process and is composed of university faculty members, industry executives, union leaders, local and provincial government representatives, and others.

### Operating Committee, as of July 1, 1992:

#### Programme Director

H.M. Jenkins

M.A. Dokainish (*Associate Dean, Academic Programmes, Engineering*)

B. Baetz (*Civil Engineering and Engineering Mechanics*)

J. Bremner (*Student*)

J.D. Embury (*Materials Science and Engineering*)

J. Finlayson (*Student*)

A.A. Harms (*Engineering Physics*)

R.C. Hudspeth (*Mechanical Engineering*)

R.M. Korol (*Civil Engineering and Engineering Mechanics*)

T.E. Marlin (*Chemical Engineering*)

M. Neff (*Student*)

S. Panagiotou (*Philosophy*)

D.L. Parnas (*Electrical and Computer Engineering*)

J.P. Reilly (*Electrical and Computer Engineering*)

### Courses

#### ENGSOCTY 2X03 INQUIRY IN AN ENGINEERING CONTEXT I

Inquiry seminars are non-disciplinary courses that develop an approach to the study of issues of public concern. In terms of the design process, inquiry focuses on the problem definitive stage, where the importance of formulating questions, researching underlying issues, and analyzing opposing arguments is essential. The first seminar will involve teaching the students how to use the university and community resources in their research, how to write a research paper, and how to express their ideas orally.

One lecture, one tutorial, one seminar; first term

Prerequisite: Registration in an Engineering and Society programme

#### ENGSOCTY 2Y03 CASE STUDIES IN THE HISTORY OF TECHNOLOGY

History and philosophy of technology, from antiquity to modern times, with a special emphasis on the cultural aspects of technology, are addressed on a case study basis.

Two lectures, one tutorial; second term

Prerequisite: Registration in an Engineering and Society programme

#### ENGSOCTY 3X03 INQUIRY IN AN ENGINEERING CONTEXT II

This inquiry seminar builds on the skills developed in the first seminar, focusing on a specific issue related to the role of engineering and technology in society. The seminar will be devoted to the study of one topic such as: automation and employment, technology and the quality of life, the deteriorating environment, or the information society. Students will focus on specific aspects and share their findings in a seminar format.

One lecture, one seminar (two hours); one term

Prerequisite: ENGSOCTY 2X03

First time offered in 1993-94.

#### ENGSOCTY 3Y03 THE CULTURE OF TECHNOLOGY

A study of the nature and structure of technology, the nature of culture, and the role and place of different groups, including engineers, in a culture dominated by technology.

One lecture, one tutorial, one seminar; first term

Prerequisite: ENGSOCTY 2Y03

First time offered in 1993-94.

#### ENGSOCTY 3Z03 ENVIRONMENTAL STUDIES

Course covers aspects of environmental studies such as: environmental assessment, energy and elemental cycles, sustainable development, solid and hazardous waste management, air and water quality control, and environmental legislation.

Two lecture, one tutorial; second term

Prerequisite: Registration in Level III of an Engineering and Society Programme

First time offered in 1993-94.

#### ENGSOCTY 4X03 INQUIRY IN AN ENGINEERING CONTEXT III

Builds on Inquiry in the Engineering Context II. Topics such as automation and employment, technology and the quality of life, or the information society, provide the broad focus with groups or individual student's inquiry taking a more specific but related focus.

One lecture, one seminar (two hours); one term

Prerequisite: ENGSOCTY 3X03

First time offered in 1994-95.

#### ENGSOCTY 4Z03 THE SOCIAL CONTROL OF TECHNOLOGY

The dominant mechanisms of the social control of technology will be studied, with a specific emphasis on the role of the engineering profession. Includes an examination of assessment methods and the role of ethics as one approach to social responsibility in engineering.

One lecture, one tutorial, one seminar; one term

Prerequisite: ENGSOCTY 3Z03

First time offered in 1994-95.

## ENGINEERING PHYSICS

### Faculty as of January 15, 1993

#### Chair

W.J. Garland

#### Professors Emeriti

John A. Davies/B.A., M.A., Ph.D. (*Toronto*), F.R.S.C., F.D.R.S.

John S. Kirkaldy/B.Sc., M.A.Sc., (British Columbia), Ph.D. (McGill), F.R.S.C., F.A.S.M., P.Eng.

#### Professors

Edward A. Ballik/B.Sc. (*Queen's*); D.Phil. (*Oxford*), P.Eng.

H. Douglas Barber/B.Sc., M.Sc. (*Saskatchewan*), Ph.D. (*London*), P.Eng./part-time

Jen-Shih Chang/ B.Edu.Eng., B.Eng., M.Eng. (*Musashi Int. of Tech.*), Ph.D. (*York*)

Archie A. Harms/B.Sc. (*British Columbia*), M.Sc.Eng., Ph.D. (*Washington*), P.Eng.

Derek C. Houghton, B.Sc. (*Birmingham*), Ph.D. (*Cambridge*)/part-time

Thomas E. Jackman/B.Sc., M.Sc., Ph.D. (*Guelph*), Adjunct Professor/part-time

David P. Jackson/B.Sc., M.A., M.A.Sc., Ph.D. (*Toronto*)/part-time

Terence J. Kennett/B.Sc., M.Sc., Ph.D. (*McMaster*)

Krish V.S. Krishnan/B.Tech. (*Madras*), M.S., Ph.D. (*Rochester*)/part-time

John G. Simmons/B.Sc. (*London*), M.Sc. (*Temple University*), Ph.D. (*London*), BNR/NSERC Chair in Microelectronic and Optoelectronic Materials and Devices

Anthony J. SpringThorpe/B.Sc., Ph.D. (*Sheffield*)/part-time



# 158 ENGINEERING PHYSICS

David A. Thompson/B.Sc., Ph.D. (*Reading*)  
Oleh A. Trojan/B.A.Sc., M.A., Ph.D. (*Toronto*), P.Eng./part-time

## Associate Professors

Alexander A. Berezin/B.Sc., M.Sc., Ph.D. (*Leningrad State*)  
Daniel T. Cassidy/M.Sc. (*Queen's*), B.Eng., Ph.D. (*McMaster*), P.Eng.  
William J. Garland/B.Eng., M.Eng., Ph.D. (*McMaster*), P.Eng.  
Harold K. Haugen, B.Sc. (*Acadia*), M.Eng. (*McMaster*), Ph.D. (*Aarhus*)  
Paul E. Jessop/B.Sc. (*Waterloo*), M.A., Ph.D. (*Harvard*)  
Adrian H. Kitai/B.Eng. (*McMaster*), Ph.D. (*Cornell*), P.Eng.  
L. David Pengelly/B.A.Sc. (*Toronto*), M.Sc., Ph.D. (*McGill*), P.Eng.  
Walter T. Shmayda/B.A.Sc. (*Queen's*), M.A.Sc., Ph.D. (*Toronto*)/part-time

## Assistant Professors

J.D. Huizinga/B.Sc., M.Sc., Ph.D. (*Groningen, The Netherlands*)/part-time  
Peter Mascher/M.Eng., Ph.D. (*Technical University of Graz*)  
John S. Preston/B.Eng. (*McMaster*), M.Sc., Ph.D. (*Toronto*)

## Courses

### ENG PHYS 2A03 ELECTRICAL SCIENCE I

An introduction to electricity and magnetism for Engineering Physics students. Two lectures, one lab, one tutorial (three hours), every other week; first term  
Prerequisite: PHYSICS 1E03, and credit or registration in MATH 2P04

### ENG PHYS 2E04 ELECTRICAL SCIENCE II

Analysis of ac circuits and ac power. Maxwell's equations and electromagnetic theory. Introductory modern physics.

Three lectures, one lab, one tutorial (three hours), every other week; second term

Prerequisite: Registration or credit in ENG PHYS 2A03

### ENG PHYS 3D03 PRINCIPLES OF NUCLEAR ENGINEERING

Introduction to fission and fusion energy systems. Energetics of nuclear reactions, interactions of radiation with matter, radioactivity, design and operating principles of fission and fusion reactors.

Three lectures (including demonstration experiments); first term

Prerequisite: Registration in Level III or above of any programme in Engineering or Physics

### ENG PHYS 3E03 FUNDAMENTALS OF PHYSICAL OPTICS

Reflection and refraction; geometrical optics; interference and diffraction; optical constants of media; optical design software; introduction to design of optical systems.

Two lectures, one tutorial, one lab (three hours), every other week; first term

Prerequisite: ENG PHYS 2A03 and 2E04

### ENG PHYS 3F03 FUNDAMENTALS OF SOLID STATE ELECTRONICS

Electrons in solids, with emphasis on semiconductors, carrier drift and diffusion; doped semiconductors; non-equilibrium carrier effects; optical properties of semiconductors.

Two lectures, one lab, one tutorial (three hours), every other week; second term

Prerequisite: ENG PHYS 2A03 and 2E04

### ENG PHYS 3O03 INTRODUCTION TO FLUID MECHANICS AND HEAT TRANSFER

Fluid properties and statics are introduced. Basic equations of continuity, energy and momentum for internal and external flows are discussed. Similitude, dimensional analysis, measuring devices, fluid machinery and electromagnetic flow. Conduction and convection heat transfer.

Two lectures, one lab, one tutorial (three hours), every other week; second term

Prerequisite: MATH 2M06, or MATH 2P04 and 2Q04, any of which may be taken concurrently

### ENG PHYS 3W04 ACQUISITION AND ANALYSIS OF EXPERIMENTAL INFORMATION

A systems approach to measurement in which synthesis of topics such as Fourier transforms, signal processing and enhancement, data reduction, modelling and simulation is undertaken.

Two lectures; both terms

Prerequisite: Credit or registration in MATH 3C06 or 3C03 and 3D03

### ENG PHYS 3X03 HUMAN PHYSIOLOGY

Basic introduction and working knowledge of the human body. Includes study of the cellular level of organization.

Three lectures; second term

Prerequisite: Completion of a minimum of 30 units beyond Level I in any Engineering or Science Programme

Antirequisite: BIOLOGY 3U03, 3UU3, 3U06 or 4G06

### ENG PHYS 4A04 DESIGN AND SYNTHESIS PROJECT

Design and synthesis projects supervised by a faculty member in the Department of Engineering Physics.

Two labs (three hours); both terms

Prerequisite: Registration in final level of an Engineering Physics programme.

### ENG PHYS 4C02 SPECIAL TOPICS IN ENGINEERING PHYSICS

Selected methodological topics in engineering physics (analysis, design, simulation, synthesis, optimization...). Oral presentations by students on current topics in engineering.

One lecture; first term and second term

Prerequisite: Registration in Level IV or V of any Engineering programme

### ENG PHYS 4D03 NUCLEAR REACTOR ANALYSIS

Introduction to nuclear energy; nuclear physics and chain reactions; reactor statics and kinetics; multigroup analysis, core thermalhydraulics; reactor design.

Three lectures (including field trip); first term

Prerequisite: ENG PHYS 3D03

### ENG PHYS 4E03 SOLID STATE DEVICES I

Electronic properties of semiconductors, contact phenomena; p-n junctions; Schottky diodes, photodiodes, bipolar transistors, field effect transistors.

Two lectures one tutorial; first term

Prerequisite: ENG PHYS 3F03 or ENGINEER 3Q03

### ENG PHYS 4F03 SOLID STATE DEVICES II

Physical principles underlying operation of selected devices, and their characteristics; optical devices, avalanche devices, Gunn Effect devices, Read diodes, charge coupled devices, integrated circuits, Josephson junctions.

Two lectures, one tutorial; second term

Prerequisite: Credit or registration in ENG PHYS 4E03

### ENG PHYS 4G03 OPTICAL INSTRUMENTATION

Design of optical equipment (including reflective and refractive optical systems, interferometers and spectrometers). Optical sources and power measurements. Detectors (photographic, photoelectric, etc.), including use in the infrared and ultraviolet, and at low intensity levels.

Two lectures, one tutorial; first term

Prerequisite: PHYSICS 3N03, or ENG PHYS 3E03

### ENG PHYS 4H06 SPECIAL STUDIES IN ENGINEERING PHYSICS

A special programme of studies to be arranged by mutual consent of the professor, departmental chair, and the student. A student elects to work with a professor carrying out literature surveys, experiments, theoretical investigations, etc. A written report is required.

Two tutorials, one lab (three hours); both terms

Prerequisite: Registration in final level of an Engineering Physics programme and a C.A. of at least 9.5

### ENG PHYS 4K03 OPTICAL COMMUNICATIONS SYSTEMS

Propagation of light in an optical fibre. Semiconductor lasers and detectors for optical communications. Analogue and digital coding. Signal to noise considerations. System design.

Three lectures

Prerequisite: Registration in Level IV or V of any programme in Engineering or Physics

### ENG PHYS 4L03 NUCLEAR REACTOR THERMALHYDRAULICS

Introduction to two phase flow and nuclear reactor thermalhydraulics systems. Condensation and boiling phenomena and heat transfer mechanisms. Two phase flow apparatus and diagnostics techniques. Modelling of two phase flow by homogeneous and separated flow models.

Two lectures, one lab; second term

Prerequisite: CHEM ENG 2O04 or 3004 or ENG PHYS 3O03 or MECH ENG 3O04

### ENG PHYS 4N03 PRINCIPLES OF FUSION ENERGY

Fusion phenomena and the plasma state; reaction analysis; Coulomb scattering; field effect trajectories; magnetic field configurations; particle transport; energy viability; burn cycles; inertial confinement; muon catalyzed fusion.

Three lectures; first term

Prerequisite: ENG PHYS 3D03

### ENG PHYS 4S04 LASERS AND ELECTRO-OPTICS

Basic properties of electromagnetic radiation. Optical modulation and detection. Non-linear optics. Multiple-beam interference and coherence. Optical resonators. Laser systems.

Two lectures; both terms

Prerequisite: PHYSICS 3N03, or ENG PHYS 3E03



**ENG PHYS 4U04 MODERN AND APPLIED PHYSICS LABORATORY**

Selected advanced experiments in two areas of applied physics, chosen from among: lasers and electro-optics; solid state electronics; nuclear engineering. Two labs (three hours); both terms  
Prerequisite: Registration in Level IV Engineering Physics or Engineering Physics and Management

**ENG PHYS 4Z03 SEMICONDUCTOR DEVICE PHYSICS**

Physical, chemical and metallurgical processes for fabrication of modern semiconductor devices. Doping, chemical vapour deposition, oxidation, diffusion, epitaxy, implantation, ion etching, metal and dielectric deposition. Two lectures, one tutorial (two hours); second term  
Prerequisite: Credit or registration in ENG PHYS 4E03

**PHYSICS 3B06 ELECTRONICS**

Network theory and filters, semiconductor devices, amplifier circuits, D.C. power supplies, integrated circuits, operational amplifiers and digital circuits. Two lectures; both terms; one lab (two hours); both terms  
Prerequisite: ENG PHYS 2A03 and 2E04, or PHYSICS 2B06

**PHYSICS 4D06 DIGITAL LOGIC AND COMPUTER SYSTEMS**

The design and use of digital logic systems, and their application to data acquisition and control techniques. The project-oriented laboratory involves both hardware and software. Two lectures, one lab (three hours); both terms  
Prerequisite: ENG PHYS 2A03 and 2E04, or PHYSICS 2B06, and COMP ENG 2HA3

For Graduate courses, see the *Calendar of the School of Graduate Studies*.

**ENGLISH**

**Faculty as of January 15, 1993**

**Chair**

Brian John

**Professors Emeriti**

Alwyn Berland/M.A. (Chicago), M.Litt. (Cambridge.)  
Andrew W. Brink/B.A., M.A. (Toronto), Ph.D. (London)  
Douglas J.M. Duncan/B.A. (Oxford), Ph.D. (Aberdeen)  
Maureen P. Halsall/B.A. (McMaster), M.A. (Radcliffe), Ph.D. (Harvard)  
Berners A.W. Jackson/B.A. (McMaster), D.Phil. (Oxford)  
Alvin A. Lee/B.A., M.Div., M.A., Ph.D., D.Litt.S. (Toronto)  
W.J.B. Owen/M.A. (New Zealand and Oxford), Ph.D. (Wales), D.Litt. (McMaster), F.R.S.C. F.  
Norman Shrive/C.D., B.A. (McMaster), M.A. (Toronto), Ph.D. (Queen's)

**Professors**

Maqbool Aziz/B.A., M.A. (Punjab), D.Phil. (Oxford)  
Carl P.A. Ballstadt/B.A., M.A. (Western), Ph.D. (London)  
Alan G. Bishop/B.A. (Rhodes, S. Africa), M.A., D. Phil. (Oxford)  
David Blewett/B.A., M.A. (Manitoba), Ph.D. (Toronto)  
Laurel A. Braswell-Means/B.A., M.A. (Arkansas), M.A., Ph.D. (Toronto)  
Anthony S. Brennan/B.A. (Oxford), M.A., Ph.D. (McMaster)  
Thomas H. Cain/B.A., M.A. (Toronto), Ph.D. (Wisconsin)  
Joan Coldwell/B.A., M.A. (London), Ph.D. (Harvard)  
H. John Ferns/B.A., M.A. (Oxford), Ph.D. (Western)  
Anthony Hammond/B.A. (New Zealand), M.A., Ph.D. (Auckland)/Drama & English  
Brian John/B.A., M.A., Dipl.Ed., Ph.D. (Wales)  
James King/B.A. (Toronto), M.A., Ph.D. (Princeton)  
Richard E. Morton/B.A. (Wales), B.Litt. (Oxford)  
Graham Petrie/M.A. (St. Andrews), B.Litt. (Oxford)/Drama & English  
W. Graham Roebuck/B.A. (Durham), M.A. (McMaster), Ph.D. (London)  
Ronald W. Vince/B.A. (McMaster), M.A. (Rice), Ph.D. (Northwestern)/Drama & English  
Chauncey D. Wood/A.B. (Union College), M.A., Ph.D. (Princeton)

**Associate Professors**

Joseph Adamson/B.A. (Trent), M.A., Ph.D. (Toronto)/English & Modern Languages  
James D. Brasch/B.S. (State University of New York), M.A. (Colgate), Ph.D. (Wisconsin)  
James Dale/B.A., M.A., Ph.D. (Cambridge)

Donald C. Goellnicht/B.A. (Queen's), M.A., Ph.D. (McMaster)  
Mary E. O'Connor/B.A. (McGill), M.A., Ph.D. (Toronto)  
Norman Rosenblood/B.A. (Western), M.A. (McMaster), Ph.D. (Pittsburgh)  
Michael L. Ross/B.A. (Harvard College), M.A., Ph.D. (Harvard)  
Anne Savage/B.A. (Calgary), Ph.D. (London)  
Joseph T. Sigman/B.A. (King's College, Wilkes-Barre), M.A., Ph.D. (Pennsylvania)  
Lorraine M. York/B.A., M.A., Ph.D. (McMaster)

**Assistant Professors**

Sylvia Bowerbank/B.A. (McMaster), B.Educ. (Toronto), M.A. (Simon Fraser), Ph.D. (McMaster)/English & Arts and Science  
David L. Clark/B.A., M.A., Ph.D. (Western)  
Jeffery Donaldson/B.A., M.A., Ph.D. (Toronto)  
Ronald Granofsky/B.A. (Trent), M.A. (Canterbury), Ph.D. (Queen's)  
Roger L. Hyman/B.A. (York), M.A., Ph.D. (Toronto)  
Helen M. Ostovich/B.A., M.A., Ph.D. (Toronto)  
Lisa Schnell/B.A. (Alberta), M.A. (Western), Ph.D. (Princeton)  
Mary Silcox/B.A. (Western), M.A., Ph.D. (Queen's)  
Peter Walmsley/B.A., M.A. (Toronto), Ph.D. (Cambridge)

**Instructors**

Karen Bamford/B.A. (Queen's), M.A. (St. Michael's College)/part-time  
Irene Gammel/Staatsexamen (Saarlandes), M.A. (McMaster)/part-time  
Brigitte Glaser/part-time  
Lorraine Janzen Kooistra/part-time  
Michael Peterson/B.A. (Victoria), M.A. (McMaster)/part-time  
Sheila Russell/B.A., M.A. (McMaster)/part-time  
Yu Zhang/B.A. (Beijing), M.A. (Toronto), Ph.D. (McMaster)/part-time

**Associate Member**

John R. Roy/M.B., Ch.B., F.R.C.P. (Glasgow and Edinburgh), M.R.C.P. (Psychiatry), F.R.C.P. (C), Director, Geriatric Psychiatry, Chedoke-McMaster Hospital

**Department Notes:**

1. The following are courses open as electives to qualified students registered in any university programme; however, enrolment in these courses is limited.

ENGLISH 2C03	Contemporary Canadian Fiction
ENGLISH 2D03	Biblical Traditions in Literature
ENGLISH 2F03	Studies in American Literature
ENGLISH 3A03	Techniques of Expository Writing
ENGLISH 3B03	Psychoanalytic Approaches to Literary Texts
ENGLISH 3E03	Shakespeare: Selected Plays
ENGLISH 3F03	Creativity and Human Interaction
ENGLISH 3HH3	Topics in Poetry
ENGLISH 3II3	Topics in Prose
ENGLISH 3P03	Modern Drama in ENGLISH
ENGLISH 3XX3	Topics in Drama
ENGLISH 3Z03	Contemporary Canadian Poetry

2. Level IV seminars are open only to Honours students registered in Level IV of an English programme. Enrolment will be limited to 15 students per seminar. Students are advised to pre-register in March; a list of seminars to be offered will be available prior to pre-registration.

**Courses**

**ENGLISH 1D06 ENGLISH LITERATURE: FORMS AND APPROACHES**

A selection of various areas of literary study (such as periods, genres, contexts, and approaches) will be examined, using texts from a wide variety of periods and forms of English literature. In this course considerable emphasis is placed on the development of critical skills in reading and writing. Two lectures, one tutorial; two terms  
Prerequisite: OAC English 1

**ENGLISH 2A06 BRITISH LITERATURE**

A chronological survey of British Literature. One Shakespeare play will be included. Three lectures; two terms  
Prerequisite: Registration in a programme in English. Open only to students registered in a programme in English as of September 1990.

**ENGLISH 2B06 THE DEVELOPMENT OF ENGLISH DRAMA**

English drama from the medieval period to the close of the 18th century (excluding Shakespeare).

Three lectures; two terms

Prerequisite: Registration in a programme in English

**ENGLISH 2C03 CONTEMPORARY CANADIAN FICTION**

A study of the themes and structure of the contemporary Canadian novel, usually with emphasis upon the relationship of Canada's cultural patterns and its literature.

Three lectures; one term

Prerequisite: ENGLISH 1D06

*Enrolment is limited.*

**ENGLISH 2D03 BIBLICAL TRADITIONS IN LITERATURE**

A study of the influence of the Bible on Western literature, especially English. Approaches may include the examination of symbolism, imagery, typology, doctrinal themes and narrative structures.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: COMP LIT 2D03

*Enrolment is limited.*

**ENGLISH 2F03 STUDIES IN AMERICAN LITERATURE**

A study of some of the most important writers who developed American literature as a distinctive mode of writing in English.

Three lectures; one term

Prerequisite: ENGLISH 1D06

Antirequisite: ENGLISH 2H06

*Enrolment is limited.*

**ENGLISH 2G06 CANADIAN LITERATURE**

Major aspects of the development of Canadian literature from the late 18th century to the mid-20th century. French-Canadian work in translation will be used for comparative purposes.

Three lectures; two terms

Prerequisite: Registration in a programme in English

**ENGLISH 2H06 AMERICAN LITERATURE**

A survey of significant American writers from the 17th century to the present, which emphasizes the interrelationship between the literature and its philosophical and historical background.

Three lectures; two terms

Prerequisite: Registration in a programme in English

**ENGLISH 2I06 MODERN BRITISH LITERATURE**

A study of representative literature by British writers of the 20th century. Through criticism of poems, plays and fiction, an attempt is made to relate modern British literature to its social, intellectual and cultural context.

Three lectures; two terms

Prerequisite: Registration in a programme in English

Antirequisite: ENGLISH 3H06

**ENGLISH 3A03 TECHNIQUES OF EXPOSITORY WRITING**

A course designed to provide practical training in the writing of clear, coherent, persuasive prose. Although there will be some study of contemporary prose models, the main work of the course will consist of brief but frequent writing assignments.

*(Students whose writing problems are remedial in nature should not attempt this course.)*

Two hours (lecture), one hour (tutorial); one term

Prerequisite: Registration in Level II and above

*Enrolment is limited.*

**ENGLISH 3B03 PSYCHOANALYTIC APPROACHES TO LITERARY TEXTS**

The basic assumptions and methods of psychoanalytic criticism will be studied with reference to selected texts in drama, fiction, and poetry from Shakespeare to the present.

Three lectures; one term

Prerequisite: Registration in Level III and above

Cross-list: SOCIOL 2X03

*Enrolment is limited.*

**ENGLISH 3C06 CHAUCER AND HIS CONTEMPORARIES**

A critical, mainly literary, course in the poetry of later 14th-century England. It will study the writings of Chaucer in some depth, before taking up examples of medieval romance, allegory and drama.

Three lectures; two terms

Prerequisite: Registration in Level III or IV of a programme in English

Antirequisite: ENGLISH 4E06

*Open only to students entering a programme in English as of September 1990.*

**ENGLISH 3CC3 LITERATURE AND FILM**

An examination of the particular characteristics of both literature and film and the relationships between them through a detailed study of selected novels, short stories and plays, and the films that have been based on them.

Three lectures, plus one weekly film screening; one term

Prerequisite: Registration in Level III or IV of a programme in Drama or Literature or Art History. It is recommended that students should already have taken DRAMA 2X06.

Cross-list: ART HIST 3CC3, DRAMA 3H03, and COMP LIT 3L03

**ENGLISH 3D03 THE EARLIEST ENGLISH LITERATURE**

An introduction to Old English alliterative poetry through close reading of representative modes, such as heroic, lyric, elegiac and gnomic, supplemented by related prose texts.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in English

**ENGLISH 3DD3 BEOWULF**

An exploration of the Old English epic Beowulf, supplemented by related poetic and prose texts.

Three lectures; one term

Prerequisite: ENGLISH 3D03

**ENGLISH 3E03 SHAKESPEARE: SELECTED PLAYS**

A study of a representative selection of plays.

Three lectures; one term

Prerequisite: ENGLISH 1D06 or DRAMA 1A06

Antirequisite: ENGLISH/DRAMA 3K06

*Enrolment is limited.*

**ENGLISH 3F03 CREATIVITY AND HUMAN INTERACTION**

A study of the motivations of some representative writers and of the psychological processes in literary creativity. Psychoanalytic and psychiatric contributions to understanding the subject will be considered.

Three lectures; one term

Prerequisite: Registration in Level III and above

Antirequisite: ENGLISH 2FF3

Cross-list: SOCIOL 3S03

*Enrolment is limited.*

**ENGLISH 3G06 ENGLISH LITERATURE (1660-1800)**

A study of English literature during the period 1660-1800, with special attention to works by Dryden, Swift, Pope and Johnson.

Three lectures; two terms

Prerequisite: Registration in Level III or IV of a programme in English

Antirequisite: ENGLISH 4B06

*Open only to students entering a programme in English as of September 1990.*

**ENGLISH 3H06 MODERN BRITISH LITERATURE**

A study of representative literature by British writers of the 20th century. Through criticism of poems, plays and fiction, an attempt is made to relate modern British literature to its social, intellectual and cultural context.

Three lectures, two terms

Prerequisite: Registration in Level III or IV of a programme in English

Antirequisite: ENGLISH 2I06 ]

*Available only to students who entered a programme in English prior to September 1993.*

**ENGLISH 3HH3 TOPICS IN POETRY**

Previous topics include: Contemporary British Poetry, Women Poets of the 20th century. Consult the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: ENGLISH 1D06

*ENGLISH 3HH3 may be repeated, if on a different topic, to a total of six units.*

*Enrolment is limited.*

**ENGLISH 3I03 STUDIES IN 16TH-CENTURY LITERATURE**

A study of the prose and poetry of the first phase of the English Renaissance, with some emphasis on the work of More and Sidney, and subsidiary reading of continental writers influential in England, such as Petrarch, Pico, Erasmus, Castiglione, Machiavelli and Montaigne.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in English

Cross-list: COMP LIT 3J03

**ENGLISH 3I|3 TOPICS IN PROSE**

Previous topics include: William Faulkner, James Joyce. Consult the Depart-

ment concerning topic to be offered.

Three lectures; one term

Prerequisite: ENGLISH 1D06

*ENGLISH 3I13 may be repeated, if on a different topic, to a total of six units. Enrolment is limited.*

### ENGLISH 3J06 THE ENGLISH LANGUAGE

An analysis of the way the English language works, with particular reference to syntactic patterns. The following areas will be considered: English phonology, historical linguistics, morphology, transformational-generative grammar, vocabulary and word formation.

Three lectures; two terms

Prerequisite: Registration in Level III or IV of a programme in English

Antirequisite: ENGLISH 2V06/2VV6

*Open only to students entering a programme in English as of September 1990.*

### ENGLISH 3K06 SHAKESPEARE

An extensive critical reading and discussion of selected plays.

Three lectures; two terms

Prerequisite: Registration in Level III or IV of a programme in English

### ENGLISH 3M03 ROMANTIC POETRY

A study of selected poems and, where appropriate, of the literary theory of the major Romantic poets. Special attention will be given to Blake, Wordsworth, Coleridge, Byron, Shelley, Keats.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in English

Antirequisite: ENGLISH 4L03

*Open only to students entering a programme in English as of September 1990.*

### ENGLISH 3MM3 VICTORIAN POETRY

A study of selected poems and, where appropriate, of the literary theory of the major Victorian poets. Special attention will be given to Tennyson, Browning, Arnold, Hopkins.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in English

Antirequisite: ENGLISH 4M03

*Open only to students entering a programme in English as of September 1990.*

### ENGLISH 3N06 THE BRITISH NOVEL

This course, in assessing and analyzing approximately 12 novels, will trace the history of English fiction to the 20th century. The course focuses on the varieties of narrative forms, while also exploring the intellectual, cultural and psychological contexts of fiction.

Three lectures; two terms

Prerequisite: Registration in Level III or IV of a programme in English

Antirequisite: ENGLISH 4N06

*Open only to students entering a programme in English as of September 1990.*

### ENGLISH 3P03 MODERN DRAMA IN ENGLISH

A representative selection of plays by modern British, Irish and North American dramatists will be examined in order to study the relationship between drama and society in our age, as well as conventions and experiments in the contemporary theatre.

Three lectures; one term

Prerequisite: ENGLISH 1D06 or DRAMA 1A06

*Enrolment is limited.*

### ENGLISH 3Q03 THE HISTORY AND THEORY OF CRITICISM

A survey of the main developments in the theory and practice of literary criticism from Plato to the early 20th century.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in English

Cross-list: COMP LIT 3Q03

### ENGLISH 3QQ3 MODERN CRITICAL THEORY

The theory and practice of literary criticism from Eliot to the present.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in English

Cross-list: COMP LIT 3QQ3

### ENGLISH 3T03 SPENSER

The main work of the course will be a close study of *The Faerie Queene*, but *The Shepheardes Calendar*, *Epithalamion* and *Prothalamion* will also be read.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in English

### ENGLISH 3V06 STUDIES IN 17TH-CENTURY LITERATURE

A detailed examination of poets and prose-writers of the period, with emphasis on the poetry of Donne, the "metaphysical school", Jonson and Milton.

Three lectures; two terms

Prerequisite: Registration in Level III or IV of a programme in English

### ENGLISH 3XX3 TOPICS IN DRAMA

Previous topics include: British Drama: 1950 to the Present, Modern Canadian Drama. Consult the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: ENGLISH 1D06 or DRAMA 1A06

*ENGLISH 3XX3 may be repeated, if on a different topic, to a total of six units. Enrolment is limited.*

### ENGLISH 3Z03 CONTEMPORARY CANADIAN POETRY

The development of Canadian poetry from the 1940s to the present. Parallel developments in French-Canadian poetry (studied in translation) will also be considered.

Three lectures; one term

Prerequisite: ENGLISH 1D06

*Enrolment is limited.*

### ENGLISH 4X03 HONOURS ESSAY

In consultation with members of the English Department, students will prepare an essay on an approved topic.

Prerequisite: Registration in Level IV of an Honours programme in English; and permission of the Department. Departmental permission slip required.

*Enrolment is limited.*

### NOTE:

*Level IV seminars are open only to Honours students registered in Level IV of an English programme. Enrolment will be limited to 15 students per seminar. Students are advised to pre-register in March; a list of seminars to be offered will be available prior to pre-registration.*

### ENGLISH 4AA3 AFRICAN-AMERICAN WOMEN WRITERS

A study of a selection of African-American women writers, including Hurston, Walker, Morrison and Naylor, with a consideration of gender and race in literary theory.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English

*Enrolment is limited.*

### ENGLISH 4AC3 ARISTOPHANIC COMEDY AND LATER DRAMA

A study of Aristophanic comedy and of some later European drama which follows the Aristophanic model—from Aristophanes and Plautus to Ionesco, Orton and Stoppard.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English

*Enrolment is limited.*

### ENGLISH 4AM3 ANDREW MARVELL

A study of Marvell's times and his place in them, as well as a critical study of the poems, using traditional and current approaches.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English

*Enrolment is limited.*

### ENGLISH 4AP3 STUDIES IN AMERICAN POETRY

An in-depth study of some major figures in the tradition, with attention paid to changes in voice, form and preoccupation from poet to poet.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English

*Enrolment is limited.*

### ENGLISH 4AW3 ASIAN AMERICAN WRITING

An examination of selected prose texts by American writers of Asian origin. Issues of immigration, multiculturalism, race, and gender will be given close attention.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English

*Enrolment is limited.*

### ENGLISH 4BL3 THE BIBLE AND LITERATURE

A critical discussion of the Bible's overall narrative structure, the typological correspondences between Old and New Testaments and the use made of the Bible by poets and other artists.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English

*Enrolment is limited.*

### ENGLISH 4BP3 CROSS-CURRENTS IN CONTEMPORARY BRITISH POETRY

Close readings of selected works by three contemporary British poets — Philip

Larkin, Ted Hughes and Charles Tomlinson.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4CF3 CONTEMPORARY FICTION

A study of recent English and American fiction, with emphasis on metafiction as well as the relationship between contemporary literary theory and fiction.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4CM3 CHRISTOPHER MARLOWE

A consideration of Marlowe as poet, playwright, and as the subject of biography and literary mythology, with attention to the intellectual and political dimension of his life and work.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4CN3 BEYOND CANADIAN NATIONALISM

Critical readings of selected major works that reflect the international outlook of some Canadian writers.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4CV3 REALISM AND THE AMERICAN CIVIL WAR

A multi-media investigation of the influence of the American Civil War on American literature, music and art.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

*A Departmental permission slip is required.*

#### ENGLISH 4CW3 FEMINIST LITERARY THEORY AND CANADIAN WOMEN POETS

A discussion of several contemporary Canadian women poets from the perspective of feminist literary theory.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4DE3 STUDIES IN VICTORIAN FICTION: CHARLES DICKENS AND GEORGE ELIOT

A critical reading of selected novels by Dickens and Eliot, with consideration of their development, their contribution to the novel as genre, and their insights into Victorian society and the modern world.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4DH3 D.H. LAWRENCE

A study of selected works by D.H. Lawrence, focusing upon several novels with some attention to his shorter fiction, poetry and non-fictional prose.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4DV3 DREAMS, VISIONS AND ALLEGORY IN MIDDLE ENGLISH LITERATURE

A study of the evolution of the modes of literary dreams, visions and allegory through texts inherited from classical culture and their development within the medieval world view.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4EC3 LITERATURE AND CULTURE OF THE LATER ELIZABETHAN COURT

A study of some texts, portraiture and music by or associated with courtiers, and their deployment as instruments of political power or resistance to it.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4EL3 ENVIRONMENTAL LITERATURE

A study of the ways in which literary texts mediate between culture and nature using traditional, scientific, environmentalist, eco-feminist, native American, and deep ecologist approaches.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4ER3 SEX AND SOCIETY IN ENGLISH RENAISSANCE LITERATURE

A study of the institutionalization of sexuality during the English Renaissance as presented in the literary discourse of the age.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4ES3 18TH-CENTURY ENGLISH SATIRE

Close readings of the satiric writings of Dryden, Swift and Pope, with attention to the nature and function of satire and its development from classical literature.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4EW3 THE ART AND THOUGHT OF EVELYN WAUGH

An examination of the development of Waugh's fiction, with attention also given to his non-fictional prose in diaries and letters.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4FT3 THE FAIRY TALE

A study of the fairy tale from the structuralist, psychoanalytic, and sociological points of view, concentrating on the tales of the Brothers Grimm in translation and considering the importance of fairy tales in acculturation and their symbolic significance.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4GF3 GENRE FICTION

A study of examples from three genres rarely considered academically respectable (children's fiction, science fiction, and the detective novel) in an attempt to examine the nature of genre fiction.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4GH3 THE POETRY OF GEORGE HERBERT

Close readings of most of Herbert's English poems, with attention to the poetical and theological concerns of early 17th-century England.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4LL3 THE LYRIC OF LOVE AND LOSS: SHAKESPEARE, DONNE, HARDY AND YEATS

Readings of sets of poems dealing with the experiences of human love and loss by two Renaissance and two Modern poets, with some study of the cultural backgrounds of such literature.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4MR3 THE MIDDLE ENGLISH ROMANCE

A study of some 14th- and 15th-century Middle English romances in their original language with attention given to generic development and contemporary expressions in modern literature.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4PT3 PSYCHOANALYTIC AND OTHER CRITICAL APPROACHES TO FICTION

The application of psychoanalytic and other theories to several novels and short stories to explore the ways in which unconscious phantasy gives rise to and organizes such literary elements as conflict, character, symbol and form.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

#### ENGLISH 4QP3 19TH- AND 20TH-CENTURY QUÉBÉCOIS POETRY IN TRANSLATION

An examination of the work of the major québécois poets of the last two centuries, beginning with the poetry of the land and ending with "poets of the revolution".

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

**ENGLISH 4RN3 THE REGIONAL NOVEL IN  
THE EARLY NINETEENTH CENTURY**

A study of the regional novel with individual works by Maria Edgeworth, Jane Austen, Walter Scott, John Galt and J. Fenimore Cooper.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

**ENGLISH 4SA3 THE LITERATURE OF SOUTHEAST ASIA**

A study of contemporary literature in English from Malaysia and Singapore. Readings will include the novel, short story and poetry.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

**ENGLISH 4TP3 THOMAS PYNCHON AND "GRAVITY'S RAINBOW"**

An introduction to Pynchon in general and Gravity's Rainbow in particular, beginning with the early stories and The Crying of Lot 49.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

**ENGLISH 4UT3 UTOPIAN LITERATURE**

A study of the genre through English literature, from its roots in Plato's Republic, through the Middle Ages and the Renaissance to contemporary literature.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

*A Departmental permission slip is required.*

**ENGLISH 4WB3 WILLIAM BLAKE'S POETRY AND DESIGNS**

A study of the work of William Blake, his prose tractates, letters, poems, illustrations and visual designs.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

**ENGLISH 4WN3 WOMEN AND NATURE  
IN CANADIAN LITERATURE**

A study of fiction and poetry by Canadian women, exploring some of the issues raised by the long tradition of identifying nature as female.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

**ENGLISH 4WP3 WAR AND PEACE IN LITERATURE**

A close study of selected literary works in English that focus on the experience of war and the search for peace, especially in relation to the American Civil War, the First and Second World Wars and the Vietnam War.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

**ENGLISH 4WS3 SHAKESPEARE: CHANGING STYLES  
OF INTERPRETATION OF SELECTED PLAYS**

An examination of significant alterations in this century of critical attitudes to several Shakespeare plays and the wide variation in their representation and reception.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

**ENGLISH 4WW3 WOMEN WRITERS  
OF THE EIGHTEENTH CENTURY**

An exploration of poetry and fiction written by women in the 18th century, with particular attention to the social and philosophical concerns of these writers.

Seminar (two hours); one term

Prerequisite: Registration in Level IV of an Honours programme in English  
*Enrolment is limited.*

**NOTE:**

*The following courses are open only to students who entered an English programme prior to September 1990.*

**ENGLISH 2V06/2VV6 THE ENGLISH LANGUAGE**

An analysis of the way the English language works, with particular reference to syntactic patterns. The following areas will be considered: English phonology, historical linguistics, morphology, transformational-generative gram-

mar, vocabulary and word formation.

Three lectures; two terms

*Open only to students registered in a programme in English before September 1990. Students who wish to take English 2V06 in fulfilment of the language requirement in the Combined Honours English and Another Subject or the B.A. English programmes must register in the course as ENGLISH 2VV6 in which case it may not be used to fulfil the English area requirements.*

Cross-list: ENGLISH 3J06

**ENGLISH 4B06 ENGLISH LITERATURE (1660-1800)**

A study of English literature during the period 1660-1800, with special attention to works by Dryden, Swift, Pope and Johnson.

Three lectures; two terms

Prerequisite: Registration in Level III or IV of a programme in English

Cross-list: ENGLISH 3G06

*Open only to students registered in a programme in English before September 1990.*

**ENGLISH 4E06 CHAUCER AND HIS CONTEMPORARIES**

A critical, mainly literary, course in the poetry of late 14th-century England. It will study the writings of Chaucer in some depth, before taking up examples of medieval romance, allegory and drama.

Three lectures; two terms

Prerequisite: Registration in Level III or IV of a programme in English

Cross-list: ENGLISH 3C06

*Open only to students registered in a programme in English before September 1990.*

**ENGLISH 4L03 ROMANTIC POETRY**

A study of selected poems and, where appropriate, of the literary theory of the major Romantic poets. Special attention will be given to Blake, Wordsworth, Coleridge, Byron, Shelley, Keats.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in English

Cross-list: ENGLISH 3M03

*Open only to students registered in a programme in English before September 1990.*

**ENGLISH 4M03 VICTORIAN POETRY**

A study of selected poems and, where appropriate, of the literary theory of the major Victorian poets. Special attention will be given to Tennyson, Browning, Arnold, Hopkins.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in English

Cross-list: ENGLISH 3MM3

*Open only to students registered in a programme in English before September 1990.*

**ENGLISH 4N06 THE BRITISH NOVEL**

This course, in assessing and analyzing approximately 12 novels, will trace the history of English fiction to the 20th century. The course focuses on the varieties of narrative forms, while also exploring the intellectual, cultural and psychological contexts of fiction.

Three lectures; two terms

Prerequisite: Registration in Level III or IV of a programme in English

Cross-list: ENGLISH 3N06

*Open only to students registered in a programme in English before September 1990.*

For Graduate Courses see *Calendar of School of Graduate Studies.*

## ENVIRONMENTAL SCIENCE

This course is administered within the Faculty of Science jointly by the Departments of Biology, Chemistry, Geography, and Geology. Information may be obtained from the Faculty of Science Studies Office, General Science Building, Room 116.

**ENVIR SC 1A06 INTRODUCTION TO ENVIRONMENTAL SCIENCE**

Characteristics of the geosphere and biosphere and major environmental issues; earth composition, structure and tectonics, climate, hydrology, and geomorphology, atmospheric and environmental chemistry, ecosystems and population biology, and environmental toxicology. This course is specifically designed for students in Natural Science I, and those students in Social Sciences I who are planning on entering the B.A. Geography-Environmental Studies Programme.

Three lectures, or two lectures, one tutorial (three hours); two terms

Prerequisite: Open to students registered in Level I. An average of at least 75% in Two Science, Mathematics, Geography or Environmental Science OAC's is strongly recommended.

## FRENCH

### Faculty as of January 15, 1993

#### Chair

Elaine Nardocchio

#### Professors Emeriti

Pierre-Marie Conlon/B.A., M.A. (*Auckland*), D. de l'U. (*Paris*), F.R.S.C.  
 Arthur W. Patrick/M.A. (*Manitoba*), D. de l'U. (*Paris-Sorbonne*)  
 Marie L. Stock/B.A. (*Queen's*), M.A. (*McGill*), Ph.D. (*Columbia*)  
 G. Derek West/B.A. (*Oxford*), Ph.D. (*London*)

#### Professors

Caroline Bayard/L. ès L., M. ès L. (*Toulouse*), M.A., Ph.D. (*Toronto*)  
 Owen R. Morgan/B.A., M.A. (*Nottingham*)  
 César Rouben/L. ès S. (*Paris-Sorbonne*), B.A. (*Sir George Williams*), M.A.,  
 Ph.D. (*McGill*)

#### Associate Professors

Marie-Madeleine Ahmed/L. ès L., M. ès L., D. de l'U (*Paris-Sorbonne*)  
 William F. Hanley/B.A. (*Toronto*), M. ès L. (*Paris-Sorbonne*), D.Phil. (*Oxford*)  
 Madeleine Jeay/L. ès L. (*Bordeaux*), M.A., Ph.D. (*Montréal*)  
 Charles E. Jose/B.A. (*Western*), M.A. (*Toronto*)  
 Michael Kliffer/B.A. (*British Columbia*), M.A. (*Michigan*), Ph.D. (*Cornell*)  
 Dominique Lepicq/L. ès L. (*Caen*), M.A. (*Ottawa*), Ph.D. (*Toronto*)  
 Gabriel Moyal/B.A. (*McGill*), M.A., Ph.D. (*Toronto*)  
 Elaine Nardocchio/B.A. (*St. Francis-Xavier*), M.A. (*Middlebury*), Ph.D. (*Laval*)  
 Brian S. Pocknell/M.A. (*Manchester*), D. de l'U. (*Paris-Sorbonne*)/French &  
 Drama  
 Anna St. Leger Lucas/B.A. (*Nottingham*), M.A. Ph.D. (*British Columbia*)  
 Gary A. Warner/B.A. (*London*), L. ès L., D. de l'U. (*Caen*)

#### Assistant Professors

Vincent A. Betti/B.A., L. ès L. (*Laval*)  
 Suzanne Crosta/B.A., M.A. (*McMaster*), Ph.D. (*Toronto*)  
 Jane A.C. Rush/B.A. (*Toronto*), M.A., Ph.D. (*U.C.L.A.*)  
 John C. Stout/B.A. (*British Columbia*), Ph.D. (*Princeton*)

#### Senior Language Preceptor

Hélène Gallier-Morgan/D.U.E.L., L. ès L., M. ès L., D.E.A. (*Sorbonne*)

#### Instructor

Victor O. Aire/part-time  
 Pierre Hervy/part-time  
 Pauline Pocknell/B.A. (*Manchester*), B.Ed. (O.T.E.C.), M.A. (*McMaster*)/part-time  
 Elena Silvestri/B.A. (*McMaster*), D.E.A. (*Paris V*) /part-time  
 Daniel Simeoni/L. ès L., M. ès L. (*Paris X*), CAPES (*Anglais. Rang: 15ème*),  
 D.E.A. (*Paris VII*)/part-time

#### Department Notes:

- The Department reserves the right to refuse admission to any of its language courses to a student who has, in the opinion of the Department, a level of competence unsuited to that course.
- Students should note that the Department has classified its language courses under the following categories:
  - Introductory Level Language Courses**  
 FRENCH 1N06, 1NN6, 1Z06
  - Intermediate Level Language Courses**  
 FRENCH 1A06, 2M06
  - Advanced Level Language Courses**  
 FRENCH 2A03, 2C03, 2G03, 3C03, 3CC3, 3F03, 4A03, 4BB3
- Students with some elementary or secondary school French not exceeding Ontario Grade 11 French or equivalent should enrol in FRENCH 1Z06. The sequel to FRENCH 1Z06 is FRENCH 1NN6 which, in turn, leads into FRENCH 2M06.
- Students who begin their studies with FRENCH 1Z06 or FRENCH 1N06 and intend to register in a French programme will normally require more time to complete degree requirements than those students who are eligible to begin with FRENCH 1A06.
- Students with at least OAC French should register in FRENCH 1A06 or 1N06. Consult the prerequisite statements below for required minimum

grades. The sequel to FRENCH 1A06 is FRENCH 2A03. The sequel for FRENCH 1N06 is FRENCH 2M06.

- All students intending to register in FRENCH 1A06 or 1N06 must take the French Language Placement Test during their first class in September.
- For language practice courses, francophone students with native fluency must select from FRENCH 2G03, 3CC3, 4BB3. Francophone students with native fluency are not permitted to enrol in either FRENCH 2C03 or FRENCH 3F03.
- Students must complete FRENCH 4A03 in order to graduate with an Honours or Combined Honours degree in French.
- Students whose standing in FRENCH 3C03 is below B- will not be admitted to FRENCH 4A03. Students may repeat FRENCH 3C03 to improve their grade.

#### Courses

##### FRENCH 1A06 INTRODUCTION TO FRENCH STUDIES: ADVANCED LEVEL

Review of grammar, oral and written practice, and introduction to literary analysis by the reading of selected French and/or French-Canadian texts. Four tutorials; two terms

Prerequisite: OAC French with a grade of at least 80 percent. Students may take only one Level I French course. All students must take the French Language Placement Test. The Department reserves the right to place students in the course most appropriate to their abilities or to refuse permission for them to register in a French course.

##### FRENCH 1N06 INTENSIVE FRENCH GRAMMAR

A course designed to further the command of the written language. It is intended to be a review of basic grammar and will include intensive computer-aided drilling, vocabulary building and composition.

Two tutorials, three computer labs; two terms

Prerequisite: OAC French with a grade of less than 80 percent. Students may take only one Level I French course. All students must take the French Language Placement Test. The Department reserves the right to place students in the course most appropriate to their abilities or to refuse permission for them to register in a French course.

##### FRENCH 1NN6 INTENSIVE FRENCH GRAMMAR

A course designed to further the command of the written language. It is intended to be a review of basic grammar and will include intensive computer-aided drilling, vocabulary building and composition.

Two tutorials, three computer labs; two terms

Prerequisite: FRENCH 1Z06

Antirequisite: FRENCH 1N06

##### FRENCH 1Z06 BEGINNER'S INTENSIVE FRENCH

An intensive course for developing basic skills in both written and spoken French. The normal sequel to this course is French 1NN6.

Five hours (including lab practice); two terms

Antirequisite: Grade 12 French or OAC French. Not open to Francophones. Students with prior knowledge of the language, as determined by a placement test, may be required to take an appropriate alternative.

*Enrolment is limited.*

##### FRENCH 2A03 FRENCH LANGUAGE PRACTICE: WRITTEN

Grammar and composition.

Two tutorials, term one; one tutorial, term two.

Prerequisite: FRENCH 1A06, 1B06 or 2M06

##### FRENCH 2C03 FRENCH LANGUAGE PRACTICE: ORAL

Development of conversational skills.

Two tutorials; two terms

Prerequisite: FRENCH 1A06 or 2M06 and registration in a programme in French

Antirequisite: Not available to Francophone students with native fluency.

*Enrolment is limited.*

##### FRENCH 2D03 INTRODUCTION TO THE CIVILIZATION OF FRENCH CANADA

The study of the socio-political, cultural, religious, and linguistic evolution of early French Canada, of modern Quebec, and of the French-Canadian diaspora.

Three lectures; one term

Prerequisite: FRENCH 1A06 or 2M06

##### FRENCH 2E03 LITERATURE OF QUEBEC

Selected novels, plays, and poems representative of the main currents of 20th-century Quebec Literature.



Three lectures; one term

Prerequisite: FRENCH 1A06 or 2M06

**FRENCH 2G03 FRENCH LANGUAGE PRACTICE:  
ELEMENTARY TRANSLATION**

An introduction to translation techniques (French to English and English to French) and to the use of pertinent reference material.

Three tutorials; one term

Prerequisite: A grade of at least B- in FRENCH 1A06 or 2M06 or a grade of at least B in FRENCH 1B06, and registration in a French programme

*Enrolment is limited.*

**FRENCH 2H03 INTRODUCTION TO FRENCH LINGUISTICS**

An introduction to the descriptive analysis of language (phonology, morphology, syntax, semantics) with special reference to French.

Three tutorials; one term

Prerequisite: FRENCH 1A06, 1B06 or 2M06

**FRENCH 2J03 19TH-CENTURY FRENCH LITERATURE I**

Selected novels, plays and poems representative of the main currents of 19th-century French literature.

Three lectures; one term

Prerequisite: FRENCH 1A06, 1B06 or 2M06

**FRENCH 2JJ3 19TH-CENTURY FRENCH LITERATURE II**

Selected themes appearing in the works of the major French writers of the 19th century.

Three lectures; one term

Prerequisite: FRENCH 1A06, 1B06 or 2M06

**FRENCH 2M06 INTRODUCTION TO  
FRENCH STUDIES: ADVANCED LEVEL**

Review of grammar, oral and written practice, and introduction to literary analysis by the reading of selected French and/or French-Canadian texts.

Four tutorials; two terms

Prerequisite: FRENCH 1N06 or 1NN6

Antirequisite: FRENCH 1A06

**FRENCH 2N03 INTRODUCTION TO THE  
CIVILIZATION OF FRANCE**

The study of contemporary France through a selection of texts and audiovisual materials.

Three lectures; one term

Prerequisite: FRENCH 1A06 or 2M06

**FRENCH 2W03 20TH-CENTURY FRENCH LITERATURE I**

Aspects of the development of 20th-century literature to the end of the Second World War.

Three lectures; one term

Prerequisite: FRENCH 1A06, 1B06 or 2M06

**FRENCH 2WW3 20TH-CENTURY FRENCH LITERATURE II**

Aspects of the development of 20th-century literature since the Second World War.

Three lectures; one term

Prerequisite: FRENCH 1A06, 1B06 or 2M06

**FRENCH 3AA3 THE MODERN FRENCH-CANADIAN NOVEL**

Representative novels by contemporary authors with emphasis upon the relationship between technique and meaning.

Three lectures; one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level

**FRENCH 3B03 FRENCH SEMANTICS**

An introduction to various theories of meaning, treating issues such as reference, synonymy, paraphrase, cultural overlap, distinctive features and lexicography.

Three lectures; one term

Prerequisite: FRENCH 2A03 and 2H03

**FRENCH 3BB3 CONTEMPORARY QUEBEC THEATRE**

Contemporary experimental theatre, and representative playwrights such as Marcel Dube and Michel Tremblay.

Three lectures; one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level

**FRENCH 3C03 FRENCH LANGUAGE PRACTICE: WRITTEN**

Advanced grammar and composition; introduction to stylistics.

Two tutorials; two terms

Prerequisite: FRENCH 2A03 with a grade of at least C- and nine additional units

of French beyond FRENCH 1A06 or 2M06.

*Students whose standing in FRENCH 3C03 is below B- will not be admitted to FRENCH 4A03.*

*Students may repeat FRENCH 3C03 to improve their grade.*

**FRENCH 3CC3 FRENCH LANGUAGE PRACTICE:  
INTERMEDIATE TRANSLATION**

A course designed for the systematic comparison of French and English, including comparative stylistics, with special reference to problems in the translation of texts of a general nature.

Three tutorials; one term

Prerequisite: FRENCH 2A03 and 2G03

*Enrolment is limited.*

**FRENCH 3F03 FRENCH LANGUAGE PRACTICE:  
FRENCH CIVILIZATION AND CULTURE**

An introduction to contemporary French society through oral discussions and presentations.

Two tutorials; two terms

Prerequisite: FRENCH 2C03 or registration in Level III or IV programme in French Not available to Francophone students with native fluency.

*Enrolment is limited.*

**FRENCH 3G03 GENERAL AND COMPARATIVE PHONETICS**

Elementary questions of phonetic theory including physiological basis, speech sounds in isolation and in sequence, the syllable, the phoneme, prosodic features, graphemics and practical applications (transcriptions and pronunciation exercises).

Three lectures; one term

Prerequisite: FRENCH 1A06, 1B06 or 2M06

**FRENCH 3I03 FRENCH SOCIOLINGUISTICS**

The study of linguistic variations within French-speaking communities with special reference to the Canadian situation.

Three lectures; one term

Prerequisite: FRENCH 2H03 and registration in Level III or IV of a programme in French

**FRENCH 3K03 18TH-CENTURY FRENCH LITERATURE I**

The early 18th century with emphasis on Montesquieu, Marivaux and Prevost, and on the early writings of Voltaire.

Three lectures; one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

**FRENCH 3KK3 18TH-CENTURY FRENCH LITERATURE II**

Texts representing the main aspects of Enlightenment thought and literature from the publication of the preliminary discourse of the Encyclopedie to the Revolution.

Three lectures; one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

**FRENCH 3Q03 17TH-CENTURY FRENCH LITERATURE I**

A study of selected plays by Corneille, Moliere and Racine.

Three lectures; one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

**FRENCH 3QQ3 17TH-CENTURY FRENCH LITERATURE II**

A consideration of selected themes as they appear in the works of major French writers of the 17th century.

Three lectures; one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French.

**FRENCH 3S03 STUDIES IN MEDIEVAL FRENCH LITERATURE**

A survey of medieval French literature: songs and poetry of the troubadours and trouveres; selections from the *Chanson de Roland*, Chretien de Troyes' romances and other narrative works (lais, *Roman de la Rose*, *Roman de Renart*, fabliaux), and from secular theatre. Modernized French versions will be used. Selected texts in Old French will be analyzed.

Seminar (three hours); one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French.

Antirequisite: FRENCH 4R03

**FRENCH 3Z03 AFRICAN AND CARIBBEAN  
FRENCH LITERATURE**

An introduction to French African and Caribbean literature from the origins of the Negritude movement to the present.



Three lectures; one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06

#### **FRENCH 4A03 FRENCH LANGUAGE PRACTICE**

Advanced stylistics and composition.

Two tutorials, term one; one tutorial, term two

Prerequisite: A grade of at least B- in FRENCH 3C03 and registration in an Honours programme in French. Students must complete FRENCH 4A03 to graduate with an Honours or a Combined Honours B.A. in French.

#### **FRENCH 4BB3 FRENCH LANGUAGE PRACTICE: ADVANCED TRANSLATION**

Practice in the translation into French of texts of a specialized nature (e.g., administration, business, politics).

Three tutorials; one term

Prerequisite: FRENCH 3CC3

*Enrolment is limited.*

#### **FRENCH 4C03 FRENCH MORPHOLOGY AND SYNTAX**

A study of articles treating various morphological and syntactic problems. Both functional and generative approaches will be examined.

Three lectures; one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level, including FRENCH 2H03 and registration in a programme in French

#### **FRENCH 4E03 APPLIED LINGUISTICS AND SECOND-LANGUAGE LEARNING**

An examination of various aspects of second language acquisition as applied to the teaching of French, with special emphasis on psycholinguistic factors.

Seminar (two hours); one term

Prerequisite: FRENCH 2H03 and registration in Level III or IV of a programme in French

Antirequisite: FRENCH 3E03

#### **FRENCH 4F03 TOPICS IN 18TH-CENTURY FRENCH LITERATURE**

Previous topics include: Voltaire. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level including FRENCH 3K03 or 3KK3, and registration in a programme in French

*FRENCH 4F03 may be repeated, if on a different topic, to a total of six units.*

#### **FRENCH 4H03 TOPICS IN LINGUISTICS**

Previous topics include: Lexicology, Pragmatics, Sociolinguistics. Consult the Department concerning topic to be offered.

Seminar (three hours); one term

Prerequisite: FRENCH 2H03 and registration in Level III or IV of a programme in French

*FRENCH 4H03 may be repeated, if on a different topic, to a total of six units.*

#### **FRENCH 4I03 TOPICS IN FRENCH POETRY**

Previous topics include: Twentieth-Century Poetry, Poets and Humour, Object Poetry. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

#### **FRENCH 4J03 FRENCH LITERATURE OF THE RENAISSANCE**

Characteristic themes of Renaissance humanism as they appear in the works of Rabelais, Montaigne, and selected poets.

Seminar (three hours); one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

#### **FRENCH 4LL3 TOPICS IN FRENCH AFRICAN AND CARIBBEAN LITERATURE**

Previous topics include: Contemporary Writers. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level, including 3Z03, and registration in a programme in French

*FRENCH 4LL3 may be repeated, if on a different topic, to a total of six units.*

#### **FRENCH 4MM3 THE 18TH-CENTURY FRENCH NOVEL**

A study of the genesis and themes of representative 18th-century novels.

Seminar (two hours); one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

#### **FRENCH 4N03 TOPICS IN THE FRENCH NOVEL**

Previous topics include: Emile Zola. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

*FRENCH 4N03 may be repeated, if on a different topic, to a total of six units.*

#### **FRENCH 4O03 20TH-CENTURY FRENCH THEATRE**

A study of the ideas and dramatic techniques of the playwrights of the modern period who have influenced the development of today's theatre in France.

Three lectures; one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

#### **FRENCH 4Q03 TOPICS IN 17TH-CENTURY FRENCH LITERATURE**

Previous topics include: Corneille, Racine, Moliere. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: FRENCH 3Q03, and registration in a programme in French

*FRENCH 4Q03 may be repeated, if on a different topic, to a total of six units.*

#### **FRENCH 4S03 MEDIEVAL FRENCH LANGUAGE AND LITERATURE**

An introduction to the Old French language and a study of selected medieval texts.

Three lectures; one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

Antirequisite: FRENCH 3R03

#### **FRENCH 4T03 INDEPENDENT STUDY**

The student will prepare under the supervision of a faculty member a research paper involving independent research in an area of study in which the student has already demonstrated a high level of basic knowledge.

Prerequisite: Registration in Level IV of an Honours programme in French and permission of the FRENCH 4T03 Committee

#### **FRENCH 4U03 TOPICS IN FRENCH-CANADIAN LITERATURE**

Previous topics include: Folktales of French Canada, Acadia, Women Writers of Quebec. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

*FRENCH 4U03 may be repeated, if on a different topic, to a total of six units.*

#### **FRENCH 4X03 LINGUISTICS AND MODERN FRENCH LITERARY CRITICISM (FROM STRUCTURALIS TO SEMIOTICS)**

General linguistics applied to literary analysis. Includes narrative structures, pragmatics and sign theory.

Seminar (two hours); one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

#### **FRENCH 4Y03 TOPICS IN 20TH-CENTURY FRENCH LITERATURE**

Previous topics include: Women's Writing, The essay. Consult the Department concerning topic to be offered.

Seminar (three hours); one term

Prerequisite: One of FRENCH 1A06, 1B06, 2M06 and 12 additional units of French beyond the introductory level and registration in a programme in French

*FRENCH 4Y03 may be repeated, if on a different topic, to a total of six units.*

*The following course, of interest to students of French, is offered by the Department of Drama:*

#### **DRAMA 3TT3 TOPICS IN NATIONAL CINEMAS II**

(French Cinema will be a frequent topic of this course.)

For Graduate courses, see the *Calendar of School of Graduate Studies*.

**GEOGRAPHY****Faculty as of January 15, 1993****Chair**

S.M. Taylor

**Associate Chair**

G.M. MacDonald

**Professors Emeriti**

Andrew F. Burghardt/A.B. (*Harvard*), M.A., Ph.D. (*Wisconsin*)  
 R. Louis Gentilcore/B.A. (*Toronto*), Ph.D. (*Maryland*)  
 R. Lloyd G. Reeds/M.A., Ph.D. (*Toronto*)

**Professors**

Brian T. Bunting/M.A. (*Sheffield*), Ph.D. (*London*)  
 John A. Davies/B.A. (*Bristol*), M.Sc. (*McGill*), Ph.D. (*London*)  
 John J. Drake/M.A. (*Oxford*), M.Sc., Ph.D. (*McMaster*)  
 John E. Eyles/B.A., M.Sc. (*L.S.E.*), Ph.D. (*London*)  
 Derek C. Ford/M.A., D.Phil. (*Oxford*), F.R.S.C.  
 Frederick L. Hall/A.B. (*Amherst*), M.Sc. (*M.I.T.*), Ph.D. (*Chicago*), Professor of  
 Civil Engineering and Engineering Mechanics  
 Leslie J. King/M.A. (*New Zealand*), Ph.D. (*Iowa*), F.R.S.C.  
 Kao-Lee Liaw/B.S. (*National Taiwan*), M.A. (*Kansas State*), Ph.D. (*Clark*)  
 S. Brian McCann/B.Sc. (*Wales*), Ph.D. (*Cambridge*)  
 Yorgos Y. Papageorgiou/Dipl. Arch. Eng. (*National Technical, Athens*), M.C.P.,  
 Ph.D. (*Ohio State*), D.Sc. (*Louvain*)  
 Wayne R. Rouse/B.Sc. (*McMaster*), M.Sc., Ph.D. (*McGill*)  
 S. Martin Taylor/B.A. (*Bristol*), M.A., Ph.D. (*British Columbia*)  
 Ming-ko Woo/M.A. (*Hong Kong*), Ph.D. (*British Columbia*)

**Associate Professors**

William P. Anderson/M.A., Ph.D. (*Boston*)  
 Vera Chouinard/B.A. (*Western*), M.A. (*Toronto*), Ph.D. (*McMaster*)  
 Carolyn H. Eyles/B.Sc. (*East Anglia*), M.Sc. Ph.D. (*Toronto*)  
 Richard S. Harris/B.A. (*Cambridge*), M.A. (*Ohio*), Ph.D. (*Queen's*)  
 Pavlos S. Kanaroglou/B.Sc. (*Athens*), M.A., M.Sc., Ph.D. (*McMaster*)  
 G.M. MacDonald/B.A. (*Berkeley*), M.Sc. (*Calgary*), Ph.D. (*Toronto*)

**Associate Members**

Vivienne Walters/B.A., M.A. (*Sheffield*), Ph.D. (*McGill*)  
 John C. Weaver/B.A. (*Queen's*), M.A., Ph.D. (*Duke*)  
 Norman F. White/M.D.C.M. (*McGill*), D.Psych. (*McGill*), F.R.C.P. (C) (*Royal College*)

**Instructional Assistants**

Walter Peace/M.A. (*McMaster*)  
 Susan Vajoczki/M.Sc. (*McMaster*)

**Department Notes:**

- \* Indicates a Science course.
- Students are advised that not all courses will be offered in every year and should consult the *Handbook for Undergraduate Geographers*.

**Courses****GEOG 1B06 HUMAN GEOGRAPHY**

The spatial organization of people, their settlements and their activities. Topics range from global patterns of population and resources to individual spatial decisions.

Two lectures, one lab alternate weeks, one tutorial (one hour) alternate weeks; two terms

**GEOG 1C03\* INTRODUCTORY CLIMATOLOGY**

An introduction to the global pattern of weather, climate, and surface waters and climate change.

Two lectures, one lab; one term  
 Antirequisite: GEOG 1A06

**GEOG 1G03\* INTRODUCTORY GEOMORPHOLOGY**

An introduction to earth surface process and landforms, providing a basic understanding of the physical environment and its potential for use and abuse by humans.

Two lectures, one lab; one term  
 Antirequisite: GEOG 1A06

**GEOG 2A03 LOCATIONAL ANALYSIS**

Spatial location theory and spatial analysis methods as related to the siting of resource, manufacturing, and service activities.

Two lectures; one lab (two hours), one term

Prerequisite: GEOG 1B06

**GEOG 2B03 URBAN ECONOMIC GEOGRAPHY**

Economic-geographical analysis applied to urban problems at different scales of aggregation. Topics include urbanization, urban spatial structure, major urban externalities and urban size.

Three lectures; one term

Prerequisite: GEOG 1B06

**GEOG 2C03 CHINA: PEOPLE AND LAND IN TRANSITION**

Studies of the natural environment, cultural-historical setting, resources and economic development of China. Emphasis is placed upon the changing relationship between the people and the environment.

Three lectures, one term

**GEOG 2D03 URBAN HISTORICAL GEOGRAPHY**

The historical development of cities with particular reference to old world origins, and focusing on North America since 1850.

Two lectures, one lab (two hours); one term

**GEOG 2E03 CANADA**

The geography of Canada emphasizing the economic and social geography of regions and current development issues.

Three lectures; one term

**GEOG 2F03\* EARTH'S SURFACE CLIMATES**

The surface heat and water balance of natural and man-modified landscapes.

Two lectures, one lab (two hours) one term

Prerequisite: One of GEOG 1A06, 1C03 or ENVIR SC 1A06

**GEOG 2K03\* INTRODUCTION TO SOIL AND LAND USE STUDIES**

The composition, morphology, and environmental relationships of soils and their use and abuse by man.

Three lectures; one term

Prerequisite: One of GEOG 1A06, 1G03, ENVIR SC 1A06 or a Level I Science course

**GEOG 2LL3\* GEOGRAPHIC INFORMATION PROCESSING**

An introduction to the use of the microcomputer for the illustration and statistical analysis of geographical data.

Prerequisite: Registration in a Geography programme

**GEOG 2N03\* INTRODUCTORY APPLIED STATISTICS IN GEOGRAPHY**

An introduction to probability theory, sampling distributions, statistical inference, categorical data analysis, simple regression analysis and non-parametric statistics as they apply to geographical problems. Use will be made of a standard computer statistical package.

Two lectures; one lab (two hours); one term

Prerequisite: GEOG 2LL3

**GEOG 2P03 THE UNITED STATES OF AMERICA**

The physical and economic geography of the United States.

Three lectures; one term

**GEOG 2R03 BEHAVIOURAL GEOGRAPHY**

Introduction to environmental cognition and human spatial behaviour.

Two lectures, one lab (two hours); one term

Prerequisite: GEOG 1B06

**GEOG 2T03\* FLUVIAL GEOMORPHOLOGY**

The effects of moving water on the earth's surface: principles of sediment entrainment, fluvial flow, stream transport, and analysis of resulting landforms, such as terraces and deltas.

Two lectures, one lab (two hours); one term

Prerequisite: One of GEOG 1A06, 1C03, 1G03, ENVIR SC 1A06, GEOLOGY 1A03, 1C03

**GEOG 2W03\* HYDROLOGY IN CANADA**

A discussion of fresh water resources, including both surface and groundwater.

Three lectures; one term

Prerequisite: One of GEOG 1A06, 1C03, 1G03, ENVIR SC 1A06, GEOLOGY 1A03, 1C03

**GEOG 2Y03 URBAN AND REGIONAL DEVELOPMENT**

Contemporary trends in urban and regional development, emphasizing debates on the causes of change and the policies used to address development problems.

Two lectures; one tutorial (one hour); one term

Prerequisite: GEOG 1B06

### **GEOG 3C03\* ENVIRONMENTAL HAZARDS**

Geological and man-induced hazards affecting settlements and the natural environment will be discussed.

Two lectures, one lab; one term

Prerequisite: GEOG 2LL3

### **GEOG 3E03\* FIELD STUDY IN PHYSICAL GEOGRAPHY**

Field study experiments and survey design, data collection methods and data processing. Offered in the summer following Level II. Details are announced in January.

Prerequisite: GEOG 2LL3 and at least nine units of Level II Science Geography courses

### **GEOG 3EE3 FIELD STUDY IN HUMAN GEOGRAPHY**

Introduction to field study design, data collection methods and data processing. Offered in the summer following Level II. Details announced in January.

Prerequisite: GEOG 2NN3 and permission of the Department

### **GEOG 3F03\* PHYSICAL CLIMATOLOGY**

The physical basis of large scale climate and mechanisms of climatic change.

Two lectures, one lab (two hours); one term

Prerequisite: GEOG 2F03; either GEOG 2LL3 (or COMP SCI 1MA3), or registration in a programme in the Faculty of Science

### **GEOG 3G03 POPULATION GROWTH AND DISTRIBUTION**

Facts, theories, and major issues about the growth and distribution of human population.

Three lectures; one term

Prerequisite: GEOG 1B06

### **GEOG 3I03\* PLANETARY AND LUNAR GEOLOGY AND GEOMORPHOLOGY**

The geology and surface morphology of planets and moons of the solar system, with particular reference to the rocky bodies. Comparative studies are emphasized.

Three lectures; one term

Prerequisite: One of GEOG 1A06, 1C03, 1G03, ENVIR SC 1A06, GEOLOGY 1A03, 1C03 and successful completion of at least 12 units of Level II (or higher) Science courses

Cross-list: GEOLOGY 3I03

### **GEOG 3J03\* RESOURCE MANAGEMENT**

A discussion of natural resource scarcity, resource allocation, preservation/conservation issues, models of resource management and resource policies in Canada.

Two lectures, one lab; one term

Prerequisite: GEOG 2NN3; one of MATH 1A06, 1C06, 1M03

### **GEOG 3JJ3 GEOGRAPHY OF JAPAN**

Human and physical geography of Japan with emphasis on population characteristics and demographic processes.

Three lectures; one term

Prerequisite: GEOG 1B06 or registration in Japanese Studies Programme

Cross-list: JAPANESE ST 3JJ3

### **GEOG 3K03\* SOILS AND LAND USE IN CANADA**

The development of the major soil forms in Canada, their classification, capability and conservation. The application of soils studies to land use planning.

Two lectures; one lab (two hours); one term

Prerequisite: GEOG 2K03 or ENVIR SC 1A06

### **GEOG 3L03\* MULTIVARIATE ANALYSIS IN GEOGRAPHY**

Management and analysis of multivariate data sets in human and physical geography, including multiple regression and principal component analysis. The package SAS will be used.

Two lectures, one lab (two hours); one term

Prerequisite: One of GEOG 2LL3, ECON 2B03, MATH 1L03, SOCIOL 2Y04, STATS 1L03, 2D03, 2M03, 2R06

### **GEOG 3M03\* GLACIAL AND PERIGLACIAL GEOMORPHOLOGY**

The nature and development of glaciers, glacial landform systems and periglacial processes.

Two lectures, one lab (two hours); one term

Prerequisite: GEOG 2T03

### **GEOG 3N03\* GEOGRAPHICAL INFORMATION SYSTEMS**

Functionality and application of both raster-based and vector-based geographical information systems.

Two lectures; one lab (two hours); one term

Prerequisite: GEOG 2N03 or 2NN3

Antirequisite: GEOG 3NN3

(First offered in 1994-95)

### **GEOG 3NN3\* TECHNICAL ISSUES IN GEOGRAPHIC INFORMATION SYSTEMS**

Data structures, advanced methods of spatial data analysis/manipulation and the nature of spatial data error in geographical information systems.

Two lectures; one lab (two hours); one term

Prerequisite: GEOG 2NN3

(Last offered in 1993-94)

### **GEOG 3O03\* EXPLANATION IN GEOGRAPHY**

The history of modes of explanation in geography, focusing on the application of the scientific model, and with an emphasis on the formulation of a research proposal.

Two lectures, one semester (two hours); one term

Prerequisite: GEOG 2NN3 or 2N03

### **GEOG 3P03\* BIOGEOGRAPHY: ENVIRONMENTAL CHANGE AND THE BIOSPHERE**

Past, present and future natural and anthropogenic changes in the environment are examined in terms of their impact on plant and animal communities.

Three lectures; one term

Prerequisite: One of GEOG 1A06, 1C03, 1G03, ENVIR SC 1A06, Level I Biology, Level I GEOLOGY

### **GEOG 3Q03 INDUSTRIAL GEOGRAPHY**

Principles underlying the locational decisions of manufacturing firms and the growth and decline of industrial regions, with examples from the Hamilton area.

Two lectures, one lab; one term

Prerequisite: GEOG 1B06 or ECON 1A06

### **GEOG 3R03 GEOGRAPHY OF A SELECTED WORLD REGION**

The study of an area outside North America which will include topics in physical and human geography.

Three lectures; one term

Prerequisite: One of GEOG 1A06, 1B06, 1C03, 1G03

*GEOG 3R03 may be repeated, if on a different topic, with permission of the Department.*

### **GEOG 3T03 GEOGRAPHY OF PLANNING**

A review of historical and contemporary approaches to city and regional planning problems.

Two lectures, one lab (two hours); one term

Prerequisite: One of GEOG 2A03, 2B03, 2R03, 2Y03

### **GEOG 3U03\* ENVIRONMENTAL ISSUES: THE CANADIAN CONTEXT**

The application of ecological principles and methods to the analysis of problems in the natural and built environments of Canada.

Two lectures, one lab; one term

Prerequisite: Registration in an Honours Geography, Biology or Geology programme

### **GEOG 3UU3\* ENVIRONMENTAL IMPACT ASSESSMENT**

Technical and policy issues involved in the production and the appraisal of environmental impact assessments.

Two lectures, one lab; one term

Prerequisite: Registration in an Honours Geography, Biology or Geology programme

### **GEOG 3W03\* HYDROLOGY**

Principles of hydrology and their applications in physical geography.

Two lectures, one lab (two hours); one term

Prerequisite: Enrolment in Level III (or higher) of a Science programme or GEOG 2LL3 and one of GEOG 1A06, 1C03, 1G03

### **GEOG 3X03 URBAN MODELS AND POLICY ANALYSIS I**

A survey of modern literature on urban spatial structure. Topics include morphology, adjustments to change, and such phenomena as sudden urban growth and the decline of central cities.

Three lectures; one term

Prerequisite: GEOG 2B03 or ECON 2G03 or 2L06

Antirequisite: Registration only in an Economics programme or credit in ECON 3X03

### **GEOG 4A03\* KARST GEOMORPHOLOGY AND HYDROGEOLOGY**

Karst rocks, equilibria and kinetics of their aqueous dissolution; cavern genesis and porosity in aquifers; speleothem chronology; features of surface landforms; practical applications.

Three lectures; one term  
Prerequisite: GEOG 2T03

**GEOG 4B09 SENIOR THESIS FOR CO-OP STUDENTS**

A thesis based upon a research project carried out under the direction of a member of the Geography Department.

Prerequisite: Registration in the Honours Geography and Environmental Science Co-op Programme. Approval of the project must be obtained from the Chair of the Department at least six weeks prior to the beginning of the research project.

(First offered in 1995-1996)

**GEOG 4CC3 REVIEW PAPER**

The student will conduct a comprehensive review of a selected topic in Geography. The review paper is due before the final examination period.

One seminar (two hours), every other week; first term

Prerequisite: GEOG 3O03 and registration in Level IV of an Honours programme in Geography

Antirequisite: GEOG 4VV6 or 4C06

**GEOG 4C06 RESEARCH PAPER**

The student will select a study in geography and have it approved by a Faculty Supervisor, normally prior to May 1. The final report of the project is due by April 1 of the following year.

One seminar (two hours), every other week; two terms

Prerequisite: At least a grade of B+ in GEOG 3O03, a Level III average of 6.0 or above and permission of the course co-ordinator before registration in a Level IV programme

Antirequisite: GEOG 4VV6 or 4CC3

**GEOG 4D03\* COASTAL GEOMORPHOLOGY**

The dynamics and morphologies of the shore zone.

Two lectures, one lab; one term

Prerequisite: GEOG 3M03

**GEOG 4E03\* FIELD COURSE**

Detailed study of a particular aspect of physical geography in the field. Held in the Two weeks prior to Fall registration; report to be submitted before the end of first term. Various topics and locations: details announced in March.

Prerequisite: Permission of the instructor, which is given only if the appropriate Level II and Level III courses have been passed

**GEOG 4F03 URBAN DEVELOPMENT AND POLICY ISSUES**

Current debates on urban development and policy issues. Emphasis on the political economy of urban change.

Three lectures; one term

Prerequisite: GEOG 2Y03, or permission of the instructor

**GEOG 4H03\* LAND USE AND TRANSPORTATION**

Quantitative models to predict transportation flows and land use patterns in urban areas, including gravity type models, the Lowry model and discrete choice models.

Three lectures; one term

Prerequisite: GEOG 2N03

Cross-list: CIV ENG 4H03

**GEOG 4KK3\* APPLIED PEDOLOGY**

Application of soil science to environmental problems: land conservation, ecosystem and crop productivity, waste disposal, forest fires and terrain stability.

Three lectures; one term

Prerequisite: GEOG 2K03 or 3K03

**GEOG 4NN3\* GEOGRAPHIC INFORMATION SYSTEMS MANAGEMENT AND APPLICATIONS**

Analytical, operational, and institutional issues faced by the implementation of geographic information systems.

Two lectures; one lab (two hours) one term

Prerequisite: GEOG 3NN3 or 3N03

**GEOG 4P03\* ADVANCED BIOGEOGRAPHY: METHODS OF ENVIRONMENTAL RECONSTRUCTION**

Selected topics and methods of reconstructing past environmental conditions using evidence from historical records, tree-rings and plant fossils.

Two lectures, one lab (two hours); one term

Prerequisite: GEOG 3P03

**GEOG 4Q03\* CLIMATES IN HIGH LATITUDES**

Aspects of the heat and water balance climatology of terrestrial ecosystems in northern areas, with emphasis on the Canadian sub-arctic and tundra.

Three lectures; one term

Prerequisite: GEOG 2F03

**GEOG 4R03\* MODELS IN CLIMATOLOGY**

Discussion of global climatic models and their application.

Three lectures; one term

Prerequisite: GEOG 3F03 and one of MATH 1A06 or 1M03

**GEOG 4S03 GEOGRAPHY OF HEALTH CARE**

The environmental determinants of health and the spatial dimensions of health care delivery.

Two seminars; one term

Prerequisite: Registration in Level IV of an Honours programme

**GEOG 4T03 REGIONAL ANALYSIS AND PLANNING**

The use of analytical methods in assessing the environmental and socio-economic impacts of regional planning policies.

Two lectures, one lab (two hours); one term

Prerequisite: GEOG 3J03

**GEOG 4U03 SELECTED PROBLEMS IN URBAN PLANNING**

An examination of planning as a public decision process, with emphasis on land use conflicts and their resolution in the Hamilton region.

Two seminars (two hours); one term

Prerequisite: GEOG 3T03

**GEOG 4VV6\* RESEARCH IN ENVIRONMENTAL ISSUES**

Selected issues and problems in environmental science will be discussed and a research paper prepared.

One seminar (two hours); two terms

Prerequisite: GEOG 3U03 or 3U03

Antirequisite: GEOG 4C06 or 4CC3

**GEOG 4W03\* HYDROLOGIC MODELLING**

A survey of deterministic and stochastic models in hydrology.

Two lectures, one lab (two hours); one term

Prerequisite: GEOG 3W03

**GEOG 4X03 URBAN MODELS AND POLICY ANALYSIS II**

A survey of modern literature on urban issues. Topics include welfare criteria, externalities, public goods and fiscal policies.

Three lectures; one term

Prerequisite: GEOG 3X03

Cross-list: ECON 4X03

**GEOG 4Z03 THE URBAN LANDSCAPE**

The geography of class, ethnicity and gender in North American cities in the 20th century. Topics include: the nature of the home; segregation; suburbanization; gentrification.

Two seminars (two hours); one term

Prerequisite: GEOG 2D03 and registration in Level IV of any Honours programme.

For Graduate Courses see *Calendar of School of Graduate Studies*.

**GEOLOGY****Faculty as of January 15, 1993****Chair**

P.M. Clifford

**Professors Emeriti**

Denis M. Shaw/B.A., M.A. (Cambridge) Ph.D. (Chicago), F.R.S.C.

Gerd E.G. Westermann/B.Sc. (Braunschweig), Dipl. Geol., Dr. rer. nat. (Tubingen)

**Professors**

Brian J. Burley/B.Sc. (London), M.Sc. (British Columbia), Ph.D. (McGill)

Paul M. Clifford/B.Sc. (Southampton), Ph.D. (London)

James H. Crockett/B.Sc. (New Brunswick, Oxford), Ph.D. (M.I.T.)

H. Douglas Grundy/B.Sc., Ph.D. (Manchester)

James R. Kramer/B.Sc. (M.I.T.), M.Sc., Ph.D. (Michigan)

Robert H. McNutt/B.Sc. (New Brunswick), Ph.D. (M.I.T.)

Gerard V. Middleton/B.Sc., A.R.C.S., Ph.D., D.I.C. (London), F.R.S.C.

Michael J. Risk/B.Sc. (Toronto), M.Sc. (Western), Ph.D. (Southern California, L.A.)

Henry P. Schwarcz/B.A. (Chicago), M.S., Ph.D. (California Institute of Technology), F.R.S.C.

Roger G. Walker/B.A., D.Phil. (Oxford), F.R.S.C.

**Associate Professors**

Alan P. Dickin/M.A. (Cambridge), D. Phil. (Oxford)

William A. Morris/B.Sc. (Leeds), Ph.D. (Open University)

### Associate Members

W. Brian Clarke/B.A. (Dublin), Ph.D. (McMaster)

Derek C. Ford/M.A., D.Phil (Oxford), F.R.S.C.

Carolyn H. Eyles/B.Sc. (East Anglia), M.Sc., Ph.D. (Toronto)

S. Brian McCann/B.Sc. (Wales), Ph.D. (Cambridge)

Glen M. MacDonald/B.A. (Berkeley), M.Sc. (Calgary), Ph.D. (Toronto)

### Senior Demonstrator

Kenneth B. MacDonald/B.A., B.Ed. (Mount Allison)

### Department Notes:

1. Geology is becoming increasingly specialized. As a result, preparation for employment and research work can involve some difficult decisions about courses. This is particularly true as work on environmental problems becomes steadily more important. As a guide and help to students, the Department of Geology has a pamphlet (*available in the departmental office*) which gives details of possible course streams leading towards careers in environmental science, as well as towards the more traditional areas of energy and mineral resources.
2. In certain cases students lacking the specific prerequisites listed for a course may be deemed, by the course instructor, to have equivalent qualifications. In such cases permission to register in the course may be requested from the instructor.

### Courses

#### GEOLOGY 1C03 EARTH PROCESSES

An introduction to geology through study of dynamic geological processes, particularly global plate tectonics.

Two lectures, one lab (three hours); one term

Prerequisite: Open. An OAC in Chemistry or Physics is recommended.

#### GEOLOGY 2B04 OPTICAL CRYSTALLOGRAPHY AND MINERALOGY

Elementary optical theory with applications to, and descriptive study of, the common rock-forming minerals. The latter part of Geology 2B06.

Two lectures, one lab (two hours); in parts of both terms

Prerequisite: Open only to students registered in Ceramic Engineering

#### GEOLOGY 2B06 OPTICAL CRYSTALLOGRAPHY AND MINERALOGY

Elementary crystallography prerequisite to optical crystallography. Elementary optical theory with applications to, and descriptive study of, the common rock-forming minerals.

Two lectures, one lab (two hours); two terms

Prerequisite: Registration in a Geology or B.Sc. Earth Science programme; or permission of the Department.

#### GEOLOGY 2C03 EARTH HISTORY

The principles of stratigraphy and continental evolution, as illustrated by the geology of Ontario and other classic localities.

Two lectures, one lab (three hours); one term

Prerequisite: GEOLOGY 1A03 or 1C03 or ENVIR SC 1A06

#### GEOLOGY 2D03 INTRODUCTION TO STRUCTURAL GEOLOGY

A survey of the geometry of fractures and folds, their associated small-scale features, and their simple kinematic and dynamic analysis.

Two lectures, one lab (three hours); one term

Prerequisite: GEOLOGY 1A03 or 1C03 or ENVIR SC 1A06

Antirequisite: GEOLOGY 2D06 or 2DD3

#### GEOLOGY 2E01 HAND SPECIMEN PETROGRAPHY

An introduction to the study of rock suites in hand specimen with emphasis on field associations.

One lab (two hours); one term

Prerequisite: GEOLOGY 1A03 or 1C03 or ENVIR SC 1A06

#### GEOLOGY 2H03 GEOLOGICAL DATA PROCESSING

Introduction to statistical concepts and distributions, and their applications in geology. Time series analysis, regression and correlation, data contouring; modelling of geological processes.

Two lectures, one lab (two hours); one term

Prerequisite: Completion of Natural Sciences I

#### GEOLOGY 2I03 SOLID EARTH GEOPHYSICS

Introduction to the use of physical property measurements for determining the present structure and past evolution of Planet Earth. Gravitation, global seismology, paleomagnetism, and terrestrial heat flow.

Three lectures; one term

Prerequisite: Completion of Natural Sciences I

#### GEOLOGY 2J03 INTRODUCTORY PALEONTOLOGY

Uses of paleontology; importance in geologic time and organic evolution; origin of life; adaptation and functional morphology; major groups of economically important fossils; stratigraphy.

Two lectures, one lab (three hours); one term

Prerequisite: GEOLOGY 1A03 or 1C03 or ENVIR SC 1A06; or permission of the instructor.

Antirequisite: GEOLOGY 3D06

#### GEOLOGY 2K03 ENVIRONMENTAL SYSTEMS

Biogeochemical cycles applied to the environment; consideration of toxicity, anthropogenic perturbations; use of simple partitioning models.

Two lectures, one tutorial (two hours); one term

Prerequisite: Completion of Natural Sciences I or Engineering I; or permission of the instructor

Antirequisite: CIV ENG 2J03

#### GEOLOGY 3A03 EXPLORATION GEOPHYSICS A: GEOPHYSICAL MAPPING METHODS

Interpretation of geophysical survey data for regional geological mapping. Techniques covered are magnetics, gravity and radiometrics. Introduction to image processing and model interpretation.

Two lectures, one lab (two hours); one term

Prerequisite: GEOLOGY 2I03 or 2H03

Alternates with *Geology 3B03*.

Offered in 1993-94.

#### GEOLOGY 3B03 EXPLORATION GEOPHYSICS B: GEOPHYSICAL SURVEYS OF THE SUBSURFACE

Introduction to seismic reflection and refraction, ground probing radar, EM; electrical methods for mapping rocks and fluids in the subsurface. Introduction to digital signal processing.

Two lectures, one lab (two hours); one term

Prerequisite: GEOLOGY 2I03 or 2H03

Alternates with *Geology 3A03*.

Offered in 1994-1995.

#### GEOLOGY 3CC6 IGNEOUS AND METAMORPHIC PETROGRAPHY

A sequel to Geology 2B06. An introductory course in the petrography of igneous and metamorphic rocks including some discussion of their origin. Laboratory studies on rock suites.

Two lectures, one lab (two hours); two terms

Prerequisite: GEOLOGY 2B06

#### GEOLOGY 3E02 FIELD CAMP

A field camp of about Two weeks duration held immediately after the April-May Examinations. Normally taken immediately following Level II by students in all Geology and combined programmes.

Prerequisite: GEOLOGY 2E01 or permission of the Chair

#### GEOLOGY 3F03 SEDIMENTARY FACIES AND ENVIRONMENTS

A course in the field aspects of sedimentary rocks and the depositional environments of clastic and carbonate systems.

Three lectures, one term

Prerequisite: GEOLOGY 2C03

#### GEOLOGY 3G03 MINERALOGY

Topics in x-ray crystallography and mineralogy and an introduction to crystal chemistry; laboratory studies in physical and chemical properties of minerals.

Two lectures, one lab (three hours); one term

Prerequisite: GEOLOGY 2B06

#### GEOLOGY 3I03 PLANETARY AND LUNAR GEOLOGY AND GEOMORPHOLOGY

The geology and surface morphology of planets and moons of the solar system with particular reference to the rocky bodies. Comparative studies are emphasized.

Three lectures; one term

Prerequisite: One of GEOG 1A06, 1C03, 1G03, ENVIR SC 1A06, GEOLOGY 1A03, 1C03, and completion of at least 12 units of Level II (or higher) Science courses

Cross-list: GEOG 3I03

#### GEOLOGY 3J03 PALEONTOLOGY

Marine habitats and possible changes through geologic time. Groups of fossils important in stratigraphy including microfossils; economic paleontology.

Two lectures, one lab (three hours); one term

Prerequisite: GEOLOGY 2J03

Antirequisite: GEOLOGY 3D06

**GEOLOGY 3Q03 INTRODUCTORY GEOCHEMISTRY**

An introduction to the chemistry of the earth including cosmochemistry, global cycles, ocean chemistry, radiogenic and stable isotope systematics, geochronology, analytical techniques.

Three lectures; one term

Prerequisite: CHEM 2P06

**GEOLOGY 3S03 SEDIMENTARY PETROLOGY**

An introductory course in the petrology of sediments and sedimentary rocks. Laboratory includes textural analysis of sediments and examination of sedimentary rocks suites in hand specimen and thin section.

Two lectures, one lab (two hours); one term

Prerequisite: GEOLOGY 2B06

**GEOLOGY 4B03 IGNEOUS PETROLOGY**

Advanced theory of igneous rocks.

Three lectures, one term

Prerequisite: GEOLOGY 3CC6

**GEOLOGY 4BB3 METAMORPHIC PETROLOGY**

Advanced theory and practice on metamorphic rocks.

Two lectures, one lab (three hours); one term

Prerequisite: GEOLOGY 3CC6, CHEM 2P06

**GEOLOGY 4D03 ECOLOGY AND GEOLOGY OF CORAL REEFS**

A survey of recent and ancient reef systems in Canada and elsewhere. Emphasis is on the economic and environmental importance of reefs to Third World countries.

Two lectures, one seminar; one term

Prerequisite: GEOLOGY 3D06 or GEOLOGY 2J03 and 3J03 or completion of at least 12 units of Level III Biology

*Not offered in 1993-1994.*

**GEOLOGY 4E03 METALLIC MINERAL DEPOSITS**

Geology, geochemistry and genesis of ore deposits; environmental and economic aspects.

Three lectures; one term

Prerequisite: Registration in a Level III or IV of a Geology programme

**GEOLOGY 4EE3 ORE MICROSCOPY**

Reflected and transmitted light study of ore mineral assemblages.

One lab (three hours); two terms

Prerequisite: GEOLOGY 2B06

**GEOLOGY 4J03 DYNAMIC MODELS OF EARTH ENVIRONMENTS**

Physical principles applicable to geological environments and hazards: the flow of air, water, mud and ice; bending, flow, and fracture of rocks. Models of sediment transport, landslides, volcanic eruptions, earthquakes, and meteorite impacts.

Three lectures; one term

Prerequisite: GEOLOGY 2I03

**GEOLOGY 4K06 GEOLOGY THESIS**

Prerequisite: Open to students in Level IV of a Geology programme subject to the approval of the Chair of the Department.

**GEOLOGY 4M03 BASIN ANALYSIS AND PETROLEUM GEOLOGY**

Principles of formation and development of sedimentary basins, with applications to fossil fuels. Seismic and sequence stratigraphy of basin fill, as controlled by tectonics, eustasy and climate: thermal history of basins.

Three lectures; one term

Prerequisite: GEOLOGY 3F03

**GEOLOGY 4MM3 SEDIMENTOLOGY: CHEMICAL PROCESSES**

A review of equilibrium models and surface reactions. Topics covered are weathering, carbonate systems, evaporites, clays, iron minerals, phosphates, and diagenesis.

Three lectures; one term

Prerequisite: GEOLOGY 2C03, and CHEM 2P06 or 2T06

*Alternates with GEOLOGY 4S03.*

*Offered in 1994-95.*

**GEOLOGY 4N03 ADVANCED STRUCTURAL GEOLOGY**

Advanced strain analysis in geology; kinematics and propagation of fracture in rocks; elementary petrofabrics.

Three lectures; one term

Prerequisite: GEOLOGY 2D03 or 2D06 or both 2DD3 and 3DD3 and credit or registration in, GEOLOGY 3CC6

**GEOLOGY 4QQ3 ENVIRONMENTAL GEOCHEMISTRY**

Geochemistry of the earth's surface. Weathering, atmospheric processes, soil processes, aqueous speciation, and global cycles are related to environmental quality and problems.

Three lectures; one term

Prerequisite: GEOLOGY 3Q03

*Available in Levels III and IV.*

**GEOLOGY 4S03 PHYSICAL OCEANOGRAPHY**

Energy budget of the ocean; optical oceanography, ocean dynamics. Examples for the Great Lakes.

Three lectures; one term

Prerequisite: Credit or registration in, at least 15 units of Level III Science courses

*Available in Levels III and IV.*

*Alternates with GEOLOGY 4MM3.*

**GEOLOGY 4T03 PLATE TECTONICS**

Principles of plate tectonics, with application to regional and historical geology.

Three lectures; one term

Prerequisite: GEOLOGY 2C03; credit or registration in GEOLOGY 3CC6

**GEOLOGY 4W03 ENVIRONMENTAL ANALYSIS:  
A CASE HISTORY APPROACH**

Geochemical analysis applied to environmental problems. Geophysical signatures of buried aquifers and hazardous waste. Biological techniques in environmental reconstruction and assessment. Geological hazards.

Three lectures; one term

Prerequisite: Registration in Level III or IV Science or Engineering or Arts and Science

For Graduate Courses see *Calendar of School of Graduate Studies.*

## GERMAN

Courses and programmes in German are administered within the Department of Modern Languages of the Faculty of Humanities.

### Department Notes:

- Students should note that the Department has classified its German language courses under the following categories:  
**Introductory Level Language Course**  
 GERMAN 1Z06  
**Intermediate Level Language Courses**  
 GERMAN 1A03, 1AA3, 2AA3, 2Z06  
**Advanced Level Language Courses**  
 GERMAN 2E03, 2G03, 3Z03, 3ZZ3, 4CC3
- German programme students with native fluency are not permitted to enrol in GERMAN 2G03.

### Courses

**GERMAN 1A03 INTERMEDIATE GERMAN LANGUAGE**

A review of German grammar and idioms, including lab practice.

Three hours (two hours first term; one hour second term)

Prerequisite: OAC German; or Grade 12 German (with a grade of at least 80%) and permission of the department.

Antirequisite: GERMAN 1A06 or 2Y06

**GERMAN 1AA3 INTRODUCTION TO GERMAN LITERATURE**

Lectures outline the development of German literature against its cultural background and readings of literary texts.

Three hours (one hour first term; two hours second term)

Prerequisite: OAC German; or Grade 12 German (with a grade of at least 80%) and permission of the Department.

Antirequisite: GERMAN 1A06, 2Y06 or 2AA3

**GERMAN 1Z06 BEGINNER'S INTENSIVE GERMAN**

This course is designed to give students the ability to express themselves reasonably well in German. In addition, they will acquire the basics of German grammar and considerable reading skill. Small tutorial groups will ensure maximum participation by each student. This course is enhanced by a CALL (Computer-Aided Language Learning) module.

5 hours (including lab practice); two terms

Antirequisite: Grade 12 or OAC German.

*Students with prior knowledge of the language as determined by an interview may be required to take an appropriate alternative.*

**GERMAN 2A03 TWENTIETH-CENTURY LITERATURE**

A discussion of works and authors from Naturalism to the 1980's, with emphasis on shorter prose texts.

Three lectures; one term

Prerequisite: GERMAN 1A06 or 1AA3 or 2AA3, or registration in GERMAN 2Y06; or permission of the Department

**GERMAN 2AA3 INTRODUCTION TO GERMAN LITERATURE**

Lectures outline the development of German literature against its cultural background and readings of literary texts.

Three hours (one hour first term; two hours second term)

Prerequisite: GERMAN 1Z06; or OAC German; or Grade 12 German (with a grade of at least 80%) and permission of the Department.

Antirequisite: GERMAN 1AA3 or 1A06, 2Y06

**GERMAN 2E03 GERMAN GRAMMAR**

A systematic review, including translation and oral practice.

Three hours; one term

Prerequisite: One of GERMAN 1A06 or 1A03 or 2Z06

**GERMAN 2G03 GERMAN LANGUAGE PRACTICE**

A course designed to cover both the spoken and written language.

Three hours; one term

Prerequisite: Registration in Combined Honours in German, Alternative B. Departmental permission slip is required.

*Enrolment is limited.*

**GERMAN 2Z06 INTERMEDIATE GERMAN**

A course designed to further proficiency in spoken and written German. The course makes extensive use of unedited German materials for listening comprehension and reading. This course is enhanced by a CALL (Computer-Aided Language Learning) module.

Four hours (including lab practice); two terms

Prerequisite: Grade 12 German (with a grade less than 80%) or GERMAN 1Z06

Antirequisite: GERMAN 1A03 or 1AA3

**GERMAN 3A03 BAROQUE AND ENLIGHTENMENT LITERATURE**

Discussion of selected works from the beginning of the 17th to the end of the 18th century within their historical and intellectual contexts.

Three lectures; one term

Prerequisite: 12 units of German beyond Level I

**GERMAN 3B03 THE AGE OF GOETHE I**

From Sturm and Drang to Weimar Classicism.

Three lectures; one term

Prerequisite: 12 units of German beyond Level I

*Offered in alternate years.*

**GERMAN 3Z03 ADVANCED ORAL AND WRITTEN LANGUAGE PRACTICE I**

A practically-oriented course designed to increase the student's facility in using German as a means of oral and written communication. Students will be required to express their views on a variety of topics in written assignments and subsequent class discussions. Extensive reading will expand the students' vocabulary and improve general language ability.

Three lectures; one term

Prerequisite: One of GERMAN 2Z06 (with a grade of at least B-), 2E03, 2G03

**GERMAN 3ZZ3 ADVANCED ORAL AND WRITTEN LANGUAGE PRACTICE II**

A continuation of the approach used in GERMAN 3Z03.

Three lectures; one term

Prerequisite: GERMAN 3Z03 (with a grade of at least B-)

**GERMAN 4CC3 TRANSLATION: TECHNIQUES AND PRACTICE**

Practice in the translation of texts of a literary and non-literary nature. (English to German and German to English). This course makes use of a special Annotated Screens programme available in the Humanities Computer Laboratory.

Three hours; one term

Prerequisite: GERMAN 3Z03 or 3ZZ3 (with a grade of at least B-)

**GERMAN 4G03 THE AGE OF GOETHE II**

Romanticism from Novalis to Heine.

Three lectures; one term

Prerequisite: 12 units of German beyond Level I

*Offered in alternate years.*

**GERMAN 4HH3 HISTORY OF THE GERMAN LANGUAGE**

Selected texts from major works on the development of the German language as well as selected texts from major writers of the Middle and Old High German periods.

Three lectures; one term

Prerequisite: 18 units of German beyond Level I

*Offered in alternate years.*

**GERMAN 4II3 INDEPENDENT STUDY**

The student will prepare, under the supervision of a faculty member, a research paper involving independent study in an area where the student has already

demonstrated competence.

Prerequisite: Registration in Level IV of a German programme, and permission of the departmental Independent Study Committee.

**GERMAN 4T03 SPECIAL TOPICS IN GERMAN LITERATURE**

Previous topics include: German Symbolism and Expressionism; German Literature 1933-45; The So-Called Inner Emigration. Consult with the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: 18 units of German

Antirequisite: Credit for these topics taken under GERMAN 4X03

*GERMAN 4T03 may be repeated, if on a different topic, to a total of 6 units.*

**GERMAN 4TT3 MODERN LITERATURE AND THE ARTS**

An examination of the German literary Symbolism, Expressionism, and Surrealism in their wider artistic and European contexts, including painting, music and film.

Seminar (two hours); one term

Prerequisite: 18 units of German beyond Level I

**GERMAN 4Z03 PRINCIPLES OF TEACHING AND LEARNING A SECOND LANGUAGE**

An examination of various aspects of second language acquisition as applied to the teaching of German.

Seminar (two hours); weekly in first term, bi-weekly in second term

Prerequisite: Registration in Level IV of a German programme and permission of the Department

For Graduate Courses see *Calendar of School of Graduate Studies.*

**GERONTOLOGY****Faculty as of January 15, 1993****Professors**

Ellen B. Ryan (*Psychiatry/Gerontology*)/B.A., M.A. (*Brown*), Ph.D. (*Michigan*)  
Michael J. MacLean (*Gerontology/Social Work*)/B.A. (*St. Thomas*), M.A. (*Sussex*), Ph.D. (*London*)

**Associate Professor**

Kalervo I. Kinanen/dip S.W. (*Helsinki*), B.A. (*McMaster*) M.S.W. (*British Columbia*)/part-time

**Assistant Professors**

Margaret Denton (*Gerontology/Sociology*)/B.A., M.A., Ph.D. (*McMaster*)  
Andrea M. Mann (*Physical Education/Gerontology*)/B.A., B.P.E. (*McMaster*), M.Sc. (*Dalhousie*), Ph.D. (*Ohio State*)  
Sheree D. Meredith (*Gerontology/Social Work*)/B.A. (*Trent*), M.S.W. (*Wilfrid Laurier*)

**Lecturers**

Tamara L. Horton/B.A. (*Spring Arbor*), M.S.W. (*Michigan*)  
Anju Joshi/B.A., M.A. (*Dalhousie*)

**Associate Members**

Larry W. Chambers (*Clinical Epidemiology and Biostatistics*)/B.A. (*McMaster*), MSc. (*McMaster*), Ph.D. (*Memorial*)  
James W. Gladstone (*Social Work*)/B.A. (*McGill*), M.S.W. (*British Columbia*), Ph.D. (*Toronto*)  
Alexander S. Macpherson (*Psychiatry*)/M.Sc. (*McMaster*), M.D. (*Toronto*)  
Olga Roman (*Nursing*)/B.N. (*McGill*), M.Sc. (*Boston*), Ph.D. (*Toronto*)  
Gurmit Singh (*Pathology*)/B.Sc., Ph.D. (*Dalhousie*)

Gerontology Programmes at McMaster University are administered by the Faculty of Social Sciences through the Office of Gerontological Studies, and are co-ordinated and supervised by an interdisciplinary Committee of Instruction. Students wishing to register in a programme in Gerontological Studies must obtain *written approval* of the Chair of the Committee of Instruction of Gerontology Programmes.

**Committee of Instruction:****Chair**

E. Ryan (*Psychiatry/Gerontology*)

J. Aronson (*Social Work*)  
A. Beckingham (*Nursing*)



A.E. Combs (*Religious Studies*)  
 D. Counts (*Anthropology*)  
 M. Denton (*Gerontology/Sociology*)  
 J. Johnson (*Dean*) Ex-officio  
 A. Mann (*Physical Education/Gerontology*)  
 M. MacLean (*Gerontology/Social Work*)  
 B. Spencer (*Economics*)  
 J. Synge (*Sociology*)

## Courses

### GERONTOL 1A06 INTRODUCTION TO GERONTOLOGY

An introduction to gerontology as a multidisciplinary study of aging, focusing on the philosophical, historical, biological, physiological, psychological, economic, social and health care aspects, as well as social policies in respect to an aging population.

Three hours (lectures and tutorials and 15 hours experiential learning component); two terms

### GERONTOL 2A03 MULTIDISCIPLINARY ISSUES IN GERONTOLOGY

This course will examine the multidisciplinary nature of contemporary issues in the field of gerontology. Special attention will be given to the contributions of the cognate disciplines and the integration of gerontological knowledge.

Three hours (lectures and discussions); one term

Prerequisite: GERONTOL 1A06 or SOC SCI 2G06, and registration in a Gerontology programme

### GERONTOL 2B03 BIOLOGICAL DIMENSIONS OF HUMAN AGING

An examination of age-related changes in biology and physiology of organisms with a special emphasis on human aging. Attention will be given to the gradual deterioration of function and homeostatic controls and the maintenance of optimal operation for various organs.

Three hours (lectures); one term

Prerequisite: GERONTOL 1A06 or SOC SCI 2G06

### GERONTOL 3A03 INTERNATIONAL ASPECTS OF GERONTOLOGY

Issues in gerontology in selected developed and developing countries. The course focuses on demographic changes, social, political and economic implications of population change, attitudes toward the aged, health care and social policies.

Three hours (lectures and discussions); one term

Prerequisite: GERONTOL 1A06 or SOC SCI 2G06 and enrolment in any programme in Gerontology, Social Work or Health Sciences

*Note: This course will be offered every second year alternating with GERONTOL 3H03. The course will be offered in 1993-94.*

### GERONTOL 3B03 GERONTOLOGY FIELD EXPERIENCE

Directed practicum of 36 hours in an approved gerontology field experience and a weekly seminar focusing on integration of theoretical knowledge and practicum experience.

Three hours field experience per week, and two hours weekly seminar; one term

Prerequisite: Registration in a Gerontology Second Degree programme; or Level III or IV of any Gerontology programme

### GERONTOL 3C03 RESEARCH METHODS IN SOCIAL GERONTOLOGY I

An introduction to quantitative and qualitative research methods in social gerontology. Topics covered include research design, measurement, techniques of data collection, and data analysis. Special attention will be given to how research methods may be applied in the study of aging.

Three hours (lectures and practice); one term

Prerequisite: Registration in a Gerontology Second Degree programme; or Level III or IV of any Gerontology programme

### GERONTOL 3D03 PSYCHOLOGICAL ASPECTS OF AGING

An examination of psychological aspects of aging: sensation, perception, attention, memory, intelligence, communication, personality, attitudes and mental health.

Three hours (lectures and discussion); one term

Prerequisite: GERONTOL 1A06 or SOC SCI 2G06, and PSYCH 1A06

Cross-list: PSYCH 3DD3

*Students in a Psychology Programme (except those in Gerontology and Psychology) must register for this course as PSYCH 3DD3.*

### GERONTOL 3E03 INDEPENDENT STUDY IN GERONTOLOGY

The student will select a topic in gerontology for an in-depth investigation under the supervision of a faculty member and write a paper.

Prerequisite: Permission of the Course Co-ordinator or Programme Chair; and registration in a Gerontology Second Degree programme; or Level III or IV of

any Gerontology programme.

The study will normally extend over two terms.

*GERONTOL 3E03 may be repeated, if on a different topic, to a total of six units.*

### GERONTOL 3F03 GERONTOLOGICAL PRACTICE

Principles and methods of gerontological practice. The students will take part in the McMaster Summer Institute of Gerontology as partial fulfillment of course requirements, when offered in Term 1 of the Spring/Summer Session.

One term

Prerequisite: Registration in a Gerontology Second Degree programme; or Level III or IV of any Gerontology programme, and credit in GERONTOL 3B03

### GERONTOL 3G03 RESEARCH METHODS IN SOCIAL GERONTOLOGY II

The focus of this course will be on data analysis and statistics in social gerontology. Students will be introduced to techniques of analyzing data using a statistical software package on a computer.

Three hours (lectures and labs); one term

Prerequisite: Registration in a Gerontology Second Degree programme; or Level III or IV of any Gerontology programme, and credit in GERONTOL 3C03

### GERONTOL 3H03 ETHNIC AND RACIAL ISSUES IN GERONTOLOGY

This course will examine issues in gerontology related to the ethnic and racial diversity of contemporary western societies. Social and health care policy, practice and research will be addressed.

Three hours (lectures); one term

Prerequisite: GERONTOL 1A06 or SOC SCI 2G06 and enrolment in any Programme in Gerontology, Social Work or Health Sciences

*Note: This course will be offered every second year alternating with GERONTOL 3A03.*

*This course will be offered in 1994-95.*

### GERONTOL 3J03 AGING, WORK, RETIREMENT AND PENSIONS

An examination of the issues and concepts related to work, retirement and pensions and their implications for aging individuals and society.

Three hours (lectures and discussions); one term

Prerequisite: Registration in a Gerontology Second Degree programme; or Level III or IV of any Gerontology programme

### GERONTOL 3Q03 ANTHROPOLOGICAL APPROACHES TO THE STUDY OF AGING

An examination of the contribution of anthropology to the study of aging with an emphasis on cross-cultural comparisons, and including an assessment of the anthropological literature relating to the biological basis of aging in modern and prehistoric populations.

Three hours (lectures and discussion); one term

Prerequisite: ANTHROP 1A03 and three other units of Social/Cultural Anthropology, or registration in any programme in Gerontology.

Cross-list: ANTHROP 3Q03

### GERONTOL 4A06 GERONTOLOGY THESIS

Research projects with individual faculty members. Students who write a thesis in the other subject of their combined programme must arrange for six additional units of Gerontology or Gerontology Area course work in place of GERONTOL 4A06.

Prerequisite: Registration in Level IV of the Combined Honours Programme in Gerontology and Another Subject and credit in GERONTOL 3C03 and 3G03

### GERONTOL 4B03 COMMUNICATION AND COUNSELLING WITH OLDER ADULTS

This course introduces the student to issues in communication and counselling with older adults. Appropriate theories will be explored through lectures, discussions and practice.

Three hours (lectures and discussion); one term

Prerequisite: Registration in an Gerontology Second Degree programme; or Level III or IV of any Gerontology programme, and credit in GERONTOL 3B03

*Enrolment is limited.*

### GERONTOL 4C03 SPECIAL TOPICS IN GERONTOLOGY

Topics may vary from year to year. Students should consult the Committee of Instruction prior to registration, concerning topics to be examined.

Prerequisite: Registration in Level IV of the Combined Honours Programme in Gerontology and Another Subject; or any B.A. in Gerontology as a Second Degree programme

### GERONTOL 4D03 CURRENT ISSUES IN GERONTOLOGY

The content of the course will vary from year to year; please consult the Chair of the Gerontology Committee of Instruction for details.

Prerequisite: Registration in Level IV of the Combined Honours Programme in Gerontology and Another Subject; or any B.A. in Gerontology as a Second

Degree programme

**GERONTOL 4E03 ADVANCED RESEARCH SEMINAR IN GERONTOLOGY**

This course is an advanced research seminar. Gerontological researchers will present and discuss their research with students. Examples of varied approaches, such as feminist methodology, historical methods, policy analysis, qualitative methods and quantitative methods will be discussed.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level IV of the Combined Honours programme in Gerontology and Another Subject; or any B.A. in Gerontology as a Second Degree programme; and six units of Research Methods

**GERONTOL 4I03 PHYSICAL ACTIVITY, LEISURE AND AGING**

An examination of the concepts and theories of physical activity and leisure with respect to aging and vitality in later life.

Three hours (lectures); one term

Prerequisite: Registration in a Gerontology as a Second Degree programme; or Level III or IV of any Gerontology programme

Cross-list: PHYS ED 4I03

**GERONTOL 4S03 SOCIAL POLICY AND THE AGING POPULATION**

An examination of social problems arising from the aging of the population, and an analysis of the existing social policies designed to deal with the problems.

Prerequisite: Registration in Level IV of the Combined Honours Programme in Gerontology and Another Subject; or any B.A. in Gerontology as a Second Degree programme

**Other Designated Gerontology Area Courses:**

Students should check the prerequisites for these courses in the *Course Listings by Department* section of the Calendar.

ANTHROP 3Z03	Medical Anthropology: The Biomedical Approach
ECON 3D03	Labour Economics
ECON 3Z03	Health Economics
GEOG 4S03	Geography of Health Care
HTH SCI 3B04	Science, Health and Society
HISTORY 3EE3	History of Medicine in Canada
PHILOS 3C03	Advanced Bioethics
RELIG ST 2M03	Death and Dying: Comparative Views
RELIG ST 2N03	Death and Dying: Western Experience
RELIG ST 2WW3	Health, Healing and Religion
SOC WORK 3C03	Social Aspects of Health and Disease
SOCIOL 3CC3	Special Family Topics in Sociology of the Family and the Life Cycle
SOCIOL 3G03	Sociology of Health Care
SOCIOL 3HH3	Sociology of Health
SOCIOL 3X03	Sociology of Aging
SOCIOL 4P03	Issues in the Sociology of Aging

Other courses may qualify as Gerontology Area courses. Students wishing to designate a course not on the list as an Area course must consult the Chair of the Committee of Instruction, prior to registration.

## GREEK

(SEE CLASSICS, GREEK)

## HEALTH SCIENCES

### Faculty Note:

Health Sciences courses are normally available only to students registered in Nursing (A and B Stream) courses.

### Courses

**HTH SCI 1A06 HUMAN BIOCHEMISTRY**

The biochemistry and nutrition of the human body in health and disease.

Term I's major topic is production of energy from glucose and fat. Obesity, diabetes, heart disease, running and starvation are used as examples to illustrate the metabolism of energy production. Vitamins and minerals related to glucose and fat metabolism are also discussed.

Term II covers electrolyte balance, body pH, proteins, enzymes, protein malnourishment and nucleic acids. The metabolic processes are discussed against a backdrop of metabolic illness, drug metabolism and cancer. A final section deals with nutritional patterns for each stage of life, male and female.

Three hours (lectures/problem-based tutorial); two terms

Prerequisite: Credit or registration in HTH SCI 1B07; Registration in Level I of

the B.Sc.N. (A) Stream programme, or Level III of the B.Sc.N. (B) Stream programme; or permission of the instructor

**HTH SCI 1B07 HUMAN BIOLOGICAL SCIENCE I**

Term I is an overview of human structure and function, including the metabolic and synthetic processes of cells and the role of chemical mediators on cell function; basic tissues and their developmental origins; the organization of the body; and the structure and function of the musculo-skeletal system.

Term II examines homeostasis. Structural and functional aspects of the cardiovascular, respiratory, renal and digestive systems are integrated around the major themes of haemodynamics, fluid compartments, metabolism and nutrition.

Three hours (lecture/problem-based tutorial); three hours lab; two terms

Prerequisite: Credit or registration in HTH SCI 1A06; Registration in Level I of the B.Sc.N. (A) Stream programme or permission of the instructor

**HTH SCI 1C03 SOCIAL AND CULTURAL DIMENSIONS OF HEALTH CARE**

This overview course will draw on content areas from sociology, anthropology and psychology to increase the students' understanding of individuals, social and cultural groups and society in general in relation to health and health care. Special emphasis will be placed on understanding the social and cultural meanings of pregnancy and birth to women and their families. Of particular importance are the values and preferences of Native peoples and the many cultural communities within Ontario.

**HTH SCI 1D03 TOPICS IN BIOLOGICAL SCIENCES**

This course covers basic concepts of human structure and function, genetics and embryology through lectures, demonstrations and appropriate laboratory assignments.

**HTH SCI 1Z04 HUMAN ANATOMY**

Study of gross human anatomy providing an overview of tissues and organs of the major body systems. This course is available as an elective for students who have advanced credit for all of the required physiology.

Independent study: two hours lecture equivalent/four hours lab equivalent; one term

Prerequisite: Registration in the B.Sc.N. programme and permission of the instructor

**HTH SCI 1ZZ4 INTRODUCTORY PHYSIOLOGY FOR POST DIPLOMA NURSING STUDENTS**

This course focuses on integrative physiology of the gastrointestinal, cardiovascular, respiratory and renal systems, and how these systems control the acid base and ionic balance of the body. It examines homeostasis, the control mechanism by which these systems maintain a constant environment for the cell. Evaluation is on the basis of tutorial performance and six small and one summary essay.

One problem-based tutorial, one lab (three hours); one term

Prerequisite: credit or registration in HTH SCI 1A06, registration in Level III of the B.Sc.N. (B) Stream or permission of the instructor

**HTH SCI 2B08 HUMAN BIOLOGICAL SCIENCE II**

The term begins with a study of reproductive anatomy and physiology, with particular emphasis on intrinsic control mechanisms and extrinsic methods of regulation of reproduction. Selected aspects of human growth and aging are presented through the remainder of the course in a tutorial setting.

The second half of the term focuses on a study of the central and peripheral nervous system, including the special senses and neuroendocrine relationships. Medical microbiology and principles of pathology are considered in the first half of the second term, including structure and function of infectious agents, control measures and host defenses. Introductory skills in neurological assessment and drug actions on the nervous system are also considered.

The latter half of the second term is devoted to an examination of pharmacological principles.

Three hours (lecture/problem-based tutorial); three hours lab; two terms

Prerequisite: HTH SCI 1A06 and 1B07, and registration in Level II of the B.Sc.N. (A) Stream programme, or the Level IV of the B.Sc.N. (B) Stream programme or permission of the instructor

**HTH SCI 2AA2 TOPICS IN HUMAN BIOLOGICAL SCIENCES I**

Study of reproductive anatomy and physiology, with particular emphasis on intrinsic control mechanisms and extrinsic methods of regulation of reproduction. Selected aspects of human growth and aging are considered.

Two hours lecture, two hours tutorial per week for six weeks, three hour lab every two weeks for six weeks; Term I

Prerequisite: HTH SCI 1B07; registration in or completion of HTH SCI 1A06; registration in Level II of the B.Sc.N. (A) Stream or Level IV of the B.Sc.N. (B) Stream and permission of the instructor and of the Co-ordinator of Studies (Nursing)

Antirequisite: HTH SCI 2B08

#### HTH SCI 2BB2 TOPICS IN HUMAN BIOLOGY SCIENCE II

Study of the central peripheral nervous system, including the special senses and neuroendocrine relationships. Introductory skills in neurological assessment and drug actions on the nervous system are also considered.

Two hours lecture, two hours tutorial per week for six weeks; three hours lab every two weeks for six weeks; Term I

Prerequisite: HTH SCI 1B07; registration or credit in HTH SCI 1A06; registration in Level II of the B.Sc.N. (A) Stream or Level IV of the B.Sc.N. (B) Stream and permission of the instructor and of the Co-ordinator of Studies (Nursing)

Antirequisite: HTH SCI 2B08

#### HTH SCI 2CC2 TOPICS IN HUMAN BIOLOGICAL SCIENCES III

Medical microbiology and principles of pathology are considered, including structure and function of infectious agents, control measures and host defenses.

Two hour lecture, two hour tutorial per week for six weeks, three hours lab every two weeks for six weeks; Term II

Prerequisite: HTH SCI 1B07; registration or credit in HTH SCI 1A06; registration in Level II of the B.Sc.N. (A) Stream or Level IV of the B.Sc.N. (B) Stream and permission of the instructor and of the Co-ordinator of Studies (Nursing)

Antirequisite: HTH SCI 2B08

#### HTH SCI 2DD2 TOPICS IN HUMAN BIOLOGICAL SCIENCES IV

Principles of pharmacology and mechanisms of drug action are considered. Two hours lecture; two hours tutorial per week for six weeks; Term II Three hours lab every two weeks for six weeks; Term II

Prerequisites: HTH SCI 1B07; registration or credit in HTH SCI 1A06; registration in Level II of the B.Sc.N. (A) Stream or Level IV of the B.Sc.N. (B) Stream and permission of the instructor and of the Co-ordinator of Studies (Nursing)

Antirequisite: HTH SCI 2B08

#### HTH SCI 3A04 CRITICAL APPRAISAL OF RESEARCH LITERATURE

Introduction to the principles of clinical research and statistical inference with particular emphasis on critical assessment of evidence as presented in the health sciences literature related to the care of patients. A problem-based approach will be taken.

Three hours (problem-based tutorial) and two hours (guided self-study); one term

Prerequisite: Registration in Level III of the B.Sc.N. (A) or (B) Stream programme; or permission of instructor

#### HTH SCI 3B04 HEALTH, SCIENCE AND SOCIETY

This course is concerned with the biological, environmental, behavioural, social and economic factors that determine health needs of the population. There are three major components of the course: measuring health status, the determinants of health, and the provision of health care services.

Three hours (lecture/problem-based tutorials), and two hours (guided self-study); one term

Prerequisite: Registration in Level III of the B.Sc.N. (A) Stream programme, or Level IV of the B.Sc.N. (B) Stream programme; or permission of instructor

#### HTH SCI 3Q06 BIOTECHNOLOGY

An examination of the impact of biotechnology on industry, medicine, agriculture, and the environment. Students will discuss the central issues raised by our new knowledge of fundamental biological processes, including the influences on our lifestyles, health, and morality.

Two lectures, one tutorial; two terms

#### HTH SCI 3R03 INDEPENDENT STUDY IN A HEALTH SCIENCE TOPIC

Special topics will be considered in depth under the supervision of a faculty member. The plan of study must be negotiated with the supervisor.

Three hours lecture or equivalent; one term

Prerequisite: Registration in Level II or above of the B.Sc.N. programme and permission of the instructor and permission of the Co-ordinator of Studies (Nursing).

*Students will not normally be permitted to apply more than one independent study course in the Health Sciences toward their elective requirements for the B.Sc.N. degree.*

#### HTH SCI 4L04 INTRODUCTION TO THE RESEARCH PROCESS

Advanced critical analysis of nursing and related literature. Principles of research methodology and statistics are used to examine systematically the literature in relation to selected topics. Students participate in an ongoing research study.

Two hours (lectures, problem-based tutorial), first term, and four hours (guided

self-study) second term; two terms

Prerequisite: HTH SCI 3A04 and registration in Level IV of the B.Sc.N. (A) or (B) Stream programme; or permission of the instructor

## HEALTH AND SOCIETY

(SEE MINORS AND THEMATIC AREAS OF STUDY)

## HEBREW

(SEE RELIGIOUS STUDIES, HEBREW)

## HISPANIC STUDIES

Courses and programmes in Hispanic Studies are administered within the Department of Modern Languages of the Faculty of Humanities.

### Department Note:

Students should note that the Department has classified its Hispanic language courses under the following categories:

#### Introductory Level Language Course

HISPANIC 1Z06

#### Intermediate Level Language Courses

HISPANIC 1A06, 2Z06

#### Advanced Level Language Courses

HISPANIC 2A03, 3D03, 3DD3

### Courses

#### HISPANIC 1A06 INTERMEDIATE SPANISH

A course designed to further the student's command of the language in its oral and written forms. There will be some review of basic grammar, but emphasis will be upon composition, expansion of vocabulary, and the more advanced aspects of the language.

Three hours; two terms

Prerequisite: Grade 12 or OAC Spanish

Antirequisite: HISPANIC 2Z06.

*Students with prior knowledge of the language as determined by a placement test may be required to take an appropriate alternative.*

#### HISPANIC 1Z06 BEGINNER'S INTENSIVE SPANISH

A course designed to cover the rudiments of the language in both written and oral forms. This course also provides preparation for more advanced work in Spanish. This course is enhanced by a CALL (Computer-Aided Language Learning) module.

Four hours (including lab practice); two terms

Antirequisite: Grade 12 or OAC Spanish or equivalent

*Students with prior knowledge of the language as determined by a placement test may be required to take an appropriate alternative.*

#### HISPANIC 2A03 LANGUAGE PRACTICE I

A course devoted to the expansion of vocabulary, the improvement of comprehension, and the achievement of greater confidence and versatility in the language by using different and creative forms of communication.

Three hours; one term

Prerequisite: HISPANIC 1A06; or credit in or concurrent registration in HISPANIC 2Z06; or permission of the Department

#### HISPANIC 2B03 INTRODUCTION TO THE CULTURE OF SPAIN

A course which surveys the development of Spanish art, literature, and politics from the earliest times.

Three lectures; one term

Prerequisite: HISPANIC 1A06 or 1Z06

#### HISPANIC 2C03 INTRODUCTION TO THE CULTURE OF SPANISH AMERICA

A survey of the development of Spanish America from pre-Columbian times to the present day.

Three lectures; one term

Prerequisite: HISPANIC 1A06 or 1Z06

#### HISPANIC 2Z06 INTERMEDIATE SPANISH

A course designed to further the student's command of the language in its oral and written forms. There will be some review of basic grammar, but emphasis will be upon composition, expansion of vocabulary, and the more advanced aspects of the language.

Three hours; two terms

Prerequisite: HISPANIC 1Z06

Antirequisite: HISPANIC 1A06

### HISPANIC 3D03 LANGUAGE PRACTICE II

A course with two main objectives: to teach the rudiments of translation into and out of Spanish, and to train the student to read a text in Spanish, to assimilate it, to isolate the essential ideas and to reproduce them concisely in his or her own words.

Three lectures; one term

Prerequisite: HISPANIC 2A03

### HISPANIC 3DD3 ADVANCED LANGUAGE PRACTICE

A continuation of HISPANIC 3D03. The emphasis is on the precis and on translation into and out of Spanish. A variety of texts of increasing difficulty will be used for both purposes.

Three hours; one term

Prerequisite: HISPANIC 3D03

### HISPANIC 4DD3 SYNTAX

A course which provides opportunities to develop a deeper awareness of style through the study of syntax. Elements of syntax and translation will be included. Three hours; one term

Prerequisite: HISPANIC 3DD3

### HISPANIC 4I13 INDEPENDENT STUDY

The student will prepare, under the supervision of a faculty member, a research paper involving independent study in an area in which the student has demonstrated competence.

Tutorials; one term

Prerequisite: Registration in Level IV of a Hispanic Studies programme, and permission of the Independent Study Committee for Hispanic Studies

### HISPANIC 4L13 SPANISH AMERICAN NOVEL

A study of the novel of the Twentieth Century with emphasis on the Boom generation.

Three lectures; one term

Prerequisite: HISPANIC 2C03 or 2E03

Offered in alternate years.

### HISPANIC 4M03 THE SPANISH NOVEL OF THE 20TH CENTURY

Representative Spanish novels of the post-civil war period.

Three lectures; one term

Prerequisite: HISPANIC 2B03 or 2E03

Offered in alternate years.

### HISPANIC 4MM3 CERVANTES AND HIS TIMES

An analytical study of the Quijote and of some of Cervantes' other works within the context of the intellectual history of the 16th century.

Three lectures; one term

Prerequisite: HISPANIC 2B03 or 2E03

Offered in alternate years.

### HISPANIC 4NN3 THE SPANISH NOVEL OF THE 19TH CENTURY

A study of the novel of the second half of the 19th century in the context of the stylistic trends and intellectual history of the period.

Three lectures; one term

Prerequisite: HISPANIC 2B03 or 2E03

Offered in alternate years.

### HISPANIC 4PP3 MEDIEVAL SPANISH LITERATURE

A survey of the major themes in writings of the period 1100 to 1500. Early love poetry, the Poema de Mio Cid, the Libro de buen amor, the Celestina and the Coplas of Jorge Manrique will be among the works studied.

Seminar (three hours); one term

Prerequisite: HISPANIC 2B03 or 2E03

Offered in alternate years.

### HISPANIC 4SS3 THE SPANISH-AMERICAN SHORT STORY

A study of the evolution of the Spanish-American short story from Quiroga to Garcia Marquez.

Three lectures; one term

Prerequisite: HISPANIC 2C03 or 2E03

Offered in alternate years.

### HISPANIC 4T03 TOPICS IN HISPANIC LITERATURE

Previous topics include: The Enlightenment in Spain, The Spanish American Essay. Consult the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: HISPANIC 2B03 and 2C03 or 2E03

HISPANIC 4T03 may be repeated, if on a different topic, to a total of six units

## HISTORY

### Faculty as of January 15, 1993

#### Chair

John C. Weaver

#### Professors Emeriti

Ezio Cappadocia/B.A., M.A. (Toronto), Ph.D. (Chicago)

Charles M. Johnston/B.A. (McMaster), M.A., Ph.D. (Pennsylvania)

John H. Trueman/B.A., M.A. (Toronto), Ph.D. (Cornell)

#### Professors

Alan Cassels/M.A. (Oxford), Ph.D. (Michigan), F.R.H.S.

Paul S. Fritz/B.A. (Queen's), M.A. (Wisconsin), Ph.D. (Cambridge), F.R.H.S.

Daniel J. Geagan/A.B. (Boston), Ph.D. (Johns Hopkins)/History & Classics

Robert H. Johnston/B.A. (Toronto), M.A., Ph.D. (Yale)

Harvey A. Levenstein/B.A. (Toronto), M.S., Ph.D. (Wisconsin)

Richard A. Rempel/B.A. (Saskatchewan), B.A., M.A., D. Phil. (Oxford)

David J. Russo/B.A. (Massachusetts), M.A. Ph.D. (Yale)

John C. Weaver/B.A. (Queen's), M.A., Ph.D. (Duke)

#### Associate Professors

James D. Alsop/B.A. (Winnipeg), M.A. (Western), Ph.D. (Cambridge), F.R.H.S.

David P. Barrett/B.A., M.A., M.Phil. (Toronto), Ph.D. (London)

Edmond M. Beame/B.A. (Cornell), Ph.D. (Illinois)

John P. Campbell/M.A. (Glasgow), A.M., Ph.D. (Yale)

J. Michael Gauvreau/B.A. (Laurentian), M.A., Ph.D. (Toronto)

Bernice M. Kaczynski/B.A. (Pittsburgh), M.Phil., Ph.D. (Yale)

Wayne L. Thorpe/B.A. (Washington), B.A. (Portland State), M.A. (Colorado), Ph.D. (British Columbia)

Thomas E. Willey/B.A. (Butler), M.A., Ph.D. (Yale)

#### Assistant Professors

Virginia Aksan/B.A. (Allegheny College), MLS (Berkeley), M.A., Ph.D. (Toronto)

Ruth Frager/B.A. (Rochester), M.A., Ph.D. (York)

Evan W. Haley/A.B. (Dartmouth), Ph.D. (Columbia)/Classics & History

Liana Vardi/B.A. (McGill), M.A. (Concordia), Ph.D. (McGill)

#### Instructors

Daniel Azoulay/part-time Paul Doerr/B.A., M.A. (Waterloo)/part-time

Kathy Garay/B.A. (East Anglia), M.A. (McMaster), Ph.D. (Toronto)/part-time

Beryl Haslam/B.A., Cert.Ed. (Bristol), M.A., Ph.D. (McMaster)/part-time

Cecilia Morgan/B.A., M.A., Ph.D. (Toronto)

George Sheppard/B.A., M.A. (Laurentian), Ph.D. (McMaster)/part-time

#### Canada Research Fellow

Thomas M. Prymak/B.A., M.A. (Manitoba), Ph.D. (Toronto)/part-time

#### Associate Members

Peter J. George/Economics/M.A., Ph.D. (Toronto)

George Paul/Classics/M.A. (Oxford), Ph.D. (London)

Charles G. Roland/Family Medicine/B.Sc. (Med.), M.D. (Manitoba)

### Department Notes:

1. The Department of History offers three Level I courses, each of which is designed to introduce the student to the study of History at the university level through the examination of an important aspect of the development of western civilization. HISTORY 1D06 is recommended for those students who anticipate entering B.A. or Honours programmes in History, but students will be admitted to programmes in History from any of these courses. Students may take only one of these courses.
2. Enrolment in any Level IV History course will be limited to twelve students. Students must be registered in an Honours History programme or have a History C.A. of 7.0 in another programme to enrol in any Level IV History course. Preference will be given in order to students according to the following categories: Level IV Honours History and Combined Honours in History; Level III Honours History and Combined Honours in History; Level III B.A. History and others (with special permission of the Department).

Within each category, preference will be determined by the student's C.A. Students are expected to preregister in March for seminars; late placement will be made according to availability of seminars.

3. Students interested in Ancient History are advised to examine the courses in Classics offered by the Department of Classics.

## Courses

### HISTORY 1C06 THE MODERN WORLD: THE ERA OF EUROPEAN PRIMACY

A study of the background and development, from the French Revolutionary Era to the present, of the principal political, intellectual, and economic factors that have shaped the 20th-century world.

Three hours (lectures and discussion groups); two terms

### HISTORY 1D06 THE CIVILIZATION OF THE WEST

A study of the principal themes and issues in European history from the Fall of the Roman Empire to the twentieth century.

Three hours (lectures and discussion groups); two terms

### HISTORY 1L06 HISTORY AND ARCHAEOLOGY OF THE ANCIENT WORLD

The history of the Ancient Near East, Greece, and Rome based on documentary sources and archaeological evidence.

Two lectures, one tutorial; two terms

Cross-list: CLASSICS 1L06

### HISTORY 2A06 EARLY MODERN EUROPE 1400-1715

A study of the transition from late medieval to early modern civilization, with emphasis upon the breakup of feudal society and the consequent changes in the character of Europe.

Three lectures; two terms

Prerequisite: Registration in Level II and above

### HISTORY 2B06 CHINA: FROM LATE IMPERIAL TIMES TO THE PRESENT

The history of China from the 17th century to the present, with emphasis on the 19th and 20th centuries. The course will focus on political developments, social and cultural change, and China's relations with the outside world.

Three lectures; two terms

Prerequisite: Registration in Level II and above

### HISTORY 2E06 THE ISLAMIC WORLD, 600-1800

A survey of the history of the Islamic world, its spread through Africa, Europe and Asia, and the nature of Muslim institutions and societies.

Three lectures; two terms

Prerequisite: Registration in Level II and above

Cross-list: RELIG ST 2O06

### HISTORY 2H06 UNITED STATES HISTORY

The history of the United States from the Colonial Era to the Second World War.

Three lectures; two terms

Prerequisite: Registration in Level II and above

*Enrolment is limited.*

### HISTORY 2I06 EUROPE IN THE MIDDLE AGES

A survey of European History from A.D. 400-1400. Particular attention will be given to the attempts at political and social organization which led to the 'birth' of Europe.

Three lectures; two terms

Prerequisite: Registration in Level II and above

### HISTORY 2J06 THE HISTORY OF CANADA

A study of the major social and political forces that have contributed to the development of modern Canada.

Three lectures; two terms

Prerequisite: Registration in Level II and above

*Enrolment is limited.*

### HISTORY 2L06 THE HISTORY OF GREECE AND ROME

Greece from the rise of the city-states to Alexander; Rome from the Middle Republic through the early Empire. Attention will be given to the political, military and social developments in the light of both literary and archaeological evidence. (No Greek or Latin required).

Three lectures; two terms

Prerequisite: Registration in Level II and above

Cross-list: CLASSICS 2G06

### HISTORY 2N06 BRITISH HISTORY, 1500-1950

Emphasis will be placed on the main political, religious, economic and social developments.

Three hours (lectures and discussion groups); two terms

Prerequisite: Registration in Level II and above

### HISTORY 3A03 IMPERIAL ISLAM: THE OTTOMANS, THE SAFAVIDS, AND THE MUGHALS

A survey of the three great civilizations of the middle period of Islam (1500-1800) which will examine the similarity of the Islamic institutions in each and the differences stemming from the distinct cultural traditions: Turkish, Persian and Indian.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level II and above

*Alternates with HISTORY 3AA3.*

### HISTORY 3AA3 THE MODERN MIDDLE EAST

A survey of the political and social history of the Middle East from 1800 to the present, with an emphasis on contemporary issues, such as the Islamic impulse and the Arab-Israeli conflict.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level II and above

*Alternates with HISTORY 3A03.*

### HISTORY 3B03 MODERN JAPAN

A survey of 19th and 20th century Japan, with emphasis on political developments, social change, and Japan's relations with East Asia and the West.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: JAPANESE ST 3B03

### HISTORY 3BB3 THE TOWN IN UNITED STATES HISTORY

A study of the political, economic, social, cultural and intellectual aspects of town life, as well as an examination of the relationship of the town to American society as a whole.

Three lectures; one term

Prerequisite: Six units of History

### HISTORY 3CC3 CULTURE AND SOCIETY IN OLD REGIME FRANCE

This course traces the changes in French social organization in the 17th and 18th centuries, examining the roles of the aristocracy and clergy, urbanization and economic growth, as well as the intellectual debates and cultural developments.

Three hours (lectures and discussion); one term

Prerequisite: One of HISTORY 1D06, 2A06, 2I06, 3F03, 3R03

*Offered in alternate years.*

### HISTORY 3D03 THE FRENCH REVOLUTION

A study of the origins, nature and impact of the French Revolution, and of the legacy of the Revolutionary-Napoleonic period.

Three hours (lectures and discussion); one term

Prerequisites: One of HISTORY 1D06, 2A06, 2M06

*Alternates with HISTORY 3W03.*

### HISTORY 3E06 SELECTED TOPICS IN THE RECENT HISTORY OF THE UNITED STATES

American society, politics, and foreign relations from World War I to the present, with considerable emphasis on social history, including the history of women, minorities, labour, and radicalism.

Three hours (lectures and discussion); two terms

Prerequisite: HISTORY 2H06

### HISTORY 3EE3 HISTORY OF MEDICINE IN CANADA

An examination of the development of medical and health services in Canadian history. Emphasis will be on the interaction between society and medicine, rather than the technical aspects of medicine.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level II and above

### HISTORY 3F03 MEDIEVAL SOCIETY

An examination of the aristocratic, monastic, urban and rural communities of the Middle Ages. Attention will be given to patterns of social organization as well as to such specific themes as gender, popular piety, justice and warfare.

Three hours (lectures and discussion group); one term

Prerequisite: One of HISTORY 1D06, 2I06

### HISTORY 3H06 THE HISTORY OF MODERN RUSSIA

A survey of the history of Russia with major emphasis on the 19th and 20th centuries.

Three lectures; two terms

Prerequisite: Registration in any programme in History

### HISTORY 3HH3 THE INTERNATIONAL RELATIONS OF THE EUROPEAN POWERS, 1815-1914

An examination of the post-Napoleonic settlement of 1815; its breakdown and the triumph of the national unification movements; the causes of World War I.

Three lectures; one term

Prerequisite: Registration in Level II and above

Alternates with HISTORY 3I03.

**HISTORY 3I03 THE INTERNATIONAL RELATIONS OF THE EUROPEAN POWERS, 1914-1945**

An examination of the "German problem"; the post World War I settlement and its failure to prevent another world war; the shaping of present-day Europe by World War II.

Three lectures; one term

Prerequisite: Registration in Level II and above

Alternates with HISTORY 3HH3.

Enrolment is limited.

**HISTORY 3II6 THE HISTORY OF WARFARE, 1865-1945**

A survey of the development of military, naval, and air doctrine and technology before the start of the nuclear age, with particular emphasis on the relationship between prewar theory and wartime experience during the two World Wars.

Three lectures; two terms

Prerequisite: Six units of History

**HISTORY 3J06 GERMANY AND AUSTRIA FROM THE HABSBURGS TO HITLER**

An analysis of major political, social, and cultural developments in the German states and Austria from the Reformation to 1955.

Three hours (lectures and discussion groups); two terms

Prerequisite: Registration in Level II and above

**HISTORY 3JJ3 CRIME, CRIMINAL JUSTICE AND PUNISHMENT IN MODERN HISTORY**

A study of the changing face of the institutions of criminal justice, and of criminal behaviour, as revealed in statistical and conventional historical works. The focus will be on North America, Great Britain and France.

Three lectures; one term

Prerequisite: Registration in Level II and above, with a minimum of six units of History

Alternates with HISTORY 3O03

Enrolment is limited.

**HISTORY 3L03 MODERN CANADA: THE GREAT TRANSFORMATION, 1890-1929**

An intensive examination of themes in the social, economic, cultural, and political history of industrial Canada.

Three lectures; one term

Prerequisite: HISTORY 2J06

Alternates with HISTORY 3M03.

**HISTORY 3LL3 THE HELLENISTIC AGE**

The successors of Alexander, the world of the monarchies and their absorption into the Roman Empire. Political, cultural and social achievements in the light of modern historical research will be emphasized.

Three hours (lectures and discussion groups); one term

Prerequisite: Registration in Level II and above

Cross-list: CLASSICS 3LL3

Offered in alternate years.

**HISTORY 3M03 MODERN CANADA: FROM DEPRESSION TO REFERENDUM, 1929-1980**

An intensive thematic study of Canadian developments in society, politics and culture from the Great Depression to the Quebec Referendum.

Three lectures; one term

Prerequisite: HISTORY 2J06

Alternates with HISTORY 3L03.

**HISTORY 3MM3 THE ROMAN EMPIRE**

Rome, Italy and the provinces from the creation of an autocracy by Augustus until the end of the 2nd century A.D.: developments in government, society, defence and economy; the Romanization of the provinces. Archaeological evidence and new approaches to problems will be considered.

Three hours (lectures and discussion groups); one term

Prerequisite: HISTORY 1L06 or 2L06, or six units of Classics

Offered in alternate years.

Cross-list: CLASSICS 3MM3

**HISTORY 3N03 THE HISTORY OF THE CANADIAN WORKING CLASS**

An examination of social, political and economic issues shaping the development of the Canadian working class. This includes investigation of the ideological divisions, ethnic relations, and gender roles within the working class and within the labour movement.

Three lectures; one term

Prerequisite: HISTORY 2J06, or registration in a Labour Studies programme

Offered in alternate years.

**HISTORY 3P03 RELIGION AND SOCIETY IN CANADA**

This course will examine the origin, nature and development of the major Canadian religious denominations from the 17th to the mid-20th Century.

Three hours (lectures and discussion groups); one term

Prerequisite: Registration in Level II and above.

Offered in alternate years.

**HISTORY 3QQ3 WAR AND SOCIETY IN EARLY MODERN ENGLAND, 1485-1713**

A thematic study of the nature of English warfare and its relationship to society during the period in which England developed as a major military and naval power.

Three hours (lectures and discussion groups); one term

Prerequisite: HISTORY 2N06

**HISTORY 3R03 RELIGION AND POLITICS IN THE AGE OF THE REFORMATION**

An examination of both the Protestant and Catholic movements of the 16th century with particular attention to their political and social implications.

Three lectures; one term

Prerequisite: Registration in Level II and above

**HISTORY 3RR3 WAR AND SOCIETY IN 20TH-CENTURY BRITAIN**

A comparison of the impact of World War I on Britain with that of World War II.

Three hours (lectures and discussion groups); one term

Prerequisite: Registration in Level II and above

**HISTORY 3SS3 ASPECTS OF THE CULTURAL HISTORY OF ENGLAND, 1500-1688**

An introduction to courtly, urban, and rural culture from pre-Reformation humanism through to the Restoration era, with emphasis upon social, political and religious influences.

Three hours (lectures and discussion groups); one term

Prerequisite: Registration in Level II and above

**HISTORY 3TT3 MATERIAL LIFE IN ENGLAND, 1500-1800**

Among topics covered will be: food and drink, clothing, costume and fashion, lodging, health and medicine, architecture of towns and cities, technology, capitalism and the emergence of a consumer society.

Three hours (lectures and discussion groups); one term

Prerequisite: HISTORY 2N06

**HISTORY 3U03 ASPECTS OF FRENCH CANADIAN HISTORY**

Emphasis will be placed on Quebec from the 18th to mid-20th Century.

Three hours (lectures and discussion groups); one term

Prerequisite: HISTORY 2J06

Offered in alternate years.

**HISTORY 3UU3 GREEK SOCIETY IN THE AGE OF PERICLES**

A description and analysis of selected aspects of the social life of Athens in the second half of the 5th century B.C., based upon contemporary literature, documents and artifacts. Lectures will deal in greater depth with topics introduced in CLASSICS 2U03, as well as others peculiar to Periclean Athens:

work and leisure, education, religion, marriage and family life, the roles of women, war and peace, social structure, and social mobility.

Three lectures; one term

Prerequisite: HISTORY 1L06 or 2L06, or six units of Classics courses, including CLASSICS 2U03; or CLASSICS 2G06

Cross-list: CLASSICS 3UU3

Alternates with HISTORY 3VV3.

**HISTORY 3VV3 ROMAN SOCIETY IN THE AGE OF AUGUSTUS**

A description and analysis of selected aspects of social life of Rome at the end of the 1st century B.C. based upon contemporary literature, documents, and artifacts. Lectures will deal in greater depth with topics introduced in CLASSICS 2V03, as well as others peculiar to Augustan Rome: work and leisure, education, religion, marriage and family life, the roles of women, war and peace, social structure, and social mobility.

Three lectures; one term

Prerequisite: HISTORY 1L06 or 2L06, or six units of Classics courses, including 2V03; or CLASSICS 2G06

Cross-list: CLASSICS 3VV3

Alternates with HISTORY 3UU3.

**HISTORY 3W03 THE SOCIALIST TRADITION IN MODERN EUROPE**

An examination of major developments in socialist ideology in Modern Europe:

early socialism, Marxism, anarchism, syndicalism, revisionism, Leninism; the conflict between libertarian socialism, communism and democratic socialism in the twentieth century.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level II and above

*Alternates with HISTORY 3D03.*

### **HISTORY 3WW3 TOPICS IN GREEK AND ROMAN SOCIETY**

Previous topics include: Women in Greek Society, Slavery in Greek and Roman Antiquity, and Money and Money-Making in the Roman World. Consult the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: HISTORY 2L06, or six units of Classics, including 2U03 or 2V03

Cross-list: CLASSICS 3WW3

*Offered in alternate years.*

*HISTORY 3WW3 may be repeated, if on a different topic, to a total of six units.*

### **HISTORY 3X03 CANADIAN AND AMERICAN WOMEN'S HISTORY**

An examination of the history of Canadian and American women in the nineteenth and twentieth centuries. This includes investigation of paid and unpaid labour, sexuality, child-rearing, formal education and religion.

Three lectures; one term

Prerequisite: HISTORY 2H06 or 2J06, or WOMEN ST 2A06

*Offered in alternate years.*

### **HISTORY 3XX3 EARLY LATIN AMERICA**

From the Amerindian cultures to 1823. The course will deal with the pre-Columbian civilizations, the Spanish conquest and its consequences until the wars for independence from Spain.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Alternates with HISTORY 3YY3.*

### **HISTORY 3YY3 MODERN LATIN AMERICA SINCE 1820**

Liberalism, nationalism, militarism and the various revolutions will be covered as well as the U.S. role in Latin America and the Caribbean.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Alternates with HISTORY 3XX3.*

### **HISTORY 4A06 SPECIAL TOPICS IN BRITISH HISTORY (1688-1830)**

Seminar (two hours); two terms

Prerequisite: HISTORY 2N06 and registration in Level III or IV of any Honours programme in History

*Enrolment is limited.*

### **HISTORY 4AA6 SPECIAL STUDIES IN THE HISTORY OF TUDOR AND STUART ENGLAND**

Studies in the political, religious, intellectual and social life of Tudor and Stuart England.

Seminar (two hours); two terms

Prerequisite: One of HISTORY 2N06, 3QQ3, 3SS3, or 3TT3, and registration in Level III or IV of any Honours programme in History

*Enrolment is limited.*

### **HISTORY 4B06 MODERN CANADA, 1896-1968: AN INTELLECTUAL AND CULTURAL HISTORY**

An intensive study of the shaping of the twentieth-century outlook in English-speaking Canada. Topics will include the growth of the welfare state, ideologies (liberalism, conservatism, socialism, feminism), the cultural impact of depression and the two world wars, and the role of religion in shaping the Canadian community.

Seminar (two hours); two terms

Prerequisite: HISTORY 2J06 or 3KK6 or 3L03 and 3M03, and registration in Level III or IV of any Honours programme in History

*Students may take only two of HISTORY 4B06, 4CC6, 4H06 and 4W06.*

*Enrolment is limited.*

### **HISTORY 4BB6 SPECIAL TOPICS IN THE HISTORY OF MODERN JAPAN**

Japan from the Meiji Restoration to the post-war resurgence, with emphasis on political developments and social change.

Seminar (two hours); two terms

Prerequisite: HISTORY 3B03 and registration in Level III or IV of any Honours programme in History; or JAPAN ST 3B03 (HISTORY 3B03) with a grade of at least B- and registration in Level III or IV of the Japanese Studies programme

*Alternates with HISTORY 4G06.*

*Enrolment is limited.*

### **HISTORY 4CC6 SPECIAL TOPICS IN THE SOCIAL AND CULTURAL HISTORY OF VICTORIAN CANADA**

An examination of the social and cultural development of English Canada between 1837 and 1901.

Seminar (two hours); two terms

Prerequisite: HISTORY 2J06 and registration in Level III or IV of any Honours programme in History

*Students may take only two of HISTORY 4B06, 4CC6, 4H06 and 4W06.*

*Enrolment is limited.*

### **HISTORY 4D06 SPECIAL TOPICS IN GREEK HISTORY**

Investigations into Greek social history and its interpretation.

Seminar (two hours); two terms

Prerequisite: Six units from HISTORY 2L06, 3LL3, 3UU3, CLASSICS 2U03, and registration in Level III or IV of any Honours programme in History, Classics

Cross-list: CLASSICS 4D06

*Enrolment is limited.*

### **HISTORY 4E06 SPECIAL TOPICS IN THE HISTORY OF VICTORIAN BRITAIN**

An examination of such themes as the two-party system, the Irish question, working-class life, religious and literary movements, evolving industrialism, imperialism and social reform.

Seminar (two hours); two terms

Prerequisite: HISTORY 2N06 and registration in Level III or IV of any Honours programme in History

*Enrolment is limited.*

### **HISTORY 4EE6 SOCIETY, SCIENCE AND THE MEDICAL PROFESSION IN 19TH-AND 20TH-CENTURY NORTH AMERICA**

Selected topics in the history of professional medicine in Canada and the U.S.A., and its roots in western Europe: topics will include theory and practice (particularly the relationship between bacteria and disease), medical education, and the growth of institutions such as hospitals and departments of public health.

Seminar (two hours); two terms

Prerequisite: One of HISTORY 2H06, 2J06, 3E06, 3EE3, 3KK6 and registration in Level III or IV of any Honours programme in History

*Enrolment is limited.*

### **HISTORY 4G06 SPECIAL TOPICS IN THE HISTORY OF MODERN CHINA**

Aspects of the political, social, and cultural history of nineteenth- and twentieth-century China.

Seminar (two hours); two terms

Prerequisite: HISTORY 2B06 and registration in Level III or IV of any Honours programme in History

*Alternates with HISTORY 4BB6.*

*Enrolment is limited.*

### **HISTORY 4GG6 TOPICS IN MIDDLE EASTERN AND ISLAMIC HISTORY**

Aspects of the social history of the Middle East and Islamic world, such as the Muslim-Christian encounter, gender and ethnicity.

Seminar (two hours); two terms

Prerequisite: HISTORY 2E06, 3A03, 3AA3, and registration in Level III or IV of any Honours programme in History

*Enrolment is limited.*

### **HISTORY 4H06 CANADIAN WOMEN'S HISTORY**

An examination of historical changes in women's roles in Canadian society, particularly since Confederation. This includes investigation of family dynamics, women's work and women's political involvement.

Seminar (two hours); two terms

Prerequisite: HISTORY 2J06 or 3X03 and registration in Level III or IV of any Honours programme in History

*Students may take only two of HISTORY 4B06, 4CC6, 4H06 and 4W06.*

*Enrolment is limited.*

### **HISTORY 4I06 SPECIAL TOPICS IN ROMAN HISTORY**

Problems in the history of the Roman Empire.

Seminar (two hours); two terms

Prerequisite: Six units from HISTORY 2L06, 3MM3, 3VV3, CLASSICS 2V03, and registration in Level III or IV of any Honours programme in History or Classics

Cross-list: CLASSICS 4I06

*Enrolment is limited.*



## 180 HUMANITIES (GENERAL)

### **HISTORY 4J06 SPECIAL TOPICS IN THE HISTORY OF THE UNITED STATES IN THE 20TH CENTURY**

Seminar (two hours); two terms

Prerequisite: One of HISTORY 2H06 or 3E06 and registration in Level III or IV of any Honours programme in History

*Enrolment is limited.*

### **HISTORY 4JJ6 INTERPRETING MODERN GERMANY**

Studies in the history of modern Germany (1866-1945), exploring the formation of Germany's political culture from the foundation period through Weimar and the Third Reich. Special attention will be given to the range of interpretations found in recent German historiography.

Seminar (two hours); two terms

Prerequisite: One of HISTORY 2M06 or 3J06 and registration in Level III or IV of any Honours programme in History

*Enrolment is limited.*

### **HISTORY 4K06 LABOUR AND THE LEFT IN MODERN EUROPE**

An examination of the workers' movement in Europe since 1889. Topics include national variations in ideology and in the organization and practice of trade unions and political parties, as well as problems and strategies of international action.

Seminar (two hours); two terms

Prerequisite: One of HISTORY 2M06, 2N06, 3H06, 3J06, and registration in Level III or IV of any Honours programme in History

*Enrolment is limited.*

### **HISTORY 4L06 SPECIAL TOPICS IN THE HISTORY OF THE UNITED STATES BEFORE 1865**

Seminar (two hours); two terms

Prerequisite: HISTORY 2H06 and registration in Level III or IV of any Honours programme in History

*Enrolment is limited.*

### **HISTORY 4LL6 THEMES IN ANCIENT HISTORY**

An examination of at least two selected themes in Ancient History, particularly the history of the Greco-Roman world, with emphasis on the use of source materials, primary and secondary, literary and non-literary.

Seminar (two hours); two terms

Prerequisite: Six units from HISTORY 2L06, 3LL3, 3MM3, 3UU3, 3VV3, and registration in Level III or IV of any Honours programme in History

Cross-list: CLASSICS 4LL6

*Enrolment is limited.*

### **HISTORY 4M06 SPECIAL TOPICS IN THE HISTORY OF THE RENAISSANCE AND THE REFORMATION**

Seminar (two hours); two terms

Prerequisite: One of HISTORY 2A06 or 3R03, and registration in Level III or IV of any Honours programme in History

*Enrolment is limited.*

### **HISTORY 4O06 RUSSIA AND REVOLUTION**

The impact of modernization upon the Soviet state and society.

Seminar (two hours); two terms

Prerequisite: HISTORY 3H06 and registration in Level III or IV of any honours programme in History

*Enrolment is limited.*

### **HISTORY 4P06 CONTEMPORARY EUROPE**

Topics in the history of Europe during the 20th century.

Seminar (two hours); two terms

Prerequisite: Six units from HISTORY 2M06, 3FF3, 3HH3, 3I03, 3J06, 3W03, and registration in Level III or IV of any honours programme in History

*Enrolment is limited.*

### **HISTORY 4Q06 SPECIAL TOPICS IN THE HISTORY OF MEDIEVAL EUROPE AND BYZANTIUM**

Topics will include the consequences of the Barbarian invasions, diplomatic communications between West and East, relations between the Roman and Orthodox Churches, the impact of the Crusades, and the significance of the fall of Constantinople.

Seminar (two hours); two terms

Prerequisite: HISTORY 2I06 and registration in Level III or IV of any honours programme in History

*Enrolment is limited.*

### **HISTORY 4S06 ENGLISH MEDIEVAL HISTORY**

Selected themes in the history of Medieval England.

Seminar (two hours); two terms

Prerequisite: HISTORY 2I06 and registration in Level III or IV of any honours programme in History

*Enrolment is limited.*

### **HISTORY 4U06 INDEPENDENT RESEARCH**

A reading and/or research programme under the supervision of at least two members of the Department. A major paper is required, as well as a formal oral examination.

Prerequisite: Registration in Level IV of any Honours programme in History and the attainment of a C.A. of at least 9.0, and permission of the Department

*Enrolment is limited.*

### **HISTORY 4V06 SPECIAL TOPICS IN THE HISTORY OF EARLY MODERN EUROPE**

An examination of European social history, 1500-1800, focusing on the European peasantry or women. The themes covered include work, societal roles and perceptions.

Seminar (two hours); two terms

Prerequisite: One of HISTORY 2A06, 2I06, 3CC3, 3D03, 3R03, and registration in Level III or IV of an honours programme in History

*Enrolment is limited.*

### **HISTORY 4W06 THE NORTH AMERICAN CITY, 1700 TO THE PRESENT**

An examination of: founders' designs; practices and influence of business communities; the impact of technologies and architecture; spatial organization of class and ethnicity; shelter and urban services; differences between Canadian and American cities.

Seminar (two hours); two terms

Prerequisite: HISTORY 2H06 or 2J06, and registration in Level III or IV of any Honours programme in History. HISTORY 3BB3 is recommended.

*Students may take only two of HISTORY 4B06, 4CC6, 4H06 and 4W06.*

*Enrolment is limited.*

For Graduate Courses see *Calendar of School of Graduate Studies.*

## HUMANITIES (GENERAL)

### Courses

#### **HUMAN 2B06 THE THEMES OF WESTERN CIVILIZATION**

A study of the ideas and issues that define the Western cultural tradition. The course views the concerns of modern artists and thinkers as a response to the two ancient sources of Western civilization, the Greek and the Biblical. It concentrates on four figures in four crucial periods: Socrates in the context of Greek philosophy and drama; St. Paul and the Judeo-Christian tradition; Shakespeare and the birth of a secular age; Wagner and Romantic decadence.

Two lectures, one tutorial; two terms

Antirequisite: HUMAN 1B06

#### **HUMAN 2C03 CRITICAL THINKING**

This course aims to improve skills in analyzing and evaluating arguments and presentations found in everyday life and academic contexts, and to improve critical judgement.

Two lectures; one tutorial; one term

Prerequisite: Registration in Level II and above

Antirequisite: ARTS & SCI 1B06, HUMAN 1C03, PHILOS 2R03

## INDIGENOUS STUDIES

### Courses

#### **INDIG ST 1A06 INTRODUCTION TO INDIGENOUS STUDIES**

A study of the world views of Indigenous peoples, including the Inuit, First Nations and the Metis, and of contemporary Indigenous societies' social systems, political organization and economic development.

Three hours (lecture and seminars); two terms

#### **INDIG ST 2A03 INTRODUCTION TO NATIVE SPIRITUALITY**

A review of the Indigenous peoples' views of the world, particularly as they relate to the natural world, their spirituality and their social systems.

Three hours (lecture and seminars); one term

#### **INDIG ST 2B03 INTRODUCTION TO INDIGENOUS PEOPLES' HISTORY**

An examination of the forces which shaped the history of the Indigenous peoples of Canada since the pre-contact period with Europeans, with special emphasis on eastern woodland peoples, the Iroquois Confederacy, and the Council of Three Fires.

Three hours (lecture and seminar); two terms

#### **INDIG ST 2C03 INTRODUCTION TO CONTEMPORARY INDIGENOUS SOCIETIES**

A review of the geographic, cultural and demographic composition of Inuit, First

Nations and Metis, and of the major current developments on land, cultural integrity, treaties, economic development, community social development and self-government.

Three hours (lecture and seminars); one term

#### **OJIBWA 1Z06 BEGINNERS' INTENSIVE OJIBWA**

This course will emphasize the spoken Ojibwa language, including correct pronunciation, word formation, verb analysis and an introduction to the written form.

Three hours (lecture and seminars); two terms

#### **MOHAWK 1Z06 BEGINNERS' INTENSIVE MOHAWK**

This course will emphasize the spoken Mohawk language, including correct pronunciation, word formation, verb analysis and an introduction to the written form.

Three hours (lecture and seminars); two terms

#### **CAYUGA 1Z06 BEGINNERS' INTENSIVE CAYUGA**

This course will emphasize the spoken Cayuga language, including correct pronunciation, word formation, verb analysis and an introduction to the written form.

Three hours (lecture and seminars); two terms

#### **OJIBWA 2Z06 INTERMEDIATE OJIBWA**

This course expands on the vocabulary and the oral skills for the Ojibwa language. In addition, the course reviews the written component of the language.

Three hours (lecture and seminars); two terms

#### **MOHAWK 2Z06 INTERMEDIATE MOHAWK**

This course expands on the vocabulary and the oral skills for the Mohawk language. In addition, the course reviews the written component of the language.

Three hours (lecture and seminars); two terms

#### **CAYUGA 2Z06 INTERMEDIATE CAYUGA**

This course expands on the vocabulary and the oral skills for the Cayuga language. In addition, the course reviews the written component of the language.

Three hours (lecture and seminars); two terms

## ITALIAN

Courses and programmes in Italian are administered within the Department of Modern Languages of the Faculty of Humanities.

### Department Note:

Students should note that the Department has classified its Italian language courses under the following categories:

#### **Introductory Level Language Courses**

ITALIAN 1Z06, 1ZZ6

#### **Intermediate Level Language Courses**

ITALIAN 1A06, 2Z06

#### **Advanced Level Language Courses**

ITALIAN 2A03, 2D03, 3D03, 3DD3, 4M03

### Courses

#### **ITALIAN 1A06 INTERMEDIATE ITALIAN**

An intensive review of the grammatical structures of Italian and an introduction to composition, together with oral practice.

Four hours; two terms

Prerequisite: OAC Italian

Antirequisite: ITALIAN 2Z06

#### **ITALIAN 1Z06 BEGINNER'S INTENSIVE ITALIAN**

An intensive beginner's course designed for students with no prior knowledge of the language. The course gives the student a basic knowledge of Italian grammar and the opportunity to practise the spoken language. This course is enhanced by a CALL (Computer-Aided Language Learning) module.

Four hours (including lab practice); two terms

Antirequisite: OAC Italian, or ITALIAN 1ZZ6

*Students who speak or understand an Italian dialect or Standard Italian may not register in the course.*

#### **ITALIAN 1ZZ6 BEGINNER'S INTENSIVE ITALIAN FOR DIALECT SPEAKERS**

An intensive beginner's course designed for students who understand an Italian dialect or Standard Italian. The course gives the student a basic knowledge of Italian grammar and the opportunity to practise the spoken language. This

course is enhanced by a CALL (Computer-Aided Language Learning) module. Four hours (including lab practice); two terms

Antirequisite: OAC Italian, or ITALIAN 1Z06

*Students with prior knowledge of the language as determined by a placement test may be required to take an appropriate alternative.*

#### **ITALIAN 2A03 INTENSIVE ORAL PRACTICE IN ITALIAN**

A conversation course designed to improve oral and aural proficiency in Italian. Two hours; two terms

Prerequisite: ITALIAN 1A06 or 2Z06, and registration in a programme in Italian. Departmental permission slip required.

*Enrolment is limited.*

#### **ITALIAN 2D03 ADVANCED ITALIAN**

This course is designed to improve and increase the student's written proficiency through intensive exercises, compositions, and analysis of unaltered linguistic data.

Two hours; two terms

Prerequisite: ITALIAN 1A06 or 2Z06 with a grade of at least B-

#### **ITALIAN 2F03 ITALIAN NOVEL, 19TH- AND 20TH CENTURIES**

This course will study Italian fiction in the 19th and 20th centuries, focusing on major authors such as Manzoni, Verga, Fogazzaro, Svevo, Pirandello and Italian neorealist authors, while also exploring the intellectual, cultural and psychological contexts of fiction.

Three lectures; one term

Prerequisite: ITALIAN 1A06, or registration or credit in ITALIAN 2Z06

Antirequisite: ITALIAN 3A03 and 3M03

#### **ITALIAN 2Z06 ITALIAN GRAMMAR PRACTICE**

An intensive review of the grammatical structures of Italian and an introduction to composition, together with oral practice.

Four hours; two terms

Prerequisite: ITALIAN 1Z06 or 1ZZ6

Antirequisite: ITALIAN 1A06

#### **ITALIAN 3D03 ITALIAN STYLISTICS**

An introduction to the study of Italian stylistics through an intensive and systematic analysis of Italian clause, sentence and discourse structure.

Three hours; one term

Prerequisite: ITALIAN 2A03 and 2D03, with a grade of at least B-

#### **ITALIAN 3DD3 INTENSIVE LANGUAGE PRACTICE**

An intensive oral language practice course, designed for the systematic comparison and interpretation of Italian and English discourse strategies.

Two hours; two terms

Prerequisite: ITALIAN 2A03, and registration in a programme in Italian

*Enrolment is limited.*

#### **ITALIAN 3N03 NOVECENTO**

This course will study Italian poetry and fiction in the 20th century, with emphasis on the Hermetic school of poetry and the neorealist school of fiction.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in Italian

Antirequisite: ITALIAN 3M03 and 4J03

*Offered in alternate years.*

#### **ITALIAN 3NN3 DRAMA**

A study of Italian plays from the Renaissance to modern times from the literary as well as the theatrical perspective.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in Italian

Antirequisite: ITALIAN 3P03 and 3Q03

*Offered in alternate years.*

#### **ITALIAN 3R03 DANTE**

A critical, mainly literary, course in the works of Dante. It will study some minor writings of Dante in some depth, before studying the *Divina Commedia*.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in Italian

Antirequisite: ITALIAN 4P03

#### **ITALIAN 3RR3 BOCCACCIO AND PETRARCH**

A study of Petrarch's *Canzoniere* and Boccaccio's *Decameron*.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in Italian

#### **ITALIAN 4G03 ROMANTICISM**

This course will study Italian poetry and fiction of the Romantic Era with special emphasis on the works of Foscolo, Manzoni, Leopardi and their contribution to the Italian Risorgimento.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in Italian  
*Offered in alternate years.*

**ITALIAN 4I13 INDEPENDENT STUDY**

The student will prepare, under the supervision of a faculty member, a research paper involving independent study in an area where the student has already demonstrated competence.

Tutorials; one term

Prerequisite: Registration in Level IV of a programme in Italian, and permission of the Independent Study Committee for Italian

**ITALIAN 4M03 INTENSIVE COMPOSITION, STYLISTICS AND ORAL PRACTICE IN ITALIAN**

An advanced language study course designed to develop the student's skills in composition, stylistics and conversation. Practice materials will be drawn from 20th-century literary works for the purpose of language study.

Three hours; one term

Prerequisite: A grade of at least B- in ITALIAN 3D03, and registration in Level IV of an Italian programme

**ITALIAN 4R03 RENAISSANCE**

A study of the literature of the Renaissance.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in Italian

**ITALIAN 4T03 TOPICS IN ITALIAN LITERATURE**

Previous topics include: Italian Criticism, Utopian Genres, Italian Theatre. Consult the Department concerning topic to be offered.

Three lectures; one term

Prerequisite: Registration in Level III or IV of a programme in Italian

*Offered in alternate years.*

**JAPANESE**

*Japanese* language and literature courses are administered within the Department of Modern Languages of the Faculty of Humanities.

The Combined Honours in Japanese Studies and Another Subject Programme is co-ordinated by an interdisciplinary Committee of Instruction.

**Committee of Instruction****Director**

Koichi Shinohara (*Religious Studies*)

Virginia Ariga (*Modern Languages*)

David Barrett (*History*)

Kenneth S. Chan (*Economics*)

J.S. Chang (*Engineering Physics*)

Phyllis Granoff (*Religious Studies*)

J. Johnson (*Dean*) *Ex officio*

K. L. Liaw (*Geography*)

Y. Nogami (*Physics*)

Elizabeth Sharf (*Art History; Religious Studies*)

Robert Sharf (*Religious Studies*)

Richard Stubbs (*Political Science*)

Noriko Takahashi (*Modern Languages*)

Noriko Yokokura (*Modern Languages*)

**JAPANESE ...****Courses****JAPANESE 1Z06 BEGINNER'S INTENSIVE JAPANESE**

This course is designed to give students basic listening, speaking, reading and writing skills in Japanese. Exercise in the computerized language laboratory are an essential part of this course.

Five hours (including lab practice); two terms

*Students with prior knowledge of the language as determined by a placement test may be required to take an appropriate alternative.*

**JAPANESE 2Z06 INTERMEDIATE INTENSIVE JAPANESE**

This course aims to develop students' communicative skills in Japanese through conversational exercises, creative writing and other practice speaking, listening, reading and writing. Emphasis will be placed upon refining the knowledge of grammar and expanding vocabulary (kanji characters).

Four hours; two terms

Prerequisite: JAPANESE 1Z06, with a grade of at least B-, or permission of the instructor

**JAPANESE 3ZZ6 ADVANCED INTENSIVE JAPANESE**

This course continues the study of written and spoken Japanese begun in

JAPANESE 1Z06 and 2Z06. Particular attention will be focused on the development of the following language skills: conversational practice based on situational drills; study of advanced grammar structures; development of reading skills based on selected literary materials; writing short essays; continued study of kanji.

Four hours; two terms

Prerequisite: JAPANESE 2Z06, or permission of the instructor

**JAPANESE 4L03 JAPANESE LITERATURE**

Selected topics in modern Japanese literature.

Three lectures; one term

Prerequisite: JAPANESE 3ZZ6, or permission of the instructor

**JAPANESE 4Z03 ADVANCED PRACTICE IN JAPANESE**

Advanced studies in written and spoken Japanese.

Four hours; one term

Prerequisite: JAPANESE 3ZZ6, or permission of the instructor

**JAPANESE STUDIES ...****JAPAN ST 2P06 JAPANESE CIVILIZATION**

Introduction to Japanese history, society, and culture through a study of religious traditions, literature, and art of Japan.

Two lectures, one tutorial; two terms

Prerequisite: Registration in Level II and above

Cross-list: RELIG ST 2P06

**JAPAN ST 3B03 MODERN JAPAN**

A survey of 19th- and 20th-century Japan, with emphasis on political developments, social change, and Japan's relations with East Asia and the West.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: HISTORY 3B03

**JAPAN ST 3E03 JAPANESE RELIGION**

A study of Japanese religion and how it functions in Japanese society. Topics will include Shinto, shamanism, Ancestor Worship, Japanese Buddhism and the New Religions of Japan.

Two lectures, one tutorial; one term

Prerequisite: Registration in Level II and above. One of RELIG ST 1B06 or 2MM6 or JAPAN ST 2P06 is recommended.

Cross-list: RELIG ST 3E03

**JAPAN ST 3J03 JAPANESE ART**

An introduction and discussion of major aspects of the visual arts of Japan.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: ART HIST 3J03

**JAPAN ST 3JJ3 GEOGRAPHY OF JAPAN**

Human and physical geography of Japan with emphasis on population characteristics and demographic processes.

Three lectures; one term

Prerequisite: GEOG 1B06 or registration in a Japanese Studies programme

Cross-list: GEOG 3JJ3

**JAPAN ST 3UU3 THE BUDDHIST TRADITION IN EAST ASIA**

An examination of Buddhist doctrine, ritual, and institutions in China and Japan. Emphasis will be on Pure Land, Ch'an and Zen.

Two lectures, one tutorial; one term

Antirequisite: RELIG ST 3Q06

Cross-list: RELIG ST 3UU3

**LABOUR STUDIES****Faculty as of January 15, 1993****Director**

V. Walters

**Associate Professors**

W. Lewchuk/M.A. (*Toronto*), Ph.D. (*Cambridge*)

V. Walters/B.A., M.A. (*Sheffield*), Ph.D. (*McGill*)

C. Yates/B.A. (*Winnipeg*), M.A. (*Queen's*), Ph.D. (*Carleton*) as of July 1, 1993

**Assistant Professors**

B. Leach/B.A. (*Carleton*), M.A., Ph.D. (*Toronto*) R. Storey/B.A. (*Toronto*), M.A. (*Dalhousie*), Ph.D. (*Toronto*)

D. Wells/B.A. (*Western*), M.A. (*British Columbia*), Ph.D. (*Toronto*)

Enrolment in Labour Studies Programmes is limited. Students wishing to enrol in Labour Studies Programmes must make written application to the Chair of the Committee of Instruction **before April 15** for fall admission. Enrolment in Labour Studies courses beyond Level I is open only to Labour Studies students. The **Honours B.A. Programme** and the **B.A. Programme** in Labour Studies are supervised and co-ordinated by an interdisciplinary **Committee of Instruction**:

- R. Adams (*Business*)
- B. Basadur (*Business*)
- P. Daenzer (*Social Work*)
- J. Johnson (*Dean*) *ex officio*
- B. Leach (*Labour Studies*)
- W. Lewchuk (*Economics/Labour Studies*)
- J. Rose (*Business*)
- R. Storey (*Labour Studies/Sociology*)
- P. Sugiman (*Sociology*)
- V. Walters (*Sociology*)
- D. Wells (*Labour Studies/Political Science*)
- C. Yates (*Labour Studies/Political Science*)

**Courses**

**LABR ST 1A03 AN INTRODUCTION TO THE CANADIAN LABOUR MOVEMENT**

An examination of the impact of economic, social, cultural and political factors on the historical evolution, structure and actions of the Canadian working class and labour movement.

Lectures and discussions; one term

**LABR ST 1AA3 AN INTRODUCTION TO ISSUES IN LABOUR STUDIES**

An introduction to major issues in the field of Labour Studies. Topics will include the nature of work, technology, occupational health and safety, labour-management relations and the role of government.

Lectures and discussion; one term

**LABR ST 2A06 TRADE UNIONS**

An overview of the functioning of contemporary unions in Canada. Areas studied will include: union administration, union policy and the impact of unions on working conditions and on Canadian society.

Lectures and discussion; two terms

Prerequisite: Registration in a Labour Studies programme

Antirequisite: LABR ST 2A03

**LABR ST 2B03 SOCIAL WELFARE I**

An examination of social welfare policy and the income security system in Canada in historical perspective.

Lectures and discussion; one term

Prerequisite: Registration in a Labour Studies programme

Cross-list: Term I of SOC WORK 2B06.

*(Students not in a Social Work programme must register for this course as LABR ST 2B03.)*

**LABR ST 2BB3 SOCIAL WELFARE II**

An examination of particular social problems and the institutional arrangements intended to address them.

Lectures and discussion; one term

Prerequisite: LABR ST 2B03 and registration in a Labour Studies Programme

Corequisite: Must be taken in the same academic session as LABR ST 2B03.

Cross-list: Term II of SOC WORK 2B06

**LABR ST 2C03 THEORETICAL FOUNDATIONS OF THE LABOUR MOVEMENT**

An examination of political, sociological and economic explanations of labour behaviour in industrial society. The focus will be on attempts to explain why labour has tended to organize as well as the different strategies which labour has pursued to achieve its goals.

Lectures and discussion; one term

Prerequisite: Registration in a Labour Studies programme

Antirequisite: LABR ST 1B03

**LABR ST 3A03 ECONOMIC ISSUES FOR LABOUR STUDIES**

This course analyzes economic issues of importance to Labour Studies. Topics vary and may include: women in the Canadian labour market; discrimination in hiring and promotion; unemployment; job loss and workplace closing; work sharing.

Prerequisite: ECON 1A06 and registration in a Labour Studies programme

**LABR ST 3AA3 CURRENT LABOUR ISSUES**

Content may vary. In 1992-93 the course focused on the nature of recent

changes in the workplace; forces leading to restructuring including technological change, globalization of production, changes in skill and training, etc.; consequences for workplace relations; management and union responses; the role of governments.

Prerequisite: Registration in a Labour Studies programme

*LABR ST 2A06 is recommended.*

**LABR ST 3B03 ECONOMICS OF TRADE UNIONISM AND LABOUR**

Topics will include the economics of the labour market, the impact of trade unions on the labour market, economic theories of strikes, trade unions and the state.

Lectures and discussion; one term

Prerequisite: ECON 1A06, and registration in a Labour Studies programme

Cross-list: ECON 2T03

**LABR ST 3C03 LABOUR LAW AND POLICY**

An analysis of the concepts and fundamentals of Canadian labour law and an analysis of Canadian labour policy. Lectures; one term

Prerequisite: LABR ST 2A06; or permission of the instructor and registration in a Labour Studies programme.

Cross-list: COMMERCE 4BF3

**LABR ST 3D03 OCCUPATIONAL HEALTH AND SAFETY**

An analysis of issues and problems associated with occupational health and safety in Canada and other industrialized countries. Topics will be examined from social, political, economic, legal and medical perspectives.

Lectures and discussion; one term

Prerequisite: Registration in a Labour Studies programme

*Generally offered in alternate years.*

**LABR ST 3E03 WOMEN, WORK AND TRADE UNIONISM**

An examination of the historical and contemporary relations between women and work, and women and trade unionism. Topics will include the evolution and structure of the gender division of labour, women and the labour market, and the relationship of women to the labour movement.

Lectures and discussion; one term

Prerequisite: Registration in a Labour Studies programme

*Generally offered in alternate years.*

**LABR ST 3I03 THE SOCIOLOGY OF ORGANIZATIONS**

A theoretical and empirical analysis of formal and informal organizational structures and processes in the major sectors of modern industrial society.

Lectures and discussion; one term

Prerequisite: SOCIOL 1A06, and registration in a Labour Studies programme

Cross-list: SOCIOL 2I03

**LABR ST 4A09 FIELD EXPERIENCE**

Combined field experience and seminars to develop practical and research skills relating to labour issues. Students spend a minimum of the equivalent of one day per week in a labour union, government agency or other appropriate organization. This course includes formal and directed study of research methodology appropriate for the field placement seminar.

Two terms

Prerequisite: Registration in Level IV Specialist in Labour Studies, Level IV of a Combined Honours in Labour Studies and Another Subject, or Level IV of an Honours in Labour Studies

**LABR ST 4B03 HONOURS SEMINAR**

The seminar will provide an opportunity for in-depth study of selected topics relating to labour issues.

Seminar; one term

Prerequisite: Registration in Level IV Specialist in Labour Studies, Level IV of a Combined Honours in Labour Studies and Another Subject, or Level IV of an Honours in Labour Studies with a Minor in Another Subject

**LABR ST 4C03 PUBLIC SECTOR COLLECTIVE BARGAINING**

This course examines unionization and collective bargaining for employees in the public, and para-public sectors. The topics covered include the origin and growth of public sector unions, models of public sector bargaining, legal aspects of bargaining rights and impasse resolution, bargaining issues and bargaining outcomes, and empirical studies of the effectiveness of dispute resolution procedures.

Lectures and discussion; one term

Prerequisite: COMMERCE 4BC3, and registration in Level III or IV of a Labour Studies programme. Open to students in Level IV of a Commerce programme with the permission of the instructor, the Chair of the Labour Studies Committee of Instruction and the Undergraduate Student Advisor of the School of Business.

Cross-list: COMMERCE 4BG3

**LABR ST 4D03 COMPARATIVE INDUSTRIAL RELATIONS**

A discussion of industrial relations, policies and practices in several selected countries. Topics will include the development, structure, objectives and strategies of labour and management organizations.

Lectures and discussion; one term

Prerequisite: Registration in Level III or IV of a Labour Studies programme. Open to students in Level IV of a Commerce programme with the permission of the instructor and the Chair of the Labour Studies Committee of Instruction and the Undergraduate Student Advisor of the School of Business.

Cross-list: COMMERCE 4BH3

**LATIN**

(SEE CLASSICS, LATIN)

**LINGUISTICS****Courses****LINGUIST 1A06 THE STUDY OF LANGUAGE**

A far-reaching survey intended to acquaint the student with the numerous disciplines that deal with language and many of the crucial concepts and techniques developed within them. The course will enable the student to pursue higher studies in either linguistics or other language-related disciplines.

Three lectures; two terms

**LINGUIST 2A03 THE MAKING OF THE EUROPEAN LINGUISTIC LANDSCAPE**

The history of language use in Europe from the fall of the Roman Empire to the flowering of linguistic nationalism.

Three lectures; one term

Prerequisite: Registration in Level II and above

**LINGUIST 2AA3 THE ORIGIN AND DEVELOPMENT OF THE EUROPEAN LANGUAGES**

The phonetic, morphological, syntactic and lexical structures of Indo-European languages and the role of these features in the genesis and development of English, German, French, Russian, Italian and Spanish and other Indo-European-based languages of Europe.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: LINGUIST 3B03

Cross-list: ANTHROP 2AA3

**LINGUIST 2L03 PHONETICS**

A study of the sounds of language and the articulatory capabilities of man.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: ANTHROP 2L03

**LINGUIST 2LL3 LANGUAGES OF THE WORLD**

A sociolinguistic survey of the world's languages under topics such as official and vernacular languages, multilingualism, language loss and spread, and language conflict.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level II and above

Cross-list: ANTHROP 2LL3

**LINGUIST 2M03 PHONOLOGY**

A study of the patterns of distinctive sounds in the world's languages.

Three lectures; one term

Prerequisite: ANTHROP 2L03 or LINGUIST 2L03

Cross-list: ANTHROP 2M03

**LINGUIST 2Q03 LINGUISTICS AND THE STUDY OF CULTURE**

A study of the rise of analytical thinking as a distinct mode of thought, the use of such thinking in structural linguistics, and its extension to structuralism as practiced in anthropology and other disciplines. The work of Levi-Strauss will be examined.

Three hours (lectures and discussion); one term

Prerequisite: Registration in Level II and above

Cross-list: ANTHROP 2Q03

**LINGUIST 3A06 THE SOCIAL SITUATION OF THE MODERN EUROPEAN LANGUAGES**

A survey of the social functions, changes in status and attendant linguistic problems of the languages of Europe. Among the topics covered are the growth of standard languages, modernization, dialects and dialect levelling, language

planning, language attitudes, the impact of nationalism and internationalism, and the spread of European languages throughout the world.

Three lectures; two terms

Prerequisite: Registration in Level II and above

Cross-list: ANTHROP 3AL6

**LINGUIST 3I03 SYNTAX**

A study of the human capacity to form words into sentences. The emphasis will be upon generative transformational grammar.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: ANTHROP 3I03

**LINGUIST 3M03 MORPHOLOGY**

The study of word formation in languages of the world: a critical survey of current theories and issues.

Three lectures; one term

Prerequisite: ANTHROP 3I03 or LINGUIST 3I03

Cross-list: ANTHROP 3M03

**LINGUIST 3P03 PRAGMATICS AND DISCOURSE**

A discussion of the problems confronting the linguist in the study of text and discourse at the level beyond the sentence. The course will deal with the interaction between grammar and situational factors.

Prerequisite: Registration in Level III or IV of the Modern Language and Linguistics programme or Honours French: Programme B; or permission of the Programme Co-ordinator (TSH-626).

*Offered in alternate years.*

**LINGUIST 4B03 APPLIED LINGUISTICS: SECOND LANGUAGE TEACHING METHODOLOGY**

The course is designed to acquaint the student with the contributions that the linguist, psycholinguist, sociolinguist can make to the planning, organization and implementation of a language-teaching methodology. CAI/CALL will be one of the methodologies investigated with particular emphasis.

Three lectures; one term

Prerequisite: Registration in Level III or IV of the Modern Languages and Linguistics programme; or permission of the Programme Co-ordinator

Antirequisite: LINGUIST 4A06

**LINGUIST 4C03 COMPUTATIONAL LINGUISTICS**

The course studies the applications of computer technology in general, and natural language processing in particular including parsers and machine translation.

Two lectures, one lab; one term

Prerequisite: Registration in Level III or IV of any programme; or permission of the Programme Co-ordinator

Antirequisite: LINGUIST 4A06

**LINGUIST 4I13 INDEPENDENT STUDY**

The student will prepare, under the supervision of a faculty member, a research paper involving independent study in an area where the student has already demonstrated competence.

Tutorials; one term

Prerequisite: Registration in Level IV of Honours Modern Languages and Linguistics and permission of the Independent Study Committee for Linguistics

**LINGUIST 4L03 FIELD LINGUISTICS**

An advanced course in techniques of linguistic field research. The field situation is simulated by using an actual target language.

Prerequisite: 12 units of Linguistics or Anthropology beyond Level I

Cross-list: ANTHROP 4L03

**LINGUIST 4T03 GENERATIVE GRAMMAR: MIND AND CULTURE**

An examination at an advanced level of Chomsky's generative grammar as a paradigm for the study of minds and cultures.

Seminar (three hours); one term

Prerequisite: One of LINGUIST 2L03, 2Q03, or 3I03

Cross-list: ANTHROP 4T03

**MANUFACTURING ENGINEERING**

(SEE MECHANICAL ENGINEERING,  
MANUFACTURING ENGINEERING)

# MATERIALS SCIENCE AND ENGINEERING

Faculty as of January 15, 1993

## Chair

G.A. Irons

## Professors Emeriti

Z.S. Basinski/B.Sc., D.Phil., D.Sc. (Oxford), O.C., F.R.S., F.R.S.C./Research Professor.

John S. Kirkaldy/M.A.Sc. (British Columbia), Ph.D. (McGill), F.R.S.C., F.A.S.M., P.Eng.

Walter W. Smeltzer/B.Sc. (Queen's), Ph.D. (Toronto), D.H.C. (Dijon), F.R.S.C., F.A.S.M., P.Eng.

## Professors

J. David Embury/B.Sc. (Manchester), Ph.D. (Cambridge), P.Eng., F.R.S.C.

Gordon A. Irons/B.A.Sc. (Toronto), Ph.D. (McGill), P.Eng.

M. Brian Ives/B.Sc., Ph.D. (Bristol), F.A.S.M., P.Eng.

Gyan P. Johari/B.Sc., M.Sc., Ph.D. (Gorakhpur)/Chair of Glass Science and Technology

D. Alan R. Kay/B.Sc., Ph.D. (Glasgow)

Wei-Kao Lu/B.S. (Chen-Kung), Ph.D. (Minnesota)

Patrick S. Nicholson/B.Sc. (Leeds), M.Sc., Ph.D. (California, Berkeley), P.Eng.

Gary R. Purdy/M.Sc. (Alberta), Ph.D. (McMaster), P.Eng., F.R.S.C.

Barry A. Strathdee/B.A.Sc., Ph.D. (Toronto), P.Eng./part-time

S.V. Mani Subramanian/B.Sc. (Banaras), M.Met., Ph.D. (Sheffield)/part-time

George C. Weatherly/B.A., Ph.D. (Cambridge), P.Eng.

David S. Wilkinson/B.A.Sc. (Toronto), Ph.D. (Cambridge), P.Eng.

## Associate Professors

Prasad A. Apte/Ph.D. (McMaster)/part-time

Dennis McCutcheon/B.Sc., M.B.A. (McMaster)/part-time

Adrian Kitai/B.Sc. (McMaster), Ph.D. (Cornell), P.Eng.

Anthony Petric/B.A.Sc. (Toronto), Ph.D. (Ecole Polytechnique), P.Eng.

## Assistant Professor

Gu Xu/M.Sc., Ph.D. (Pittsburgh), D.E.S. (Columbia)

## CERAMICS ...

### Courses

#### CERAMICS 3A04 CERAMIC AND GLASS TECHNOLOGY

Ceramics: powder synthesis and characterization; surface electrochemistry; shaping and sintering. Glasses: melting, forming and quality control; annealing and tempering; ceramic and metallic glazes.

Two lectures; both terms

Prerequisites: CHEM 2P06; MATLS 2C04

#### CERAMICS 3G03 MICROSTRUCTURE OF CERAMICS AND GLASS

A laboratory course in modular form, complemented by lectures. Microstructures of refractories, ceramics and glass and their correlation with synthesis techniques, phase equilibria and transformation kinetics.

One lecture (one hour), two labs (three hours); second term

Prerequisite: MATLS 2G04

Antirequisite: MATLS 3B04, 3G03 or METALL 3G03

#### CERAMICS 4R03 CERAMIC SCIENCE

Microstructural development and properties of traditional ceramics. Acidic, basic, neutral and nonoxidizing refractories; ferro-electric, piezo-electric and ferromagnetic ceramics; super-ionic and structural ceramics.

Three lectures, second term

Prerequisite: MATLS 3D06, 3E06 or registration in both MATLS 3E06 and in Level IV of the Ceramic Engineering and Management Programme

#### CERAMICS 4S03 GLASS SCIENCE

Theoretical and experimental aspects of silicates, metallic glasses and glass-ceramics. Modern concepts and application of non-crystalline solids.

Three lectures, first term

Prerequisite: MATLS 3D06, 3E06

## MATERIALS ...

#### MATLS 1A03 INTRODUCTION TO MATERIALS

Introduction to fundamental concepts of bonding and atomic structure of condensed materials, with applications to silicate minerals, glasses, polymeric materials, and metals and alloys.

Two lectures, one tutorial; first term

Prerequisite: Registration in or completion of Natural Sciences I

Antirequisite: Registration in the Faculty of Engineering, or ENGINEER 2003

#### MATLS 1B03 INTRODUCTION TO PROPERTIES OF MATERIALS

The structure of materials, its control and effect on properties; crystallography, microstructural development, stiffness and strength, plastic flow and fracture.

Two lectures, one tutorial; second term

Prerequisite: Credit or registration in MATLS 1A03; or permission of the instructor

Antirequisite: Registration in the Faculty of Engineering, or ENGINEER 2003

#### MATLS 2A02 PROPERTIES OF MATERIALS

Microscopic structure and mechanical, electrical and magnetic properties of materials; solidification, deformation, fracture, processing-property relations.

Two lectures; first term

Prerequisite: CHEM 1A06 or 1E03

Antirequisite: MATLS 1B03

#### MATLS 2C04 INTRODUCTION TO MATERIALS PROCESSING

The application of chemical principles to materials processing, including metals, ceramics, polymers and electronic materials. Thermochemistry of oxides, sulphides and halides; electrochemistry; kinetics of heterogeneous reactions; interfacial phenomena.

Three lectures, one tutorial or lecture; second term

Prerequisite: CHEM 2P06 which may be taken concurrently

#### MATLS 2H02 EXPERIMENTAL METHODS AND COMMUNICATION

Methods of technical communication, involving oral and written practice; basic experimental methods of acquiring, analyzing and presenting data.

Two labs (three hours); second term

Prerequisite: COMP SCI 1MA3 or ENGINEER 1D04, and CHEM 1A06 or 1E03, and registration in a programme administered by the Department of Materials Science and Engineering

#### MATLS 2X02 CRYSTALLINE STRUCTURE OF MATERIALS

Crystal geometry, x-ray diffraction methods for the determination of crystalline structures and chemical compositions, electron and neutron diffraction methods, microanalysis, crystalline defects.

One lecture, one lab (two and one half hours); second term

Prerequisite: MATLS 2A02 or MATLS 1B03

#### MATLS 3D06 THERMODYNAMICS OF MATERIALS

Foundations of thermodynamics from classical, statistical, quantum mechanical and quasicheical points of view.

Three lectures; both terms

Prerequisite: MATLS 2C04 and one of CHEM 2P06, ENGINEER 2W04, PHYSICS 2H03, CHEM ENG 2D04 and 2F04

#### MATLS 3D03 THERMODYNAMICS OF MATERIALS I

The first half of Materials 3D06, with emphasis on 'classical' topics such as equilibrium, solid solutions and phase diagrams.

Three lectures; first term

Prerequisite: One of CHEM 2P06, ENGINEER 2W04, PHYSICS 2H03, CHEM ENG 2D04 and 2F04

#### MATLS 3E06 TRANSPORT PROCESSES

Solution of problems involving diffusion in solids and their application to phase transformations. Mechanisms of diffusion. Heat transfer by conduction, convection and radiation, with application to materials processing. Emphasis on the setting up of kinetic relationships using conceptual models.

Two lectures, two tutorial; both terms

Prerequisite: CHEM 2P06 and one of MATH 2M06, or 2P04 and 2Q04, or 2G03 and 2O03

#### MATLS 3F02 MATERIALS LABORATORY

Experimental techniques in materials preparation, characterization and properties.

Two labs (three hours); first term

Prerequisite: MATLS 2G04, 2H02

#### MATLS 3G03 MICROSTRUCTURE OF MATERIALS

A laboratory course in modular form, complemented by lectures. Microstructure of metallic and non-metallic materials including composites and their correlation with phase equilibria and transformation kinetics.

One lecture (one hour), two labs (three hours); second term

Prerequisite: MATLS 2G04

Antirequisite: CERAMICS 3G03, MATLS 3B04 or METALL 3G03

#### MATLS 3H03 THERMODYNAMICS OF MATERIALS II

The second half of Materials 3D06, with emphasis on 'atomistic' topics such as

statistical mechanics, ordering, interfaces and defects.

Three lectures; second term

Prerequisite: One of CHEM 2P06, ENGINEER 2W04, PHYSICS 2H03, or CHEM ENG 2D04 and 2F04

#### **MATLS 3P03 MECHANICAL BEHAVIOUR OF MATERIALS**

Elastic and plastic deformation, creep, fatigue and fracture of engineering materials. Application to mechanical design. Microstructural descriptions of flow and fracture in crystalline and amorphous materials. Basic concepts of fracture mechanics.

Three lectures; first term

Prerequisite: ENGINEER 2O03 or MATLS 1A03 and 1B03, ENGINEER 2P04 or 2R04, and registration in a programme administered by the Department of Materials Science and Engineering

Antirequisite: ENGINEER 3P03

#### **MATLS 4A01 INDUSTRIAL PROJECTS**

The preparation of a report based on summer experience and/or industrial visits. The report will be defended orally. The Chair should be consulted for detailed requirements, in the Spring of Level III.

Prerequisite: Registration in Level IV Ceramic, Materials or Metallurgical Engineering, Honours Materials Science or Materials Science Major.

#### **MATLS 4D03 CORROSION**

The oxidation of metals and alloys; electrochemical principles and methods applied to aqueous corrosion and its control.

Three lectures; second term

Prerequisite: CHEM 2P06 or CHEM ENG 2F04

#### **MATLS 4E03 PHASE TRANSFORMATIONS**

The thermodynamics, kinetic and crystallographic aspects of phase transformations, with applications to the preparation and processing of materials. Solidification, recrystallization and heat treatment of steels, aluminum alloys and non-metallic materials.

Three lectures; first term

Prerequisite: MATLS 3D03 or 3D06, and 3E06

#### **MATLS 4K04 SENIOR THESIS**

Each student will have an individual experimental research problem. A preliminary written and oral report is required at the end of the first term. The thesis is defended orally. A minimum of six unscheduled hours each week, both terms.

Prerequisite: Registration in the final level of a programme administered by the Department of Material Science and Engineering

#### **MATLS 4L04 SENIOR LABORATORY & PLANT VISITS**

A series of experiments, comprising six afternoons, that draw upon a broad spectrum of materials and techniques; includes industrial plant visits and student oral and written reports.

Two labs (three hours); both terms

Prerequisite: MATLS 3D06 and MATLS 3B04, or CERAMICS 3G03 or MATLS 3G03 or METALL 3G03

Antirequisite: CERAMICS 4L04 or METALL 4L04

#### **MATLS 4M03 DISLOCATION THEORY**

The behaviour of dislocations in solids. Crystallographic and elastic properties of dislocations, quantitative treatments of the yield stress, work hardening rate and strengthening mechanisms in metallic and non-metallic materials.

Three lectures; first term

Prerequisite: ENGINEER 2P04, MATLS 3B04 or 2G04 and 3G03

#### **MATLS 4P03 PROPERTIES OF POLYMERIC MATERIALS**

Structure of amorphous and crystalline polymeric materials; mechanical, electrical and optical properties, and their modification through processing.

Three lectures; first term

Prerequisite: CHEM ENG 3Q03 and either ENGINEER 2O03 or registration in a programme administered by the Department of Materials Science and Engineering

#### **MATLS 4Q03 CASE STUDIES**

Analysis of current industrial problems, involving background science, cost analysis and process design.

Two lectures, one tutorial; second term

Prerequisite: Registration in Level IV or V of a programme administered by the Department of Materials Science and Engineering

#### **MATLS 4T03 PROPERTIES AND PROCESSING OF COMPOSITES**

Intrinsic properties of matrix and fibre materials; mechanics and thermodynamics of interfaces; mechanical properties and fabrication of engineering composites.

Two lectures, one tutorial; second term

Prerequisite: MATLS 3E06

## **METALLURGY ...**

### **METALL 3C03 CHEMICAL METALLURGY I**

The application of chemical principles to extractive metallurgy. Mineral processing, hydrometallurgy, electrometallurgy, roasting and smelting of sulphide ores, electrowinning of aluminum and magnesium. Heat and mass balance calculations.

Two lectures, one lab (three hours); first term

Prerequisite: CHEM 2P06 or ENGINEER 2W04

### **METALL 3G03 MICROSTRUCTURE OF METALS AND ALLOYS**

A laboratory course in modular form, complemented by lectures. Microstructure of metals and alloys and their correlation with phase equilibria and transformation of kinetics.

One lecture (one hour), two labs (three hours); second term

Prerequisite: MATLS 2G04

Antirequisite: CERAMICS 3G03, MATLS 3B04 or 3G03

### **METALL 4C04 CHEMICAL METALLURGY II**

Theory and practice of iron making. Heat and material balances, iron making reactors, raw materials, direct reduction and new processes. Thermodynamics and kinetics of steel making. Hot metal treatment; static and dynamic process control; deoxidation; casting; specialty steel making; inclusion engineering.

Two lectures; both terms

Prerequisite: MATLS 2C04

### **METALL 4N03 KINETICS AND REACTOR ANALYSIS IN METALLURGICAL SYSTEMS**

Homogeneous and heterogeneous kinetics. Ideal and non-ideal reactor models. Mixing and turbulence. Interfacial reactions in Two and three phase systems. Statistical process control.

Three lectures; first term

Prerequisite: MATLS 3E06, which may be taken concurrently with the permission of the instructor

## **RELEVANT ENGINEERING COURSES**

See *Engineering (General)* for course descriptions.

ENGINEER 2O03	Structure and Properties of Engineering Materials
ENGINEER 3Q03	Electronic Properties of Solids
ENGINEER 3R03	Properties and Selection of Engineering Materials
ENGINEER 4J03	Metal Forming

For Graduate courses, see the *Calendar of the School of Graduate Studies*.

## **MATHEMATICS AND STATISTICS**

### **Faculty as of January 15, 1993**

#### Chair

Ian Hambleton

#### Associate Chair

Fred M. Hoppe

#### Professors Emeriti

Bernhard Banaschewski/Dipl. Math., Dr.rer.nat. (*Hamburg*), F.R.S.C., McKay  
Professor of Mathematics

Minaketan Behara/B.Sc., M.Sc. (*Utkal*), Ph.D. (*Saarbrücken*)

Ernest A. Behrens/D.Phil.nat (*Hamburg*)

Charles W. Dunnett/M.B.E., B.A. (*McMaster*), M.A. (*Toronto*), D.Sc. (*Aberdeen*)

Gerard Field/B.Sc., Ph.D. (*London*)

Norman D. Lane/B.A. (*Queen's*), M.A., Ph.D. (*Toronto*)

Rubens G. Lintz/B.A., Ph.D. (*Sao Paulo*)

William J. McCallion/B.A., M.A. (*McMaster*)

#### Professors

Claude E. Billigheimer/B.A., B.Sc., M.A. (*Melbourne*), Ph.D. (*Toronto*)

Gunter W.A. Bruns/Dr.rer.nat. (*Berlin*)

John M. Chadam/B.A. (*Toronto*), S.M., Ph.D. (*MIT*)

Tae Ho Choe/B.S., B.Sc., M.A. (*Kyungpook*), Ph.D. (*Florida*)

Joseph Csima/Dipl. Math. (*Eotvos, Budapest*), Ph.D. (*Toronto*)

Thomas M.K. Davison/B.Sc. (*Sir George Williams*), M.A., Ph.D. (*Toronto*)

Ian Hambleton/B.Sc., M.Sc. (*Toronto*), Ph.D. (*Yale*)

Hans P. Heinig/B.Sc. (*McMaster*), M.A. (*Western*), Ph.D. (*Toronto*)

Fred M. Hoppe/B.Sc. (*Toronto*), M.Sc. (*Weizmann Institute of Science*), M.A.,



Ph.D. (Princeton)  
 Taqdir Husain/B.A., M.A. (Aligarh), Ph.D. (Syracuse)  
 Manfred Kolster/Dipl. (Hamburg), Dr. rer. nat. (Saarbrücken), Habil. (Münster)/  
 Graduate Advisor, Mathematics  
 Peter D.M. Macdonald/B.Sc., M.Sc. (Toronto), D.Phil. (Oxford)/Graduate  
 Advisor, Statistics  
 Maung Min-Oo/B.Sc. (Rangoon), Dipl. Math., Dr.rer.nat., Habil. (Bonn)  
 S. Gopal Mohanty/B.A. (Utkal), M.A. (Panjab), Ph.D. (Alberta)  
 Bruno J.W. Mueller/B.Sc. (Göttingen), M.Sc., Ph.D. (Mainz)  
 Carl R. Riehm/B.A. (Toronto), Ph.D. (Princeton)  
 Alexander Rosa/M.S. (Kiev State), Ph.D. (Slovak Acad. Sciences)  
 Eric T. Sawyer/B.Sc., Ph.D. (McGill)  
 Victor P. Snaith/B.A., M.A., Sc.D. (Cambridge), M.Sc., Ph.D. (Warwick),  
 F.R.S.C., Britton Professor of Mathematics  
 Donald W.L. Sprung/B.A. (Toronto), Ph.D., D.Sc. (Birmingham), Professor of  
 Physics  
 James D. Stewart/B.Sc. (Toronto), M.S. (Stanford), Ph.D. (Toronto)/Under-  
 graduate Advisor  
 Moti L. Tikau/B.A. (Kashmir), M.A. (Punjab), M.Sc. (Patna), Ph.D., D.Sc.  
 (Aberdeen)  
 McKenzie Y.-K. Wang/A.B. (Princeton), Ph.D. (Stanford)  
 Patrick C. Yip/B.Sc. (Memorial), Ph.D. (McMaster)

**Associate Professors**

N. Balakrishnan/B.Sc., M.Sc. (Madras), Ph.D. (I.I.T., Kanpur)  
 Pulak C. Chakravarti/B.Sc. (Calcutta), M.Sc., Ph.D. (London)  
 Thomas R. Hurd/B.Sc. (Queen's), D.Phil. (Oxford)  
 Zdislav V. Kovarik/M.Sc. (Charles, Prague), Ph.D. (Toronto)  
 Ernest R. Mead/B.A., M.A., Ph.D. (Western), A.S.A.  
 Gregory H. Moore/B.A. (Berkeley), M.A., M.Sc., Ph.D. (Toronto)  
 Andrew J. Nicas/B.Sc. (McGill), M.A., Ph.D. (Princeton)  
 Anthony Peirce/B.Sc., B.Sc. (Hons.) (Orange Free State), M.Sc.  
 (Witwatersrand), M.A., Ph.D. (Princeton)  
 Gordon Slade/B.A.Sc., M.Sc. (Toronto), Ph.D. (British Columbia)  
 Matthew A. Valeriotte/B.Math. (Waterloo), Ph.D. (Berkeley)  
 Gail S.K. Wolkowicz/B.Sc., M.Sc. (McGill), Ph.D. (Alberta)

**Assistant Professors**

Stanley Alama/B.S. (Columbia), M.S., Ph.D. (Courant, N.Y.U.)  
 Lia Bronsard/B.A. (Montreal), M.S., Ph.D. (Courant, N.Y.U.)  
 Jean-Pierre Gabardo/B.Sc. (Université de l'Etat a Mons), Ph.D. (Maryland)  
 Pengfei Guan/B.Sc. (Zhejiang), Ph.D. (Princeton)  
 Bradd Hart/B.Math. (Waterloo), Ph.D. (McGill)  
 Anton M. Jopko/B.Sc., M.Sc., Ph.D. (McMaster), Dipl. Educ. (Althouse)/part-  
 time  
 Mary L. Lesperance/B.A. (Windsor), B.Sc. (Victoria), M. Math., Ph.D.  
 (Waterloo)  
 Alice Metzlar/B.Math (Waterloo), B.Educ., M.Educ. (Western), Ph.D.  
 (Waterloo)/part-time  
 I-Hsun Tsai/B.S. (National Taiwan Univ.), M.A., M.Phil., Ph.D. (Columbia)  
 Roman Viveros-Aguilera, B.A. (Veracruzana, Mexico), M.A. (National Polytechnic  
 Inst., Mexico), Ph.D. (Waterloo)

**Associate Members**

František Franek/(Computer Science and Systems) M.Sc., RNDr (Charles  
 University, Prague), Ph.D. (Toronto)  
 Patrick J. Ryan/ (Computer Science and Systems) B.Sc. (Toronto), Ph.D.  
 (Brown)  
 William F. Smyth/(Computer Science and Systems) B.A. (Toronto), M.Sc.  
 (Ottawa), Ph.D. (Curtin), C.Eng., F.B.C.S., F.I.C.A.

**Department Notes:**

1. \*Course is not necessarily offered every session; consult the Chair of the Department or an Associate Dean of Science (Studies).
2. Students registered in an Arts and Science Programme should note that Arts and Science 1D06 Calculus serves as an equivalent prerequisite for all upper level Mathematics and Statistics courses, for which Mathematics 1A06 is a prerequisite.

**MATHEMATICS ...**

**Courses**

**MATH 1A06 CALCULUS I**

This is a course in differential and integral calculus with emphasis on the

fundamental processes and applications.

Three lectures, one tutorial; two terms

Prerequisite: OAC Calculus

Antirequisite: MATH 1AA6, 1C06, 1N06, ARTS&SCI 1D06

**MATH 1AA6 CALCULUS**

This is an enriched course in differential and integral calculus with emphasis on fundamental processes, intended primarily for students proceeding in the mathematical sciences.

Three lectures, one tutorial; two terms

Prerequisite: OAC Calculus

Antirequisite: MATH 1A06, 1C06, 1N06, ARTS & SCI 1D06

**MATH 1B03 LINEAR ALGEBRA I**

Vectors, matrices, determinants, vector spaces, complex numbers.

Three lectures, one tutorial; one term

Prerequisite: OAC Mathematics Course

Antirequisite: MATH 1H05

**MATH 1C06 CALCULUS FOR LIFE SCIENCES**

This is a course in differential and integral calculus with emphasis on fundamental processes. Applications to the life sciences will be stressed.

Three lectures, one tutorial; two terms

Prerequisite: OAC Calculus

Antirequisite: MATH 1A06, 1AA6, 1N06, ARTS & SCI 1D06

**MATH 1H05 ENGINEERING MATHEMATICS I**

Matrices and determinants, vectors and vector spaces, linear transformations, complex numbers, eigenvalues and eigenvectors, with applications.

Two lectures, one tutorial; first term; Three lectures, one tutorial; second term

Prerequisite: Registration in Engineering I

**MATH 1K03 INTRODUCTORY CALCULUS FOR BUSINESS, HUMANITIES AND THE SOCIAL SCIENCES**

An introduction to differential and integral calculus.

Three lectures, one tutorial; one term

Prerequisite: Grade 12 Mathematics

Antirequisite: MATH 1A06, 1AA6, 1C06, 1M03, 1N06. Normally not open to students who have completed OAC Calculus

*Students transferring to the Faculty of Science do not retain credit for this course.*

**MATH 1M03 CALCULUS FOR BUSINESS, HUMANITIES AND THE SOCIAL SCIENCES**

Differential and integral calculus.

Three lectures, one tutorial; one term

Prerequisite: MATH 1K03, or OAC Calculus

Antirequisite: One of MATH 1A06, 1AA6, 1C06, 1N06

*Students transferring to the Faculty of Science do not retain credit for this course.*

**MATH 1N06 CALCULUS FOR ENGINEERING**

Differential and integral calculus, differential equations, sequences and series, differential calculus of several variables, with applications.

Three lectures, one tutorial; two terms

Prerequisite: Registration in Engineering I

**MATH 2A06 CALCULUS II**

Partial differentiation and differentiability of functions of several variables, extremal problems with constraints, implicit function theorem, multiple integrals, line and surface integrals, Green's, Gauss', Stokes' Theorems and systems of differential equations.

Three lectures; two terms

Prerequisite: MATH 1A06, 1AA6 or 1C06, and MATH 1B03

Antirequisite: MATH 2G03

*This course is required of all students registered in Honours Mathematics Programmes (Specialist Option).*

**MATH 2B06 LINEAR ALGEBRA II**

Vector spaces, linear transformations, polynomials, determinants, canonical forms, Jordan forms, inner product spaces, bilinear forms, introduction to groups of linear transformations.

Three lectures; two terms

Prerequisite: MATH 1A06, 1AA6 or 1C06 and one of MATH 1B03, 1B04, 1G04

Antirequisite: MATH 2J06

*This course is required of all students registered in Honours Mathematics Programmes (Specialist Option).*

**MATH 2C03 DIFFERENTIAL EQUATIONS**

Ordinary differential equations, first-order differential equations. Laplace transforms, series solutions; introduction to partial differential equations, separation

of variables.

Three lectures; one term

Prerequisite: MATH 1A06, 1AA6 or 1C06 or 1N06, and one of MATH 1B03, 1H05

Antirequisite: MATH 2O03

*This course is required of all students registered in Honours Mathematics Programmes (Specialist Option).*

#### **MATH 2D03\* PROSPECTS IN MATHEMATICS**

This course will investigate the motivation and solution of some of the important problems in mathematics.

Three lectures; one term

Prerequisite: MATH 1B03 and one of MATH 1A06, 1AA6, or 1C06

#### **MATH 2E03 INTRODUCTION TO MODELLING**

General features of modelling. Examples from chemistry, physics, biology and economics are treated by a variety of elementary methods. Computer packages are used when appropriate.

Three lectures; one term

Prerequisite: MATH 1A06, 1AA6 or 1C06

*Enrolment is limited.*

*Preference will be given to students registered in the Honours Biology and Mathematics programme.*

#### **MATH 2G03 INTERMEDIATE CALCULUS**

Differential calculus of several variables, multiple integrals, line and surface integrals.

Three lectures; one term

Prerequisite: MATH 1A06, 1AA6 or 1C06, and registration or credit in one of MATH 1B03, 1H05

Antirequisite: MATH 2A06, 2N03

#### **MATH 2J06 LINEAR ALGEBRA II**

The LU and QR decompositions. Least squares. Eigensystems. Schur, diagonal and Jordan form. Normal matrices and SVD. Markov processes. Quadratic forms. Sets and relations. Number systems.

Three lectures; two terms

Prerequisite: MATH 1A06, 1AA6 or 1C06, and one of MATH 1B03, 1H05

Antirequisite: MATH 2B04, 2B06, 2F03

#### **MATH 2K03 FINANCIAL MATHEMATICS**

Nominal and effective rates of interest and discount, forces of interest and discount, compound interest, annuities certain; amortization, sinking funds; bonds, security evaluation, determination of yields.

Three lectures; one term

Prerequisite: One of MATH 1A06, 1AA6, 1C06, 1M03

#### **MATH 2L03 INTERMEDIATE CALCULUS AND DIFFERENTIAL EQUATIONS FOR BUSINESS AND THE SOCIAL SCIENCES**

Functions of several variables, partial differentiation, chain rule, and extremal problems. First and second order differential equations, difference equations.

Three lectures; one term

Prerequisite: One of MATH 1A06, 1AA6, 1C06 or 1M03, and one of MATH 1L03, 1B03, STATS 1L03

Antirequisite: MATH 2A06, 2C03, 2G03, 2O03, 2N03. Registration in Science or Engineering programmes

#### **MATH 2M06 ENGINEERING MATHEMATICS II**

Ordinary differential equations, Laplace transforms, Fourier series, vector calculus, orthogonal curvilinear coordinates, integral theorems, with engineering applications.

Three lectures; two terms

Prerequisite: MATH 1N06 and 1H05

#### **MATH 2N03 INTERMEDIATE MATHEMATICS FOR CHEMISTRY**

Three dimensional analytic geometry and vectors, partial derivatives, multiple integrals, first order differential equations, linear differential equations.

Three lectures; one term

Prerequisite: MATH 1A06, 1AA6 or 1C06, and credit or registration in MATH 1B03 and registration in a Chemistry Programme

Antirequisite: MATH 2A06, 2C03, 2G03, 2L03, 2O03

#### **MATH 2O03 DIFFERENTIAL EQUATIONS**

Ordinary differential equations with constant coefficients, series solutions, special methods; Laplace transforms, Fourier series; introduction to partial differential equations.

Three lectures; one term

Prerequisite: MATH 1A06, 1AA6, 1C06 or 1N06, and one of MATH 1B03, 1H05

Antirequisite: MATH 2C03, 2N03

#### **MATH 2P04 DIFFERENTIAL EQUATIONS FOR ENGINEERING**

Ordinary differential equations, systems of linear ordinary differential equations, Laplace transform, power series solutions, Fourier series with engineering applications.

Four lectures or three lectures and one tutorial, every other week; one term

Prerequisite: MATH 1N06 and 1H05

#### **MATH 2Q04 ADVANCED CALCULUS FOR ENGINEERING**

Vector algebra, curves, partial differentiation, multiple integrals, Green's Theorem, line and surface integrals, integral theorems, scalar and vector potentials, orthogonal curvilinear coordinates, introduction to partial differential equations.

Four lectures or three lectures and one tutorial, every other week; one term

Prerequisite: MATH 1N06 and 1H05

#### **MATH 3A06 REAL ANALYSIS**

Development of the real number system, infinite series, differentiable functions of several variables. Stieltjes integral, uniform convergence, improper integrals and their applications.

Three lectures; two terms

Prerequisite: MATH 2A06 and 2B06; or a weighted average of at least 10.0 in MATH 2G03, 2J06, and 2O03

Antirequisite: MATH 3O06

*This course is required of all students registered in Honours Mathematics Programmes (Specialist Option).*

#### **MATH 3B03 FOUNDATIONS OF GEOMETRY**

Topics chosen from affine, projective, spherical or hyperbolic geometry, curves and surfaces in 3-space.

Three lectures; one term

Prerequisite: MATH 2B06 or 2J06

#### **MATH 3C03 MATHEMATICAL PHYSICS I**

Linear algebra and eigenvalue problems; partial differential equations, orthogonal functions, Fourier series, Legendre functions, spherical harmonics.

Three lectures; one term

Prerequisite: MATH 2A06 and 2C03, or 2G03 and 2O03, or 2P04 and 2Q04, and PHYSICS 2C05, 2D03 or 2G03

Antirequisite: MATH 3J04, 3K03, 3V06

#### **MATH 3D03 MATHEMATICAL PHYSICS II**

Functions of a complex variable, probability and statistics, boundary value problems, Bessel functions.

Three lectures; one term

Prerequisite: MATH 3C03

Antirequisite: MATH 3J04, 3K03, 3V06. Registration in Honours Mathematics and Physics

#### **MATH 3E03 ALGEBRA I**

An introduction to groups including Sylow theorems and structure of finitely generated Abelian groups.

Three lectures; one term

Prerequisite: MATH 2B06 or 2J06

Antirequisite: MATH 3E06

#### **MATH 3EE3 ALGEBRA II**

Modules over principal ideal domains, field extensions, integral closure.

Three lectures; one term

Prerequisite: MATH 3E03

Antirequisite: MATH 3E06

#### **MATH 3F03 ADVANCED DIFFERENTIAL EQUATIONS I**

Systems of linear differential equations using Jordan canonical form, planar autonomous systems, elementary existence and uniqueness. Asymptotic and structural stability and bifurcation theory. Applications are stressed.

Three lectures, one term

Prerequisite: MATH 2A06, 2B06, and 2C03 or MATH 2G03, 2J06 and 2O03

Antirequisite: MATH 3F06

#### **MATH 3FF3 ADVANCED DIFFERENTIAL EQUATIONS II**

Modelling and derivation of elementary differential equations. Classification: Green's functions, Sturm-Liouville theory, orthogonal expansions, Fourier series and transforms, conservation laws, waves and solitons.

Three lectures, one term

Prerequisite: MATH 3F03

Antirequisite: MATH 3F06

#### **MATH 3G03\* PROBLEM SOLVING**

Principles of problem solving and application to solutions of mathematical problems. Practice in developing problem-solving skills on problems from various areas of mathematics.

Three lectures; one term

Prerequisite: Credit in at least 12 units of Level II Mathematics or Statistics, and the permission of the instructor.  
Enrolment is limited.

**MATH 3H03\* NUMBER THEORY**

Selected topics from: congruences and residues, continued fractions, approximation of irrationals, arithmetic in selected quadratic number fields, Diophantine equations, partitions, geometry of numbers, quadratic reciprocity.  
Three lectures; one term  
Prerequisite: Credit in 12 units of Level II Mathematics or Statistics

**MATH 3J04 ENGINEERING MATHEMATICS III**

Topics in mathematics of interest for civil engineering, including probability and statistics, partial differential equations, numerical analysis; and matrix algebra.  
Four hours; one term  
Prerequisite: MATH 2M06

**MATH 3K03 ENGINEERING MATHEMATICS III**

Complex variable theory with applications to electrical and computer engineering.  
Three lectures; one term  
Prerequisite: MATH 2P04 and 2Q04

**MATH 3L03 INTRODUCTION TO MATHEMATICAL LOGIC**

Propositional and first order logic, deduction systems, completeness and compactness theorems, model theory.  
Three lectures; one term  
Prerequisite: MATH 2B06 or a grade of at least B- in MATH 2J06  
Antirequisite: MATH 3L06

**MATH 3N03 MATHEMATICAL BIOLOGY**

Population dynamics: models of discrete and continuous growth; competition and predation; epidemic models. Partial differential equations: diffusion and pattern formation in biological settings. Biological oscillators.  
Three lectures; one term  
Prerequisite: MATH 2E03 and 3F03

**MATH 3O06 REAL ANALYSIS**

Sequences and series of functions; pointwise, uniform and mean convergence; Fourier series. Integration and Fourier integrals.  
Three lectures; two terms  
Prerequisite: One of MATH 2A06, 2G03  
Antirequisite: MATH 3A06

**MATH 3P03 GENERAL TOPOLOGY**

Introduction to basic notions of general topology, various modes of defining topological spaces, continuity, convergence, separation axioms, compactness, connectedness.  
Three lectures; one term  
Prerequisite: MATH 2B06 or a grade of at least B in MATH 2J06

**MATH 3Q03 NUMERICAL ANALYSIS**

An introduction to the methods of numerical analysis, including methods for interpolation, numerical differentiation and integration, and the solution of transcendental, differential and matrix equations.  
Three lectures, one term  
Prerequisite: MATH 2A06 and 2C03, or 2G03 and 2O03, or 2M06, or 2P04 and 2Q04, and one of COMP SCI 1MA3, 1ZA3 or ENGINEER 1D04

**MATH 3R03 LINEAR PROGRAMMING**

The general linear programming problem, simplex procedures, dual problems, degeneracy procedures, parametric linear programming, interior point methods. Applications including the transshipment and assignment problems.  
Three lectures; one term  
Prerequisite: MATH 1B03

**MATH 3T03 COMPLEX ANALYSIS**

Analytic functions, power series, Cauchy's Theorem, residue calculus, conformal mapping, analytic continuation.  
Three lectures; one term  
Prerequisite: One of MATH 2A06, 2G03  
Antirequisite: Math 4A06

**MATH 3V06 ENGINEERING MATHEMATICS III**

Topics in mathematics of interest for mechanical, metallurgical and ceramic engineering, including probability and statistics, partial differential equations, numerical analysis.  
Two hours, first term; four hours, second term  
Prerequisite: MATH 2M06, or 2P04 and 2Q04

**MATH 3Z03 HISTORY OF MATHEMATICS**

An introduction to the history of mathematics, including interaction with other

phases of culture, with special emphasis on the past three centuries.

Three lectures; one term

Prerequisite: At least two Level II Mathematics or Statistics courses other than MATH 2H03, 2H06, 2K03, 2L03

**MATH 4A06 FUNCTIONS OF A COMPLEX VARIABLE**

Study of analytic functions, their various representations, and their properties.  
Three lectures; two terms  
Prerequisite: MATH 3A06  
Antirequisite: MATH 3T03 or 4O03

**MATH 4B03\* CALCULUS ON MANIFOLDS**

Review of calculus in  $R^n$ , differential forms, integration on chains, Stokes' theorem. Introduction to differentiable manifolds, Sard's theorem.  
Three lectures; first term  
Prerequisite: MATH 2A06 and 2B06 or a weighted average of at least 7.0 in MATH 2G03, 2J06 and 2O03, or MATH 3C03  
Antirequisite: MATH 4B06

**MATH 4BB3\* TOPICS IN DIFFERENTIAL TOPOLOGY AND GEOMETRY**

Differentiable manifolds. Transversality. Riemannian geometry.  
Three lectures; second term  
Prerequisite: MATH 4B03  
Antirequisite: MATH 4B06

**MATH 4C03\* COMBINATORICS**

Inversion formulae, systems of distinct representatives, block designs and other configurations; and other topics.  
Three lectures; one term  
Prerequisite: One of MATH 2A06, 2G03, and one of MATH 2B06, 2J06

**MATH 4E03 ALGEBRA III**

Polynomial rings, ideal theory, Galois Theory.  
Three lectures; one term  
Prerequisite: One of MATH 3EE3, 3E06

**MATH 4F03\* SET THEORY**

Ordinal and cardinal arithmetic, equivalents of the axiom of choice, the Zermelo-Frankel axiom system, the continuum hypothesis, independence.  
Three lectures; one term  
Prerequisite: MATH 3L03  
Antirequisite: MATH 2F03  
Alternates with MATH 4S03.

**MATH 4I03\* BANACH AND HILBERT SPACES**

An introduction to  $L_p$ , Banach and Hilbert spaces, bounded linear operators, functionals, open mapping and closed graph theorems, duality, Riesz representation theorems; and other topics.  
Three lectures; one term  
Prerequisite: MATH 4K03

**MATH 4J03 GRAPH THEORY**

Graphs, trees, bipartite graphs, connectivity, graph colouring, matrix representations, applications.  
Three lectures; one term  
Prerequisite: One of MATH 2A06, 2G03, and one of MATH 2B06, 2J06

**MATH 4K03 MEASURE THEORY AND PROBABILITY**

Introduction to the theory of measure and integration with applications to probability theory.  
Three lectures; one term  
Prerequisite: MATH 3A06, or a grade of at least A- in MATH 3O06

**MATH 4Q03 NUMERICAL METHODS FOR ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS**

Method for ordinary initial and boundary value problems. Stiff systems. Solution of partial differential equations: finite difference, finite element, boundary element methods. Convergence and stability analysis.  
Three lectures; second term  
Prerequisite: Credit or registration in MATH 3FF3 or 3D03

**MATH 4QQ3 NUMERICAL LINEAR ALGEBRA**

Matrix norms; decompositions including LU, QR and SVD; sensitivity analysis. Eigenvalue and least squares problems. Sparse, Vandermonde and Toeplitz systems. Iterative methods, subspace methods.  
Three lectures; first term  
Prerequisite: MATH 3Q03

**MATH 4RR3 OPTIMIZATION**

Nonlinear programming and unconstrained optimization; trust region methods. Constrained optimization and penalty methods. Characterizations of optimality.

## 190 MATHEMATICS AND STATISTICS

Lagrange multiplier techniques and quadratic programming.

Three lectures; one term

Prerequisite: One of MATH 2A06, 2G03, 2N03, and MATH 3R03

### **MATH 4S03\* THE THEORY OF COMPUTABILITY**

Automata and regular languages, Turing machines, recursive functions, decidability, Gödel's incompleteness theorems.

Three lectures; one term

Prerequisite: MATH 3L03 or 3L06

Alternates with MATH 4F03.

### **MATH 4V03 APPLIED MATHEMATICAL ANALYSIS**

Lebesgue integration, distribution theory, Fourier Analysis, partial differential equations, integral equations, calculus of variations; additional topics.

Three lectures; one term

Prerequisite: One of MATH 3D03, 3FF3, 3F06

Antirequisite: MATH 4V06

### **MATH 4W03 DIRECTED READING**

Directed reading in areas of mathematics of interest to the student and the instructor.

Prerequisite: Permission of the Chair of the Department

For Graduate Courses see *Calendar of School of Graduate Studies*.

## STATISTICS ...

### **STATS 1A03 STATISTICAL REASONING**

The basic ideas of graphical displays, sampling methodology and probability are developed through diverse examples from a wide range of disciplines.

Three lectures, one tutorial; one term

Prerequisite: Grade 12 Mathematics

Antirequisite: Registration in the Faculty of Science. COMMERCE 2QA3, ECON 2B03, PSYCH 2R06, 2R03, 2RR3, STATS 2R06, 2D03, 2M03, 2MA3, 2MB3

### **STATS 1L03 PROBABILITY AND LINEAR ALGEBRA**

The algebra of probability, conditional probability and independence, discrete and continuous random variables, mean and variance, matrices, determinants, Cramer's rule, solution of linear equations.

Three lectures, one tutorial; one term

Prerequisite: Grade 12 Mathematics

Antirequisite: OAC Finite Mathematics; MATH 1B03 or 1L03; registration in Science or Engineering programmes. Students transferring to the Faculty of Science do not retain credit for this course.

### **STATS 2A03 ADVANCED STATISTICAL REASONING**

Statistical inference procedures and methods for describing the relationships between variables are explained through a variety of examples from different fields.

Three lectures; one term

Prerequisite: STATS 1A03

### **STATS 2D03 PROBABILITY THEORY**

Combinatorics, independence, conditioning; Poisson-process; discrete and continuous distributions with statistical applications; expectation, transformations, order statistics. Distribution of  $x$  and  $s^2$ , moment-generating functions, central limit theorem.

Three lectures; one term

Prerequisite: MATH 1B03, and one of MATH 1A06, 1AA6, 1C06 or 1M03. Students with credit in MATH 1L03 or STATS 1L03 may not retain this credit if STATS 2D03 is taken.

### **STATS 2MA3 PROBABILITY AND STATISTICAL METHODS FOR SCIENCE**

Combinatorics; discrete and continuous probability distributions; expectations; central limit theorem; point and interval estimation; hypothesis testing; regression and correlation; analysis of variance.

Three lectures; one term

Prerequisite: One of MATH 1A06, 1AA6, or 1C06

Antirequisite: COMMERCE 2QA3, ECON 2B03, PSYCH 2R06, STATS 2R06, 2D03, 2M03, 2MB3

### **STATS 2MB3 STATISTICAL METHODS**

Estimation; sampling distributions; confidence intervals; hypothesis testing; power; robustness; analysis of variance for one and Two factor designs; linear regression; graphical methods; statistical computing.

Three lectures; one term

Prerequisite: STATS 2D03

Antirequisite: STATS 2M03 or 2MA3

### **STATS 2R06 INTRODUCTORY STATISTICS WITH APPLICATIONS**

Descriptive statistics, plotting data, computation of measures for data, probability, random variables, hypothesis testing, parameter estimation, analysis of variance, chi-square tests, distribution-free tests.

Three lectures; two terms

Prerequisite: OAC Calculus or one of MATH 1A06, 1AA6, 1C06, 1K03, 1M03

Antirequisite: COMMERCE 2QA3, STATS 2MA3, 2M03, PSYCH 2R03, 2RR3, 2R06, ECON 2B03

### **STATS 3D06 MATHEMATICAL STATISTICS**

The multivariate normal distribution, point and interval estimation, sampling distributions, tests of hypotheses, elementary linear regression, and other topics.

Three lectures; two terms

Prerequisite: STATS 2D03, and one of MATH 2A06, 2G03, 2L03, 2N03

### **STATS 3G03\* ACTUARIAL MATHEMATICS I**

Survival distributions, life tables, life insurance, life annuities, net premiums and reserves.

Three lectures; one term

Prerequisite: STATS 2D03 and credit or registration in MATH 2K03

Antirequisite: MATH 3X03.

Offered in alternate years

### **STATS 3H03\* ACTUARIAL MATHEMATICS II**

Multiple life functions, multiple decrement models, valuation theory for pension plans.

Three lectures; one term

Prerequisite: STATS 3G03 or MATH 3X03

Antirequisite: MATH 3Y03

### **STATS 3N03 STATISTICAL METHODS FOR ENGINEERING**

Introduction to statistical methods and applications: data analysis and statistical methods.

Three lectures; one term

Prerequisite: Registration or credit in Levels III, IV or V Engineering

### **STATS 3S03\* SURVEY SAMPLING**

Survey design; simple random sampling; stratified sampling; proportional allocation; ratio estimation; cluster sampling; systematic sampling and sample size determination. A project associated with current research is required.

Three lectures; one term

Prerequisite: STATS 2D03 and 2MB3

### **STATS 3U03 STOCHASTIC PROCESSES**

Random walk, Markov chains, discrete and continuous parameter Markov processes, branching processes, birth and death processes, queuing processes.

Three lectures; one term

Prerequisite: STATS 2D03 and one of MATH 2A06, 2G03, 2N03

### **STATS 3X03 ENGINEERING MATHEMATICS IV**

Further topics of interest for electrical engineering, emphasizing probability theory.

Three lectures; one term

Prerequisite: MATH 2P04 and 2Q04

### **STATS 3Y03 STATISTICAL ANALYSIS FOR ENGINEERING AND MANAGEMENT**

Introduction to probability, statistical inference, regression, correlation and decision making.

Three lectures; one term

Prerequisite: Registration in an Engineering and Management programme and credit in either MATH 2M06 or MATH 2P04 and MATH 2Q04; or permission of the instructor.

### **STATS 4H03\* OPERATIONS RESEARCH**

Network models and algorithms, dynamic models, queuing models and other topics.

Three lectures; one term

Prerequisite: MATH 3R03, credit or registration in STATS 3D06

### **STATS 4K03\* STATISTICAL DECISION THEORY**

Decision theory and applications; Bayes, admissible and minimax rules; multiple decision problems.

Three lectures; one term

Prerequisite: Credit or registration in STATS 3D06

### **STATS 4M03 MULTIVARIATE ANALYSIS**

Multivariate distributions: Normal, Wishart,  $T^2$  and others; regression, correlation, factor analysis, general linear hypothesis.

Three lectures; first term

Prerequisite: STATS 3D06, and one of MATH 2B04, 2B06, 2J06

#### STATS 4003\* ORDER STATISTICS

Basic theory, moments, recurrence relations and identities. Approximations, linear estimation. Applications to life-testing problems.

Three lectures, one term

Prerequisite: STATS 3D06

#### STATS 4P03\* ADVANCED STATISTICAL COMPUTING

Practical problems from design of experiments, linear models, regression, sampling, multivariate analysis and industrial statistics, will be considered using statistical software packages.

Three lectures, second term

Prerequisite: STATS 3D06 and 4M03. Registration in or completion of STATS 4T03 and 4Z03

#### STATS 4R03\* REGRESSION ANALYSIS

Linear and non-linear models; least squares theory; analysis of residuals; stepwise regression; weighted least squares; prediction and calibration; selected topics in regression.

Three lectures; one term

Prerequisite: STATS 3D06

Antirequisite: STATS 3Y03

#### STATS 4T03 DESIGN OF EXPERIMENTS

Analysis of variance and covariance; linear models; randomized block designs; Latin squares; factorial experiments. Emphasis on applications.

Three lectures; one term

Prerequisite: STATS 3D06

#### STATS 4U03\* NONPARAMETRIC METHODS IN STATISTICS

Rank tests and non-parametric methods; rank correlation; comparisons with parametric methods.

Three lectures; one term

Prerequisite: Credit or registration in STATS 3D06

#### STATS 4Z03\* INDUSTRIAL STATISTICS

Topics selected from sequential methods, quality control, reliability theory.

Three lectures; one term

Prerequisite: Credit or registration in STATS 3D06

For Graduate Courses see the *Calendar of the School of Graduate Studies*.

## MECHANICAL ENGINEERING

### Faculty as of January 15, 1993

#### Chair

M. Shoukri

#### Professors Emeriti

W. Roy Newcombe/B.Sc. (*Mount Allison*), M.E. (*Nova Scotia Tech.*), P.Eng.

James N. Siddall/B.E. (*Saskatchewan*), S.M. (*M.I.T.*), P.Eng.

John H.T. Wade/M.A.Sc., Ph.D. (*Toronto*), P.Eng.

#### Professors

Mohammed A. Dokainish/B.Sc. (*Cairo*), M.A.Sc., Ph.D. (*Toronto*), P.Eng.

Mohammed Elbestawi/B.Sc. (*Alexandria*), M.Eng., Ph.D. (*McMaster*), P.Eng.

Hoda A. ElMaraghy/B.Sc. (*Cairo*), M.Eng., Ph.D. (*McMaster*), P.Eng.

Ross L. Judd/B.E.Sc. (*Western*), M.Eng. (*McMaster*), Ph.D. (*Michigan*), P.Eng.

Brian Latta/B.Sc. (*London*), Ph.D. (*Glasgow*), P.Eng., C.Eng.

George F. Round/B.Sc., Ph.D., D.Sc. (*Birmingham*), F.C.I.C., P.Eng.

Mamdouh Shoukri/B.Sc. (*Cairo*), M.Eng., Ph.D., (*McMaster*), P.Eng.

Robert Sowerby/B.Sc., A.C.G.I. (*London*), M.Sc., Ph.D., D.Sc. (*Manchester*), P.Eng.

David S. Weaver/M.A.Sc. (*Toronto*), Ph.D. (*Waterloo*), P.Eng.

#### Associate Professors

Mateusz P. Sklad/M.Sc., Ph.D. (*Warsaw*)

#### Assistant Professors

S. Eren Semercigil/B.Sc., M.Sc. (*Middle E. Tech. Univ.*), Ph.D. (*Manitoba*)

Vincent M. Sowa/B.Sc. (*Illinois*), M.A. (*Purdue*), Ph.D. (*Waterloo*)/Part-time

Ozden F. Turan, B.Sc. (*Middle E. Tech. Univ.*), M.Sc. (*Case Western Reserve*), Ph.D. (*Manitoba*)

W. Roy Underhill/B.Sc. (*Trent*), M.A.Sc. (*Toronto*), Ph.D. (*McMaster*)

#### Lecturer

Robert C. Hudspeth/B.Eng., M.Eng. (*McMaster*), P.Eng.

#### Department Note:

Enrolment in Mechanical Engineering courses by students in programmes other than those administered by the Department may be limited.

## MANUFACTURING ENGINEERING ...

### Courses

#### MANUFACT 2C03 MECHANICAL ENGINEERING DESIGN I

One to three projects in small teams involving modelling, analysis, synthesis and computing, with emphasis on analysis. Individual reports are required with complete assembly and detail drawings.

Two lectures, one lab (three hours) alternating weeks and one lab (three hours) every week; second term

Prerequisite: ENGINEER 1C04 and 1D04, and credit or registration in ENGINEER 2P04

#### MANUFACT 3M02 MANUFACTURING LABORATORY I

Laboratory exercises in metalworking practices, measurements and solid mechanics.

Two labs (three hours); both terms

Prerequisite: Registration in Manufacturing Engineering

#### MANUFACT 4A03 COMPUTER AIDED MANUFACTURING

Computer integrated manufacturing systems. Coding and classification, group technology. Computerized process planning. Robotics and sensors. Assembly. Design for manufacturability and assembly. Flexible manufacturing. Simulation of manufacturing processes.

Two lectures, one lab (three hours); second term

Prerequisite: Registration in Level III or Level IV of either Mechanical or Manufacturing Engineering or permission of the Department

#### MANUFACT 4M04 PROJECT

A major project in the area of manufacturing engineering. It may be of a design or experimental nature.

One lab (three hours), first term, three labs (three hours); second terms

Prerequisite: Registration in Level IV of Manufacturing Engineering

#### MANUFACT 4P02 MANUFACTURING LABORATORY II

Laboratory exercises in metalworking practices, solid mechanics and controls.

One lab (three hours); both terms

Prerequisite: MANUFACT 3M02

## MECHANICAL ENGINEERING ...

#### MECH ENG 2A03 KINEMATICS OF MECHANISMS

Computations and projects in mechanical engineering. Introduction to the design of mechanisms. Analysis and synthesis of cams, gears and planar mechanisms. Force analysis of machine members.

Two lectures, one lab (three hours); first term

Prerequisite: MATH 1H05, 1N06, PHYSICS 1D03

#### MECH ENG 2B03 MECHANICAL ENGINEERING MEASUREMENTS

Introduction to the theory and practice of engineering measuring techniques. Theory of measurements, precision shop measurements and laser metrology; measurements of pressure, flow, temperature and power; combustion analysis and gas analysis, measurement of strain and force; elementary statistical analysis.

One lecture, one lab (three hours), first term, one lab (three hours); second term

Prerequisite: MATH 1H05, PHYSICS 1D03

#### MECH ENG 2C03 MECHANICAL ENGINEERING DESIGN I

One or two projects in small teams involving modelling, analysis, synthesis and computing, with emphasis on analysis. Individual reports are required with complete assembly and detail drawings.

Two lectures, one lab (three hours) alternating weeks and one lab (three hours) every week; second term

Prerequisite: ENGINEER 1C04 and 1D04, and credit or registration in ENGINEER 2P04

#### MECH ENG 3A03 ENGINEERING MECHANICS

Singularity functions, generalized Hooke's law; shear stress, shear flow in beams; shear centre. Biaxial and unsymmetrical bending, analysis of indeterminate beams and frames using energy methods, impact loads. Buckling of compression members.

Three lectures; first term

Prerequisite: ENGINEER 2P04

**MECH ENG 3C03 MANUFACTURING ENGINEERING**

A general introduction, encompassing the wide field of activities from iron and steel making through casting, rolling, forging, to cold forming, metal cutting, welding, bonding, electrical machining, surface treatment, mechanical handling, assembly, cleaning, packaging.

Three lectures; first term

Prerequisite: Registration in a programme in Manufacturing Engineering or Mechanical Engineering

**MECH ENG 3D03 MECHANICAL ENGINEERING THERMODYNAMICS**

The thermodynamic laws, as developed in Engineering 2W04, are re-examined. Applied thermodynamics including advanced engineering thermodynamic processes, psychometry, and an introduction to combustion, compressible flow and environmental problems are considered.

Three lectures; second term

Prerequisite: ENGINEER 2W04

**MECH ENG 3E04 MECHANICAL ENGINEERING DESIGN II**

Uncertainties, statistical considerations. Design of machine components. The laboratories consist of problems, case studies and the use of computer graphics and CAD packages for machine design problems.

Three lectures, one lab (three hours); second term

Prerequisite: ENGINEER 2P04 and 2Q04, and credit or registration in MECH ENG 3A03

**MECH ENG 3M02 COMPOSITE LABORATORY**

Laboratory exercises in fluid mechanics, thermodynamics and solid mechanics.

One lab (three hours); both terms

Prerequisite: Registration in Mechanical Engineering or Mechanical Engineering and Management or Mechanical Engineering and Society

**MECH ENG 3O04 FLUID MECHANICS I**

Fluid properties and statics, conservation laws, applications of the continuity, momentum and energy equations, dimensional analysis and similarity, boundary layer flow, internal and external flows.

Three lectures, one tutorial (two hours); first term

Prerequisite: MATH 2M06, or MATH 2P04 and 2Q04

**MECH ENG 3R03 HEAT TRANSFER**

Application of the laws of conduction, convection and radiation to problems in heat transfer. Steady and transient conduction in solids. Laminar and turbulent convection. Radiation heat transfer processes. Heat exchangers.

Three lectures; second term

Prerequisite: MATH 2M06, ENGINEER 2W04, and credit or registration in MECH ENG 3O04

**MECH ENG 4A03 ADVANCED STRENGTH OF MATERIALS**

Advanced analysis of three-dimensional elastic-plastic deformation and structural failure based on continuum mechanics. Stress and strain tensors. Failure theories. Numerical techniques.

Two lectures, one tutorial; second term

Prerequisite: MECH ENG 3A03

**MECH ENG 4C03 INDUSTRIAL ENGINEERING**

Technical and economic considerations in organizing and planning the production process. Characteristics of job, batch and mass manufacturing systems. Plant layout, work standards and work measurements, means of increasing productivity. Operations research. Concepts and methods in inventory control and statistical quality control.

Three lectures; first term

Prerequisite: MATH 3V06

**MECH ENG 4D03 MANUFACTURING PROCESSES (METAL REMOVAL)**

Fundamentals of metal removing processes. Characteristics of the various types of operations. Optimizing working conditions for best economy, best precision and surface quality. Characteristics of corresponding production equipment. Accuracy of machine tools, stability, life, reliability. Numerical control and adaptive control of machine tools.

Three lectures; second term

Prerequisite: MECH ENG 3C03

**MECH ENG 4F03 ENGINEERING ACOUSTICS**

Propagation of sound: "near" and "far" fields, the diffuse field, reverberation time and transmission loss. Generation of noise by fluid flow, vehicular traffic and industrial machinery. Muffler and barrier design. Measurement techniques and noise analysis. Laboratory demonstrations.

Three lectures; first term

Prerequisite: MECH ENG 3D03, 3E04 and 3O04

**MECH ENG 4G03 MECHANICAL ENGINEERING DESIGN III**

Capstone course in mechanical design, design optimization, design for manufacturability, computer-aided design, reliability and failure analysis, major design project.

Two lectures, one tutorial (two hours)/week; first term

Prerequisite: MECH ENG 3E04

**MECH ENG 4K03 INTRODUCTION TO ROBOTIC MECHANICS**

Spatial descriptions and transformations, manipulator kinematics, inverse kinematics, Jacobians, dynamics.

Three lectures; second term

Prerequisite: MECH ENG 2A03, 4Q03, 4R03

**MECH ENG 4L03 INDUSTRIAL DESIGN**

Introduction for engineering students to the techniques of industrial design, case studies and introduction to illustration techniques.

Three lectures; second term

Prerequisite: MECH ENG 2C03, 3E04

**MECH ENG 4M04 PROJECT**

A major project related to any option or branch of engineering. It may be of a design or experimental nature.

One lab (three hours), first term; three labs (three hours); second term

Prerequisite: Registration in Level IV Mechanical Engineering, or in Level V Mechanical Engineering and Management or Mechanical Engineering and Society

**MECH ENG 4P02 COMPOSITE LABORATORY**

Laboratory exercises in vibrations analysis, machine structures, controls, heat transfer, gas dynamics, fluid mechanics and thermodynamics.

One lab (three hours); both terms

Prerequisite: MECH ENG 3M02, and registration in Mechanical Engineering or Mechanical Engineering and Management or Mechanical Engineering and Society

**MECH ENG 4Q03 MECHANICAL VIBRATIONS**

Transient and steady state vibration of single- and multi-degree of freedom systems. Dynamic vibration absorber. Vibrations of continuous beams. Balancing and critical speeds of shafts.

Two lectures, one tutorial (two hours); first term

Prerequisite: MATH 2M06, 3V06, ENGINEER 2Q04, MECH ENG 3A03

**MECH ENG 4R03 CONTROL SYSTEMS**

Control systems in a design context with emphasis on digital computer control techniques. Continuous linear systems with analog control, discrete time systems, digital control and the use of microcomputers.

Three lectures; first term

Prerequisite: MATH 3V06

**MECH ENG 4S03 FLUID MECHANICS II**

Introduction to potential flows, internal and external laminar and turbulent incompressible flows. Introduction to compressible flows and hydraulic machines.

Two lectures, one lecture/tutorial; first term

Prerequisite: MECH ENG 3O04

**MECH ENG 4T03 FINITE ELEMENT APPLICATIONS**

The finite element method and its application to mechanical systems including static and dynamic analysis.

Three lectures; second term

Prerequisite: Credit or registration in MECH ENG 4Q03

**MECH ENG 4U03 ADVANCED THERMODYNAMICS**

Compressible flows: Fanno and Rayleigh flows, normal and oblique shocks. Turbomachines: Axial and radial flow gas and steam turbines, axial and radial flow compressors and fans.

Three lectures; second term

Prerequisite: MECH ENG 3D03

**MECH ENG 4V03 THERMO-FLUIDS SYSTEMS DESIGN AND ANALYSIS**

The analysis and synthesis of thermo-fluid systems. Approaches to modelling including numerical simulation techniques for the design and analysis of the performance of thermo-fluid systems.

Three lectures; second term

Prerequisite: MECH ENG 3R03, 3D03, and credit or registration in MECH ENG 4S03

**MECH ENG 4W03 TRIBOLOGY-LUBRICATION AND WEAR**

This course covers introductory material on friction, lubrication and wear as related to many disciplines. The emphasis is on basic lubrication, dry friction,

surface properties and lubricants.

Three lectures; second term

Prerequisite: Completion of Level III Mechanical Engineering or permission of the Department

### MECH ENG 4X03 CODIFIED DESIGN AND FAILURE ANALYSIS

Application of mechanical design to engineering practice. Topics include codified design of steel structures and the analysis of common failures occurring in service.

Three lectures; second term

Prerequisite: MECH ENG 3A03

### MECH ENG 4Y03 ADVANCED KINEMATICS OF MACHINES

Additional topics in the analysis of mechanisms. Major emphasis on the design and methods of synthesis of mechanisms to perform specific motion tasks.

Three lectures; second term

Prerequisite: ENGINEER 2Q04, MECH ENG 2A03

### MECH ENG 4Z03 COMPUTER AIDED DESIGN

Project-oriented CAD course, 3-D modelling and graphics, design by features. I-DEAS and mechanical design application packages (kinematics and stress analysis) used on SUN workstations.

Two lectures, one lab (three hours); first term

Prerequisite: Registration in Level IV Manufacturing Engineering or Mechanical Engineering or permission of the department

### ENGINEER 4J03 METAL FORMING

Offered jointly by the Departments of Mechanical Engineering and Materials Science and Engineering. See *Engineering (General)* for course description.

For Graduate courses, see the *Calendar of the School of Graduate Studies*.

## METALLURGY

(SEE MATERIALS SCIENCE AND ENGINEERING, METALLURGY)

## MIDWIFERY

### Courses

#### MIDWIF 1A03 INTRODUCTION TO MIDWIFERY

Through small group discussions and arranged experiences, students will be oriented to the midwife's role, the philosophy of practice in Ontario and the future direction of midwifery in Canada. Includes one week with all students in one site and follow-through of clients in fall and spring terms.

#### MIDWIF 1B12 MIDWIFERY CARE I

This clinical course involves four weeks of structured learning experiences to prepare for an eight-week, individualized placement in a midwifery practice. The placement focuses on assessment skills of prenatal and postnatal clients and observation of births. Included is a weekly situation-based, small group tutorial.

## MODERN LANGUAGES

### Faculty as of January 15, 1993

#### Chair

George Thomas

#### Professor Emeritus

Antonio G. Alessio/D.Litt. (*Genoa*) (*Italian*)

Karl Denner/M.A. (*Kentucky*), Ph.D. (*Johns Hopkins*), (*German*)

#### Professors

John D. Browning/B.A., M.Phil. (*London*), Ph.D. (*Essex*) (*Hispanic Studies*)

Samuel D. Cioran/B.A. (*McMaster*), Ph.D. (*Toronto*) (*Russian*)

Stelio Cro/L. en L. (*Buenos Aires*), Dott. Ling. e Lett. (*Venice*) (*Italian*)

Nina Kolesnikoff/M.A. (*Moscow State*), Ph.D. (*Alberta*) (*Russian*)

Walter Smyrniw/B.A. (*McMaster*), M.A., Ph.D. (*Toronto*) (*Russian*)

Gerhart Teuscher/Dip. -Uebersetzer (*Mainz-Germersheim*), M.A. (*Toronto*),

Ph.D. (*State University of New York, Buffalo*) (*German*)

George Thomas/B.A., Ph.D. (*London*) (*Russian*)

#### Associate Professors

Joseph Adamson/B.A. (*Trent*), M.A., Ph.D. (*Toronto*)/English & Modern Languages (*Comparative Literature*)

Marfa del C. Cerezo/B.A. (*Puerto Rico*), M.A. (*McGill*), Ph.D. (*Toronto*) (*His-*

#### panic Studies)

Gerald Chapple/B.A. (*McMaster*), A.M., Ph.D. (*Harvard*) (*German*)

Gabriele Erasmii/B.A. (*Yale*), M.A., Ph.D. (*Minnesota*) (*Italian*)

Pilar Martinez/Lincenciatura, Chem. (*Madrid*), M.A. (*Middlebury*), Doct. En Fil. y Letras (*Madrid*) (*Hispanic Studies*)

Fiorgio Minelli/B.A., M.A. (*Western*), Ph.D. (*Brown*) (*Hispanic Studies*)

Hans H. Schulte/Assessor (*Munich*), Dr. phil. (*Augsburg*) (*German*)

Fritz T. Widmaier/B.A. (*Waterloo*), A.M., Ph.D. (*Southern California*) (*German*)

#### Assistant Professors

Vittorina Cecchetto/B.A., M.A., Ph.D. (*Toronto*) (*Italian*)

L. Diane Dyer/B.A., M.A., B.L.S., Phil.M. (*Toronto*) (*Italian*)/part-time

Maria M. Stroinska/M.A. (*Warsaw*), Ph.D. (*Edinburgh*) (*German and Linguistics*)

#### Canada Research Fellow

M. Jean Wilson/B.A. (*McMaster*), B.Ed., M.A., Ph.D. (*Toronto*) (*German and Comparative Literature*)/part-time

#### Senior Language Preceptors

Virginia Ariga/M.A. (*Toronto*), M.A. (*Texas*) (*Japanese*)

Huainian Hu/Equivalent to Canadian B.A., M.A. (*Beijing Foreign Language Institute*) (*Chinese*)

Noriko Takahashi/B.A. (*Aichi*), M.Ed. (*Ontario Inst. Ed.*)

#### Instructors

Alessandro Carrera (*Italian*)/part-time

Inga Dolinina/M.A., Ph.D. (*Leningrad*) (*Russian*)/part-time

Clara G. Donini-Drysdale/B.A. (*McMaster*), M.A. (*Toronto*) (*Italian*)/part-time

Lavorka Fabek-Fischer/B.A., M.A. (*McMaster*) (*German*)/part-time

Marcela Leighton Krautter/B.A., Cert.Ed. (*Chile*), M.A., Ph.D. (*Queen's*) (*Hispanic Studies*)/part-time

Milica Krneta/B.A. (*McMaster*), M.A. (*Toronto*) (*Russian*)/part-time

Ping-Mei Law/B.A., M.A. (*Toronto*) (*Hispanic Studies*)/part-time

Brigitta Martin-Mendonca/Staatsexamen (*Bielefeld*), M.A. (*McMaster*) (*German*)/part-time

Ryta-Anna Monaco/B.A. (*Warsaw*), B.A. (*McMaster*)/(*Polish*)/part-time

Rosemarie Widmaier/B.A. (*Western*), M.A. (*Johns Hopkins*) (*German*)/part-time

#### Post-Retirement Instructors

Antonio G. Alessio/D.Litt. (*Genoa*) (*Italian*)/part-time

James B. Lawson/B.A. (*Albany*), M.A. (*Johns Hopkins*)/part-time

Robert Van Dusen/B.A. (*Harvard*), M.A., Ph.D. (*Texas*)/part-time

#### Associate Members

John Colarusso/Anthropology/B.A. (*Cornell*), M.A. (*Northwestern*), Ph.D. (*Harvard*)

Thomas E. Willey/History/B.A. (*Butler*), M.A., Ph.D. (*Yale*)

### Courses

#### MOD LANG 2A03 INTRODUCTION TO LITERARY STUDIES

An examination of the fundamental questions about the nature of literature and the purpose and methodology of literary studies, focusing on the interdisciplinary and cultural aspects of literature.

Three lectures; one term

Prerequisite: Registration in Level II and above

#### MOD LANG 2B03 SURVEY OF ITALIAN LITERATURE (IN ENGLISH)

This course will study the development of Italian literature from its beginnings to the present with emphasis on major authors and works. This will include some account of its influence upon other European literatures.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: ITALIAN 2E03 and 2EE3

#### MOD LANG 2H03 MASTERWORKS OF GERMAN LITERATURE (IN ENGLISH)

A survey of major works from a variety of genres, by Goethe, Kleist, Heine, Büchner, Mann, Rilke, Brecht and others.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: GERMAN 2B03

Offered in alternate years.



**MOD LANG 2R03 19TH-CENTURY  
RUSSIAN LITERATURE I (IN ENGLISH)**

A study of the major prose of Gogol and Turgenev.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: RUSSIAN 2A06 or 2A03

**MOD LANG 2RR3 19TH-CENTURY  
RUSSIAN LITERATURE II (IN ENGLISH)**

A study of the major novels by Dostoevsky and Tolstoy.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: RUSSIAN 2A06 or 2AA3

**MOD LANG 3B03 TRECENTO (IN ENGLISH)**

This course will study the literature of 14th-century Italy.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: ITALIAN 3R03 and 3RR3

*Offered in alternate years.*

**MOD LANG 3D03 RUSSIAN DRAMA SINCE 1800 (IN ENGLISH)**

An introduction to the major works of Russian theatre, in translation.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Offered in alternate years.*

**MOD LANG 3G03 GERMAN DRAMA (IN ENGLISH)**

A study of representative plays by major dramatists of the German-speaking world, from the 18th century to the present.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Offered in alternate years.*

**MOD LANG 3I03 ITALIAN THEATRE (IN ENGLISH)**

A study of Italian plays from the Renaissance to modern times including Machiavelli, Commedia dell'arte, Goldoni, Pirandello, Betti. The plays will be analyzed in their literary as well as their theatrical aspects. Students will be encouraged to participate in the creative process.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: ITALIAN 3P03 or 3Q03

*Offered in alternate years.*

**MOD LANG 3J03 THE METAMORPHOSES  
OF DON JUAN (IN ENGLISH)**

The development of the myth of Don Juan from its origins to the present.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Offered in alternate years.*

**MOD LANG 3JJ3 THE LITERATURE OF  
THE DELINQUENT (IN ENGLISH)**

A study of the picaresque mode in European literature from 1550 to 1800. This is tantamount to a study of the origins and early development of the novel as a genre.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: Credit for this topic taken under COMP LIT 3D03

*Offered in alternate years.*

**MOD LANG 3K03 20TH-CENTURY RUSSIAN  
LITERATURE (IN ENGLISH)**

A study of Russian literature of the 1920s and 1930s with special attention to Akhmatova, Bulgakov and Sholokhov.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: RUSSIAN 3K03, 3KK3

*Offered in alternate years.*

**MOD LANG 3KK3 CONTEMPORARY RUSSIAN  
LITERATURE (IN ENGLISH)**

A study of contemporary Russian literature since 1955, with special attention to Pasternak, Solzhenitsyn and Yevtushenko.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: RUSSIAN 3K03, 3KK3

*Offered in alternate years.*

**MOD LANG 3P03 LITERATURE AND POLITICS  
IN SPANISH AMERICA (IN ENGLISH)**

An exploration of the ways in which politics and aesthetics combine in Spanish

American literature. Emphasis will be on the 20th-century works, but writings from previous centuries will also be included.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Offered in alternate years.*

**MOD LANG 3SS3 THE RENAISSANCE EPIC (IN ENGLISH)**

Ariosto's Orlando Furioso and Tasso's Jerusalem Delivered.

Three lectures; one term

Prerequisite: Registration in Level II and above

Antirequisite: ITALIAN 4R03

*Offered in alternate years.*

**MOD LANG 3T03 TOPICS IN NATIONAL CINEMAS I (IN ENGLISH)**

Previous topics include: Soviet and East European Cinema. Consult Department concerning topic to be offered.

Two lectures, plus one weekly film screening; one term

Prerequisite: DRAMA 2X06

*MOD LANG 3T03 may be repeated, if on a different topic, to a total of six units.*

Cross-list: ART HISTORY 3T03 and DRAMA 3T03

**MOD LANG 3W03 GERMAN WOMEN WRITERS (IN ENGLISH)**

A study of selected works by German women writers from the eighteenth century to the present.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Offered in alternate years.*

**MOD LANG 4I13 INDEPENDENT STUDY**

The student will prepare, under the supervision of a faculty member, a research paper involving independent study in an area where the student has already demonstrated competence.

Tutorials; one term

Prerequisite: Registration in Level IV Honours Modern Languages and permission of the Independent Study Committee for Modern Languages

**MOD LANG 4L03 SURVEY OF SPANISH THEATRE (IN ENGLISH)**

A study of the development of Spanish drama and stage from Lope to Lorca.

Three lectures; one term

Prerequisite: Registration in Level II and above

*Offered in alternate years.*

## MOLECULAR BIOLOGY AND BIOTECHNOLOGY

The Molecular Biology and Biotechnology courses are administered within the Faculty of Science, jointly by the Departments of Biochemistry and Biology through a Committee of Instruction, and also draw on the Department of Pathology and the McMaster Institute for Molecular Biology and Biotechnology. Information and counselling may be obtained from the Departments of Biology or Biochemistry.

### Courses

**MOL BIOL 4F03 MOLECULAR ASPECTS OF DEVELOPMENT**

Topics include genetic and non-genetic determinants of early embryonic development, cell determination and differentiation.

Three lectures; one term

Prerequisite: One of BIOCHEM 3A06, 3A03, 3AA3, 3C03, 3G06, and BIOLOGY 3N06 or 3NN3

**MOL BIOL 4H03 MOLECULAR BIOLOGY OF CANCER**

Cancer at the cellular and molecular level. Topics include: properties of cancer cells, activation of proto-oncogenes, function of oncoproteins, transgenic mouse models, and tumour viruses.

Two lectures; one tutorial; one term

Prerequisite: BIOLOGY 3H03 or 3HH3, or permission of instructor

### RELATED COURSES

BIOCHEM	2A06	Principles of Biochemistry I
	3A03	Principles of Biochemistry II
	3AA3	Specialized Topics
	3L03	Biochemistry Laboratory
	4B06	Senior Thesis
	4D03	Biotechnology and Genetic Engineering
	4E03	Genetic Engineering
	4G03	Biotechnology and Genetic Engineering Laboratory
	4I03	Structural and Mechanistic

	Aspects of Macromolecules
BIOLOGY	4M03 Membrane Structure and Function
	4P03 Research Project
	4Q03 Biochemical Pharmacology
	2B03 Cell Biology
	2C03 Genetics
	2D03 The Plant Kingdom
	2E03 The Animal Kingdom
	3C03 Introductory Microbiology
	3EE3 Microbial Physiology and Regulation
	3H03 Molecular Biology of the Nucleus
	3HH3 Molecular Organization of the Eukaryotic Cytoplasm
	3I03 Eukaryotic Genetics
	3NN3 Developmental Biology
	3O03 Microbial Genetics
	3V03 Techniques in Molecular Genetics
	3Y03 Plant Development
	4B03 Plant Metabolism and Molecular Biology
	4C09 Senior Thesis
	4F06 Senior Project
	4I03 Immunology
	4I13 Advanced Topics in Immunology
	4M03 Molecular Aspects of Eukaryotic Chromosomes
	4R03 Human Genetics
	4V03 Virology
CHEM	2N03 Analytical Chemistry
	2O06 Organic Chemistry
	2R03 General Physical Chemistry
	3D03 Organic Chemistry
	3F03 Bio-Organic Chemistry

## MUSIC

### Faculty as of January 15, 1993

#### Chair

James A. Deaville

#### Professor Emeritus

Marta Hidy (*Demjen*)/Dipl. Perf. (*Budapest*), F.R.H.C.M. (*Hon.*)

William Wallace/B.Mus., Ph.D. (*Utah*)

#### Professors

Alan Walker/B.Mus., D.Mus. (*Durham*), A.R.C.M., L.G.S.M., F.G.S.M. (*Hon.*), F.R.S.C.

#### Associate Professors

Frederick A. Hall/ Assoc. Dipl., B.Mus. (*McGill*), M.A., Ph.D. (*Toronto*)

Hugh K. Hartwell/Assoc. Dipl., B.Mus. (*McGill*), A.M., Ph.D. (*Pennsylvania*)

Paul Rapoport/A.B. (*Michigan*), M.Mus., Ph.D. (*Illinois*)

Valerie Tryon/L.R.A.M., F.R.A.M., A.R.C.M., Artist-in-Residence/part-time

#### Assistant Professors

James A. Deaville/B.M., M.M., Ph.D. (*Northwestern*)

Susan Fast/B.M. (*Western Washington*), M.A., Ph.D. (*Iowa*)

Keith W. Kinder/Dip. F.A. (*Calgary*), B.Mus. (*Western*), M.Mus. (*Northwestern*), Ph.D. (*Colorado*)

William Renwick/B.Mus., M.Mus. (*British Columbia*), Ph.D. (*CUNY*), A.A.G.O., F.R.C.C.O.

#### Part-time Faculty

Norma Ashcroft

Terry Basom/B.Mus.Ed. (*Kansas*), M.Mus.Ed. (*North Texas*)

Linda Campbell

Roger Flock

Paul Grimwood/B.Mus. (*Western*)

Sharyn Hall/A.Mus.; B.A., M.A., Ph.D. (*Toronto*)

John Packer

#### Post-Retirement Instructors

Marta Hidy (*Demjen*)/Dipl. Perf. (*Budapest*), F.R.H.C.M. (*Hon.*)

Zdenek Konicek/Dipl.Music, M.A. (*Prague*)

#### Instructors (part-time)

Terry Basom/B.Mus.Ed. (*Kansas*), M.Mus.Ed. (*North Texas*)

Elise Bédard/voice

Cécile Bérard-Dunn/B.Mus. (*College Marie de l'Incarnation*), M.M. (*Montreal*)/piano

Lita Classen/B.Mus. (*Ottawa*), M.Mus. (*Vincent d'Indy Montreal*). Dipl. Perf. (*Vienna*)/voice

Marc Donatelle/B.M. (*Northwestern*), M.M. (*Southern California*)/trombone

Paula Elliott/B.Mus. (*Oberlin*), M.M. (*New England Conservatory*)/flute

Robert Erlandson/jazz piano

Roger Flock/percussion

Paul Grimwood/B.Mus. (*Western*)/harpichord/organ

Marta Hidy (*Demjen*)/Dipl. Perf. (*Budapest*), F.R.H.C.M. (*Hon.*)

Mary Kenedi/Lic.Dip., Mus.Bac., Mus.M. (*Toronto*)/piano

Zdenek Konicek/Dipl.Music, M.A. (*Prague*)/cello

Jeffrey McFadden/guitar

Willem Moolenbeek/saxophone

Paul Novotny/electric bass

Stephen Pierre/clarinet

Jeff Reynolds/B.A. (*York*), B.Mus. (*Calgary*), M.Mus. (*Victoria*)/trumpet

Philip Sarabura/choir

Suzanne Shulman/flute

Robert Somerville/jazz band

Valerie Tryon/L.R.A.M., F.R.A.M., A.R.C.M./piano

Geoff Young/jazz guitar

Alla Zacarelli/piano

#### Department Notes:

1. All Music courses except 1A06, 1B06, 2A06, 2B06, 2BB3, 3T03, 3U03, and 4X03 have limited enrolments. Priority is given to students for whom the limited enrolment courses are Area courses.
2. The following courses may be taken by undergraduates not in a Music programme. Those with an asterisk have limited enrolment. Non-music students interested in asterisked courses should consult the Department Administrative Co-ordinator and take the qualifying tests (*if specified*) as early as possible. These are modelled on the Royal Conservatory of Music (Toronto) Grade 2 test in rudiments of music theory and the Grade 9 performance-level ear-training test.

MUSIC 1A06 Introduction to Music

MUSIC 1B06 History of Music (c. 500-1750)

MUSIC 1CC3\* Harmony

MUSIC 1D03\* General Musicianship

MUSIC 2A06 History of Music (c. 1750 to the Present)

MUSIC 2B06 History of Music (c. 1750-1914)

MUSIC 2BB3 History of Music (c. 1914 to the Present)

MUSIC 2C03\* Modal Counterpoint

MUSIC 2CC3\* Harmony

MUSIC 2D03\* General Musicianship

MUSIC 2H03\* Analysis

MUSIC 3A03 Music Education I

MUSIC 3AA3 Music Education II

MUSIC 3B03\* Topics in Music History:

Early Music (Medieval to Baroque)

MUSIC 3BB3\* Topics in Music History: Music of the Romantic Era

MUSIC 3T03 Canadian Music

MUSIC 3U03 Jazz

MUSIC 4B03\* Topics in Music History: Music of the Classical Era

MUSIC 4BB3\* Topics in Music History: Music of the 20th Century

MUSIC 4I03\* Aesthetics and Criticism

MUSIC 4X03 Music of the World's Cultures

3. Lesson fees are charged to students taking MUSIC 2E03, 3E03 or 4E03 if the course is not a specific requirement for their programme.
4. Returning students in an Alternative Honours programme requesting a change into an Alternative 2 Honours programme (to include MUSIC 1E06 or 2E06) must do so in writing by March 15.

#### Courses

##### MUSIC 1A06 INTRODUCTION TO MUSIC

An introductory survey of Western art music from ancient times to the present. The historical development of styles and genres within major music periods. Instruction in elementary theory. No previous musical knowledge required. Three lectures; two terms

Antirequisite: Registration in Honours Music

**MUSIC 1B06 HISTORY OF MUSIC (C. 500-1750)**

A survey of medieval, renaissance, and baroque music. Includes consideration of performance practices, and influences of the other arts and of socio-political developments.

Three lectures; two terms

Prerequisite: Registration in a Music programme, or MUSIC 1A06

**MUSIC 1CC3 HARMONY**

The analysis and writing of functional harmony. Includes study of music by J.S. Bach and others.

Two lectures; two terms

Prerequisite: Registration in a Music programme, or qualifying tests

**MUSIC 1D03 GENERAL MUSICIANSHIP**

Sight-singing, dictation, and keyboard harmony.

Two lectures, one lab; two terms

Prerequisite: Registration in a Music programme, or qualifying tests

**MUSIC 1E03 SOLO PERFORMANCE**

The technique and repertoire of any orchestral instrument, the piano, organ, harpsichord, voice, recorder, saxophone, or guitar.

One half-hour lesson weekly; two terms

Prerequisite: Registration in a Music programme, or qualifying tests

Antirequisite: MUSIC 1E06

**MUSIC 1E06 SOLO PERFORMANCE**

Intensive study of the technique and repertoire of any orchestral instrument, the piano, organ, harpsichord, voice, recorder, saxophone, or guitar.

One hour lesson weekly; two terms

Prerequisite: Registration in Music I

Antirequisite: MUSIC 1E03

**MUSIC 1G03 ENSEMBLE PERFORMANCE**

McMaster Chamber Orchestra, McMaster University Choir, McMaster Concert Band, McMaster Jazz Band, or any other ensemble approved by the Department.

Prerequisite: Successful audition required. Academic credit available only to students registered in a Music programme.

**MUSIC 2A06 HISTORY OF MUSIC (C. 1750 TO THE PRESENT)**

A detailed study of musical developments of the Classical, Romantic and Modern periods. Topics include: evolution of the symphony, emergence of comic opera, and piano literature.

Three lectures; two terms

Prerequisite: MUSIC 1A06

Antirequisite: Registration in a Music programme, or MUSIC 2B06 or 2BB3

**MUSIC 2B06 HISTORY OF MUSIC (C. 1750-1914)**

A survey of classical, romantic, and postromantic music.

Three lectures; two terms

Prerequisite: MUSIC 1B06

Antirequisite: MUSIC 2A06

**MUSIC 2BB3 HISTORY OF MUSIC (C. 1914 TO THE PRESENT)**

A survey of 20th-century music.

Three lectures; one term

Prerequisite: MUSIC 2B06

Antirequisite: MUSIC 2A06

**MUSIC 2C03 MODAL COUNTERPOINT**

The analysis and writing of modal counterpoint in the style of the late renaissance. Includes study of music by composers such as Palestrina and Lasso.

Two lectures, term one; one lecture, term two; two terms

Prerequisite: Registration in a Music programme, or qualifying tests

**MUSIC 2CC3 HARMONY**

A continuation of MUSIC 1CC3. Chromatic harmony and the completed major-minor system.

One lecture, term one; two lectures, term two

Prerequisite: MUSIC 1CC3

**MUSIC 2D03 GENERAL MUSICIANSHIP**

A continuation of MUSIC 1D03.

Two lectures, one lab; two terms

Prerequisite: MUSIC 1D03

**MUSIC 2E03 SOLO PERFORMANCE**

A continuation of MUSIC 1E03.

One half-hour lesson weekly; two terms

Prerequisite: MUSIC 1E03 or 1E06, and registration in Level II of a Music programme

Antirequisite: MUSIC 2E06

**MUSIC 2E06 SOLO PERFORMANCE**

Intensive study of the technique and repertoire of any orchestral instrument, the piano, organ, harpsichord, voice, recorder, saxophone, or guitar.

One hour lesson weekly; two terms

Prerequisite: A grade of at least A- in MUSIC 1E06, completion of Music I, registration in a B.Mus. programme, and permission of the Department. Under exceptional circumstances, students may use MUSIC 1E03 as a prerequisite in place of 1E06. Students interested in this option, please see Department Note 4, above.

Antirequisite: MUSIC 2E03

**MUSIC 2G03 ENSEMBLE PERFORMANCE**

McMaster Chamber Orchestra, McMaster University Choir, McMaster Concert Band, McMaster Jazz Band, or any other ensemble approved by the Department.

Prerequisite: Successful audition required. Academic credit available only to students registered in a Music programme.

**MUSIC 2H03 ANALYSIS**

The traditional forms of music as found in works by composers such as Bach, Mozart, Beethoven, and Brahms.

Three lectures; one term

Prerequisite: MUSIC 1CC3

**MUSIC 3A03 MUSIC EDUCATION I**

A survey of choral techniques and music appreciation, and of the rudiments of music for classroom use.

Three lectures; one term

Prerequisite: MUSIC 1A06 or 2A06

Antirequisite: Registration in Honours Music

**MUSIC 3AA3 MUSIC EDUCATION II**

A survey of the Kodály and Orff methods of music education.

Three lectures; one term

Prerequisite: MUSIC 3A03, or registration in a Music programme

**MUSIC 3B03 TOPICS IN MUSIC HISTORY:****EARLY MUSIC (MIEVIAL TO BAROQUE)**

Previous topics include: Scarlatti's Keyboard Sonatas, Choral Music of Bach and Handel, The Renaissance Madrigal. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: MUSIC 2B06

*Alternates with MUSIC 3BB3.*

*MUSIC 3B03 may be repeated, if on a different topic, to a total of six units.*

**MUSIC 3BB3 TOPICS IN MUSIC HISTORY:****MUSIC OF THE ROMANTIC ERA**

Previous topics include: Liszt's Symphonic Poems, Nineteenth-Century Piano Music. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: MUSIC 2B06

*Alternates with MUSIC 3B03.*

*MUSIC 3BB3 may be repeated, if on a different topic, to a total of six units.*

**MUSIC 3C03 TONAL COUNTERPOINT**

Studies in baroque music, leading to analysis and writing of inventions.

Seminar (two hours); one term

Prerequisite: MUSIC 2C03 and 2CC3, and registration in a Music programme

**MUSIC 3CC3 TONAL COUNTERPOINT**

A continuation of MUSIC 3C03, emphasizing analysis and writing of fugues.

Seminar (two hours); one term

Prerequisite: MUSIC 3C03, and registration in a Music programme

**MUSIC 3E03 SOLO PERFORMANCE**

A continuation of MUSIC 2E03.

One half-hour lesson weekly; two terms

Prerequisite: MUSIC 2E03 and registration in Level III of a Music programme

Antirequisite: MUSIC 3E06

**MUSIC 3E06 SOLO PERFORMANCE**

Intensive study of the technique and repertoire of any orchestral instrument, the piano, organ, harpsichord, voice, recorder, saxophone, or guitar.

One hour lesson weekly; two terms

Prerequisite: A grade of at least A- in MUSIC 2E06, and registration in Level III of a B.Mus. programme

Antirequisite: MUSIC 3E03

### **MUSIC 3G03 ENSEMBLE PERFORMANCE**

McMaster Chamber Orchestra, McMaster University Choir, McMaster Concert Band, McMaster Jazz Band, or any other ensemble approved by the Department.

Prerequisite: Successful audition required. Academic credit available only to students registered in a Music programme.

### **MUSIC 3H03 ANALYSIS**

Techniques of analysis applied to selected works of the 20th century.

Seminar (two hours); one term

Prerequisite: MUSIC 2CC3 and 2H03, and registration in a Music programme

*Offered in alternate years.*

### **MUSIC 3J03 ORCHESTRATION**

A study of the orchestral instruments; scoring of music for various ensembles.

Two lectures; two terms

Prerequisite: MUSIC 2CC3 and 2D03, and registration in a Music programme

### **MUSIC 3K03 BRASS METHODS**

A study of the basic techniques of playing brass instruments. Brass literature for various educational levels. No previous study of brass required.

One lecture, one lab; two terms

Prerequisite: Registration in a Music programme

### **MUSIC 3L03 WOODWIND METHODS**

A study of the basic techniques of playing woodwind instruments. Woodwind literature for various educational levels. No previous study of woodwinds required.

One lecture, one lab; two terms

Prerequisite: Registration in a Music programme

### **MUSIC 3M03 STRING METHODS**

A study of the basic techniques of playing string instruments. String literature for various educational levels. No previous study of strings required.

Two lectures; two terms

Prerequisite: Registration in a Music programme

### **MUSIC 3N03 VOCAL METHODS**

A study of the basic techniques of singing. The organization, conducting, and rehearsing of a choir. Choral literature for various educational levels. No previous study of voice required.

One lecture; two terms

Prerequisite: Registration in a Music programme

### **MUSIC 3O03 CONDUCTING**

Fundamental conducting techniques applied to works selected from the standard repertoire.

Two lectures, term one; one lecture, term two

Prerequisite: MUSIC 2D03, and registration in a Music programme

### **MUSIC 3R03 RESEARCH METHODS AND BIBLIOGRAPHY**

An examination of the major reference and bibliographic sources. Historical, analytical, and critical methods of research.

Two lectures; one term

Prerequisite: MUSIC 2B06, and registration in a Music programme

*Offered in alternate years.*

### **MUSIC 3T03 CANADIAN MUSIC**

A historical survey of music in Canada, in the context of social and political developments, from ca. 1600 to the present.

Two lectures, one tutorial; one term

Prerequisite: MUSIC 1A06 or completion of 18 units of Music including MUSIC 1B06

*Offered in alternate years.*

### **MUSIC 3U03 JAZZ**

An historical survey of jazz, focusing on selected performers and arrangers.

Two lectures, one tutorial; one term

Prerequisite: MUSIC 1A06 or completion of 18 units of Music, including MUSIC 1CC3

### **MUSIC 3V03 MUSIC EDUCATION SEMINAR**

A study of musical aesthetics as it relates to music education and to the formation of a philosophy of music education.

Seminar (two hours); one term

Prerequisite: Registration in Level III of a Music programme

*Offered in alternate years.*

### **MUSIC 4B03 TOPICS IN MUSIC HISTORY: MUSIC OF THE CLASSICAL ERA**

Previous topics include: Beethoven's Piano Sonatas, Mozart and Opera. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: MUSIC 2B06, and registration in a Music programme

*Alternates with MUSIC 4BB3.*

*MUSIC 4B03 may be repeated, if on a different topic, to a total of six units.*

### **MUSIC 4BB3 TOPICS IN MUSIC HISTORY: MUSIC OF THE 20TH CENTURY**

Previous topics include: The Evolution of the Avant-garde, Music Since 1945. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: MUSIC 2BB3, and registration in a Music programme

*Alternates with MUSIC 4B03.*

*MUSIC 4BB3 may be repeated, if on a different topic, to a total of six units.*

### **MUSIC 4C03 HARMONY AND COUNTERPOINT**

Advanced studies in classical and romantic music.

Seminar (two hours); one term

Prerequisite: MUSIC 3C03, and registration in a Music programme

Antirequisite: MUSIC 4C04

*Offered in alternate years.*

### **MUSIC 4E03 SOLO PERFORMANCE**

A continuation of MUSIC 3E03.

One half-hour lesson weekly; two terms

Prerequisite: MUSIC 3E03, and registration in Level IV of a Music programme

Antirequisite: MUSIC 4E06

### **MUSIC 4E06 SOLO PERFORMANCE**

Intensive study of the technique and repertoire of any orchestral instrument, the piano, organ, harpsichord, voice, recorder, saxophone, or guitar.

One hour lesson weekly; two terms

Prerequisite: A grade of at least A- in MUSIC 3E06, and registration in Level IV of a music programme

Antirequisite: MUSIC 4E03

### **MUSIC 4G03 ENSEMBLE PERFORMANCE**

McMaster Chamber Orchestra, McMaster University Choir, McMaster Concert Band, McMaster Jazz Band, or any other ensemble approved by the Department.

Prerequisite: Successful audition required. Academic credit available only to students registered in a Music programme.

### **MUSIC 4H03 ANALYSIS**

Advanced studies in analysis.

Seminar (two hours); one term

Prerequisite: MUSIC 2B06, 2CC3, 2H03, and registration in a Music programme

*Offered in alternate years.*

### **MUSIC 4I03 AESTHETICS AND CRITICISM**

Philosophies of music. A discussion of major theories from the ancient Greeks to the present.

Seminar (two hours); one term

Prerequisite: MUSIC 2A06 or 2BB3

*Offered in alternate years.*

### **MUSIC 4K03 BRASS METHODS**

A continuation of MUSIC 3K03

One lecture, one lab; two terms

Prerequisite: MUSIC 3K03, and registration in a Music programme

### **MUSIC 4L03 WOODWIND METHODS**

A continuation of MUSIC 3L03.

One lecture, one lab; two terms

Prerequisite: MUSIC 3L03, and registration in a Music programme

### **MUSIC 4M03 STRING METHODS**

A continuation of MUSIC 3M03.

Two lectures; two terms

Prerequisite: MUSIC 3M03, and registration in a Music programme

### **MUSIC 4N03 VOCAL METHODS**

A continuation of MUSIC 3N03.

One lecture; two terms

Prerequisite: MUSIC 3N03, and registration in a Music programme

#### **MUSIC 4003 CONDUCTING**

A continuation of MUSIC 3O03.

One lecture, term one; two lectures, term two

Prerequisite: MUSIC 3O03, and registration in a Music programme

#### **MUSIC 4P03 PERCUSSION METHODS**

A study of the basic techniques of playing percussion instruments. Percussion literature for various educational levels. No previous study of percussion required.

Two lectures; one term

Prerequisite: Registration in a Music programme

#### **MUSIC 4Q03 PIANO LITERATURE AND PEDAGOGY**

Study of piano repertoire and teaching methods for various age groups.

Three lectures; one term

Prerequisite: Registration as a piano major in Level IV of a Music programme

#### **MUSIC 4S03 SPECIAL STUDIES**

Advanced supervised study in any area offered and approved by the Department.

Times to be arranged between the student and instructor; one term

Prerequisite: Registration in an Honours Music programme.

Students requesting this course must submit a written proposal to the Department by the end of preregistration in the Spring.

#### **MUSIC 4U03 JAZZ IMPROVISATION**

Study and performance of jazz improvisations in various styles.

Two hours; one term

Prerequisite: MUSIC 3U03 and permission of the instructor

Offered in alternate years.

#### **MUSIC 4X03 MUSIC OF THE WORLD'S CULTURES**

A survey of music traditions of non-European cultures, e.g., far Eastern, Indian, African.

Three lectures; one term

Prerequisite: MUSIC 1A06, or 18 units of Music including MUSIC 1B06

Offered in alternate years.

#### **MUSIC 4Z03 COMPOSITION**

The composition of various instrumental or vocal works.

Times to be arranged between the student and instructor; one term

Prerequisite: Registration in a Music programme and permission of the instructor

#### **MUSIC 4ZZ3 ADVANCED COMPOSITION**

The composition of various instrumental or vocal works.

Times to be arranged between the student and instructor; one term

Prerequisite: MUSIC 4Z03, registration in a Music programme, and permission of the instructor

## NURSING

### Regular Faculty as of January 15, 1993

#### **Associate Dean of Health Sciences (Nursing) and Director of the School of Nursing**

Andrea Baumann,

The School of Nursing has a large number of part-time faculty appointed from community health-care agencies. A complete list is available from the office of the Associate Dean of Health Sciences (Nursing).

#### **Professors Emeriti**

E. Mary Buzzell/B.N. (McGill), M.Sc.N., M.Ed. (Boston)

Alma Reid/B.A. (Toronto)

Karin von Schilling/B.Sc.N. (Toronto), M.Sc.N. (California)

#### **Professors**

Andrea Baumann/B.Sc.N. (Windsor), M.Sc.N. (Western), Ph.D. (Toronto)

Ann Beckingham/M.A., B.Sc.N., Ph.D. (Fielding Institute)

Gina Browne/B.Sc.N. (Catherine Spaulding), M.S. (Boston), M.Ed., Ph.D. (Toronto)

Joan Crook/B.S. (Niagara), M.A. (Dalhousie), M.Sc. (McMaster)

Jo-Ann Fox/B.N. (New Brunswick), M.Sc., Ph.D. (Queen's)

Susan French/B.N. (McGill), M.S. (Boston), Ph.D. (Toronto)

#### **Associate Professors**

Heather Arthur/B.Sc.N. (McMaster), M.Sc.N., Ph.D. (Toronto)

Margaret Black/B.N. (McGill), M.Sc.N. (Case Western Reserve)

Barbara Brown/B.A., B.Sc.N. (Windsor), M.Sc.N. (Toronto)

Carolyn Byrne/M.H.Sc. (McMaster)

Patricia Caulfield/B.Sc.N. (Western), M.Sc. (McMaster)

Donna Ciliska/B.Sc.N., M.Sc.N. (Western), Ph.D. (Toronto)

Joan Eagle/B.Sc.N. (McMaster), M.N. (Washington), M.Sc. (McMaster)

Patricia Ellis/B.Sc.N. (Wagner), M.Sc. (Maryland)

Mary Fawcett/B.Sc.N., M.H.Sc. (McMaster), CNN(C) (CNA)

Jocelyn Hezekiah/B.N. (McGill), M.Ed. (Toronto), Ph.D. (Alberta)

Mabel Hunsberger/B.S. (Goshen), M.Sc.N. (Pennsylvania)

Karyn Kaufman/B.S.N. (Michigan), M.S. (NY Medical), Ph.D. (N. Carolina)

Basanti Majumdar/B.Sc. (N.), M.Sc.N. (Delhi), M.Ed. (Columbia)

Janet McKnight/B.A. (Toronto), M.H.Sc. (McMaster)

Alba Mitchell/B.Sc.N., M.Sc. (McMaster)

Ann Mohide/B.Sc.N. (Toronto), M.H.Sc., M.Sc. (McMaster)

Ruth Pallister/B.S.N. (British Columbia), M.N. (Washington)

Janet Pinelli/B.S. (Boston), M.Sc.N. (Toronto)

Elizabeth Rideout/B.N. (New Brunswick), M.H.Sc. (McMaster), M.Sc. (Toronto)

Jackie Roberts/B.Sc.N., M.Sc. (McMaster)

Olga Roman/B.N. (McGill), M.Sc. (Boston), Ph.D. (Toronto)

Joan Royle/B.Sc.N. (McMaster), M.Sc.N. (Toronto)

Joanne Runions/B.N. (McGill), M.H.Sc. (McMaster)

Helen Thomas/B.N.Sc. (Queen's), M.Sc. (Waterloo)

Catherine Tompkins/B.Sc.N. (Western), M.Ed. (Toronto)

Leslie Van Dover/B.N. (New Brunswick), M.Sc.N. (Western), Ph.D. (Michigan)

Robin Weir/B.Sc.N. (Western), M.Sc. (Boston), M.Ed., Ph.D. (Toronto)

#### **Assistant Professors**

Gertrude Benson/B.N. (McGill), M.Sc.N. (Boston)

Sheryl Boblin-Cummings/B.Sc.N., M.Ed. (Alberta)

Barbara Carpio/B.Sc.N. (Alberta), M.Sc.N. (Toronto)

Mary Ann Comartin/B.N., M.Sc.N. (McGill)

Dauna Crooks/B.Sc.N. (Toronto), M.Sc.N. (Western)

Carolyn Ingram/B.Sc.N. (Pittsburg), M.Sc.N. (Maryland)

Michael Ladouceur/B.S.N. (Victoria), M.P.H. (Boston)

Janet Landeen/B.Sc.N. (Connecticut), M.Ed. (Victoria)

Marilyn Lee/B.A., B.Sc.N. (St. Louis), M.N. (S. Carolina)

Ola Lunyk-Child/B.Sc.N. (McMaster), M.Sc.N. (Toronto)

Maureen Markle-Reid/B.Sc.N. (McMaster), M.Sc.N. (Toronto)

Charlotte Noesgaard/B.N. (McGill), M.Sc.N. (Western)

Linda O'Mara/B.N., M.Sc.N. (McGill)

Marilyn Parsons/B.N.Sc. (Queen's), M.H.Sc. (McMaster)

Susan E. Smith/B.N. (Calgary), M.Sc. (Hawaii)

Wendy Sword/B.Sc.N., M.Sc. (T) (McMaster)

Ruta Valaitis/B.A., B.Sc.N. (Windsor), M.H.Sc. (McMaster)

#### **Lecturers**

Michelle Drummond-Young/B.Sc.N., M.H.Sc. (McMaster)

Jeannette LeGris/B.N. (Manitoba), M.H.Sc. (McMaster)

Chris Patterson/B.Sc. (Waterloo), B.Sc.N. (McMaster), M.Sc.N. (Western)

Dyanne Semogas/B.N. (McGill), M.N. (Washington)

Mary-Lou van der Horst/B.Sc.N., M.Sc.N. (Western)

#### **School Notes:**

1. This course listing is divided into 3 parts:

**Basic (A) Stream:** Those courses taken only by students registered in the B.Sc.N. programme (A) Stream.

**Diploma R.N. (B) Stream:** Those courses taken only by students registered in the B.Sc.N. programme (B) Stream.

**(A) and (B) Stream:** Those courses taken by students registered in the B.Sc.N. programme (A) or (B) Stream.

2. Normally, registration in all courses beyond Level I will require satisfactory completion of the prerequisite Nursing courses with a grade of at least C- in graded courses or a 'pass' in clinical practice courses. (See the section Faculty of Health Sciences, School of Nursing, Academic Regulations in this Calendar.)

3. Normally, Level II, III, and IV courses are available to Level II, III, and IV B.Sc.N. (A) and (B) Stream students respectively.

**BASIC (A) STREAM ...****Courses****NURSING 1F04 INTRODUCTION TO NURSING AND HEALTH I**

An introduction to concepts significant to definitions of nursing and health. The emphasis is on the relevance of context in determining health and illness and on caring as a focal concept of professional nursing. Understanding of the nursing process and beginning level skills in assessment, communication and nursing care behaviours are stressed.

Two and one half hours (lecture/problem-based tutorials); four hours (clinical lab); one term

Prerequisite: Registration in Level I of the B.Sc.N. Programme (A) Stream

**NURSING 1G04 INTRODUCTION TO NURSING AND HEALTH II**

Study of concepts and beginning skills significant to nursing and health emphasizing the relevance of context and caring. Study of skills in health assessment, including physical examination. A clinical practice component comprises one-half of the term. A continuation of NURSING 1F04.

Two and one half hours (lecture/problem-based tutorials); four hours (clinical lab); one term

Prerequisite: NURSING 1F04

**NURSING 2L03 GUIDED NURSING PRACTICE I**

Nursing concepts basic to health and illness are examined across the continuum of individual and family growth and development. Planned and guided experiences are provided in institutional and community settings. This course is evaluated on a "Pass/Fail" basis.

Eight hours (clinical lab, including one hour tutorials); one term

Prerequisite: NURSING 1F04, 1G04

*Normally taken concurrently with NURSING 2M03.*

**NURSING 2M03 NURSING CONCEPTS IN HEALTH AND ILLNESS I**

Integration of biological, psychological and social sciences and nursing theory is developed through work in problem-based tutorials, in which students apply concepts related to nursing, teaching-learning and communication processes through application to a variety of patient situations. Through independent study, students apply theoretical knowledge to a chosen clinical topic.

Two and one half hours (lecture/problem-based tutorials); one term

Prerequisite: NURSING 1F04, 1G04

*Normally to be taken concurrently with NURSING 2L03.*

**NURSING 2N03 NURSING CONCEPTS IN HEALTH AND ILLNESS II**

Integration of biological, psychological, social sciences and nursing theory in problem-based tutorials. A continuation of Nursing 2M03.

Three hours (lecture/problem-based tutorials); one term

Prerequisite: NURSING 2M03

*Normally taken concurrently with NURSING 2P03.*

**NURSING 2P03 GUIDED NURSING PRACTICE II**

Planned and guided clinical practice in institutional and community settings. A continuation of Nursing 2L03. This course is evaluated on a "Pass/Fail" basis.

Eight hours (clinical lab, including one hour tutorials); one term

Prerequisite: NURSING 2L03

*Normally taken concurrently with NURSING 2N03.*

**NURSING 3X07 GUIDED NURSING PRACTICE III**

Planned and guided practice experiences are provided in a variety of settings (e.g. psychiatric, pediatric and medical-surgical units, physicians offices and community health agencies). Major emphasis is given to the assessment, problem-solving, interpersonal, technical and teaching skills necessary to implement and evaluate nursing care in institutional and ambulatory community settings. Nursing of individuals and families throughout the life-cycle and along the health-illness continuum is stressed. This course is evaluated on a "Pass/Fail" basis.

21 hours (clinical lab, including tutorials); 13 weeks

Prerequisite: NURSING 2P03

*Normally taken concurrently with NURSING 3S04.*

**NURSING 3Y07 GUIDED NURSING PRACTICE IV**

A continuation of NURSING 3X07. This course is evaluated on a "Pass/Fail" basis.

21 hours (clinical lab including tutorials); 13 weeks

Prerequisite: NURSING 3X07

*Normally taken concurrently with NURSING 3T04.*

**NURSING 4J07 GUIDED NURSING PRACTICE V**

This course focuses on the application of theory and concepts to clinical practice, including the introduction to the leader/manager role in patient care. Students are individually placed in a variety of health-care settings. This course

is evaluated on a "Pass/Fail" basis.

24 hours (clinical lab, including tutorials); 12 weeks

Prerequisite: NURSING 3Y07

*Normally to be taken concurrently with NURSING 4E03.*

**NURSING 4K07 GUIDED NURSING PRACTICE VI**

A continuation of Nursing 4J07. This course is evaluated on a "Pass/Fail" basis.

Prerequisite: NURSING 4J07

*Normally to be taken concurrently with NURSING 4F03.*

**DIPLOMA RN (B) STREAM ...****NURSING 3L04 THEORIES AND SKILLS FOR PRIMARY CARE**

Introduction to theories and concepts relevant to community-based primary health care, presented in a small group tutorial format. Advanced skill in history-taking and therapeutic communication are developed through small group tutorials and use of simulated patients. Physical assessment skills are enhanced through independent self-study. This course is evaluated on a "Pass/Fail" basis.

Tutorial, communications tutorial; one term

**NURSING 3M05 GUIDED NURSING PRACTICE I**

Guided practice experience in a community-based health care setting with a major emphasis on the development of expanded role skills. This course is evaluated on a "Pass/Fail" basis.

Clinical lab (eight hours), tutorial; one term

**NURSING 4S06 GUIDED NURSING PRACTICE III**

An applied nursing practice course in which the focus is on the integration of theory and concepts in a variety of interdependent health care settings. This course will allow the development of independent decision-making capacity in a selected area of clinical practice. This course is evaluated on a "Pass/Fail" basis.

12 hours (clinical lab), two hours (tutorials); 13 weeks

Prerequisite: NURSING 3M05

*Normally to be taken concurrently with NURSING 4E03.*

**NURSING 4T06 GUIDED NURSING PRACTICE IV**

A continuation of NURSING 4S06. This course is evaluated on a "Pass/Fail" basis.

12 hours (clinical lab), two hours (tutorials); 13 weeks

Prerequisite: NURSING 4S06

*Normally to be taken concurrently with NURSING 4F03.*

**(A) and (B) STREAM ...****NURSING 3S04 NURSING CONCEPTS IN HEALTH AND ILLNESS III**

Biological, physical, psychological, social sciences, and nursing theory are integrated and applied to health care situations through problem-based learning. The problems identified help the student to relate concepts and theories to assist individuals, families, and communities with health promotion and maintenance, illness prevention, and recovery from disease.

Four hours (lecture/problem-based tutorials); one term

Prerequisite: Normally NURSING 2N03 and 2P03 for (A) Stream students or registration in Level III or the B.Sc.N. Programme for (B) Stream students.

*Normally to be taken concurrently with NURSING 3X07 (for (A) Stream students) or NURSING 3L05 (for (B) Stream students).*

**NURSING 3T04 NURSING CONCEPTS IN HEALTH AND ILLNESS IV**

A problem-based course in which students integrate theories from biological, physical, psychological, social and nursing sciences and apply them to health care situations. A continuation of Nursing 3S04.

Four hours (lecture/problem-based tutorials); one term

Prerequisite: NURSING 3S04.

*Normally to be taken concurrently with NURSING 3Y07 (for (A) Stream students) or NURSING 3M05 (for (B) Stream students).*

**NURSING 4A02 CURRENT TRENDS AND ISSUES IN NURSING**

Issues facing the profession, and the implications of current changes in the health field for future nursing practice.

Two hours (lecture/student presentations) every week; one term

Prerequisite: Registration in Level IV of the B.Sc.N. Programme or permission of the instructor

**NURSING 4E03 ADVANCED NURSING CONCEPTS I**

A problem based course in which students focus on theories and concepts related to client/patient care e.g., leadership and management, education of clients/patients, students, and staff. Student participation includes selecting



appropriate situations and related theories for study, and identifying interventions and evaluation strategies.

Three hours (lecture/problem-based tutorials); one term

Prerequisite: Normally NURSING 3T04 (for (A) and (B) Streams) and NURSING 3Y07 (for (A) Stream). Normally taken concurrently with NURSING 4J07 (for (A) Stream) or NURSING 4S06 (for (B) Stream).

#### **NURSING 4F03 ADVANCED NURSING CONCEPTS II**

A problem-based course in which students integrate concepts and theories related to clinical practice issues. A continuation of NURSING 4E03.

Three hours (lecture/problem-based tutorials); one term

Prerequisite: NURSING 4E03.

Normally taken concurrently with NURSING 4K07 (for (A) Stream) or NURSING 4T06 (for (B) Stream).

## OCCUPATIONAL THERAPY AND PHYSIOTHERAPY

### Faculty as of January 15, 1993

#### Associate Dean (OT/PT)

B. Cooper

#### Chair, Bachelor of Health Sciences (OT) Programme

P. Salvatore

#### Chair, Bachelor of Health Sciences (PT) Programme

C. Gowland

#### Associate Professors

Barbara A. Cooper/Dip. P&OT (Toronto), B.A. Honours, M.H.Sc. (McMaster)

Carolyn A. Gowland/Dip. P&OT (Toronto), M.H.Sc. (McMaster)

Hallie M. Groves/Dip. RT (British Columbia), B.Sc. (British Columbia), M.Sc., Ph.D. (McMaster)

Michael R. Pierrynowski/B.Sc. (Waterloo), M.Sc. (Waterloo), Ph.D. (Simon Fraser)

Mary C. Law/B.Sc. OT (Queen's), M.Sc. (McMaster)

Mary K. Tremblay/Dip. P&OT (Toronto), M.H.Sc. (McMaster)

#### Assistant Professors

Susan E. Baptiste/Dip. OT (England), M.H.Sc. (McMaster)

Beverly M. Clarke/Dip. PT (Manitoba), B.A., M.Sc. (McMaster)

Linda G. Clements/B.Sc. OT (Western), M.Sc. (Toronto)

Beverly Cole/B.Sc. PT (McGill), M.Sc. (McGill), M.B.A. (Concordia)

Jean M. Crowe/Dip. PT (Australia), B.Sc. PT (Toronto), M.H.Sc. (McMaster)

Peter P. Dilworth/Dip. PT (Dublin), M.H.Sc. (McMaster)

John A. Hay/B.A. (Queen's), M.A. (Alberta), Ph.D. (McMaster)

Julia A. Lockhart/B.Sc. OT (Queen's), M.Ed. (Brock)

Allison L. McKinnon/Dip. OT (Manitoba), B.OT, M.Ed., Ph.D. (Alberta) Ellenore

M.J. Palmer/B.Sc. (Western), B.Sc. PT (Toronto), M.Sc. (Toronto)

Janice M. Perkins/Dip. PT (England), B.Sc., M.Sc. (Nova Scotia)

Nancy A. Pollock/B.Sc. OT (Queen's), M.Sc. (McGill)

Renate Roebuck/Dip. PT (West Germany), B.PT (Manitoba), M.Ed. (Brock)

Helen K. Saarinen/Dip. P&OT (Toronto), B.Sc. (Western), M.H.Sc. (McMaster)

Penny S. Salvatore/Dip. P&OT (Toronto), M.H.Sc. (McMaster)

Julie A. Sanford/Dip. PT (New Zealand), B.Sc. (Toronto), M.Sc. (New Zealand)

Patricia E. Solomon/Dip. PT (Manitoba), M.H.Sc. (McMaster) [On leave]

Paul Stratford/Dip. PT, M.Sc. (McMaster)

Laurie R. Swanson/Dip. P&OT (Toronto), B.Sc. (Toronto), M.Sc. (McMaster)

Joyce Tryssenaar/B.Sc. OT (Western), M.Ed. (Brock)

Muriel G. Westmorland/Dip. OT (England), M.H.Sc. (McMaster)

Renee M. Williams/Dip. P&OT (Toronto), M.H.Sc. (McMaster) [On leave]

#### Lecturers

Bonny F.M. Jung/B.Sc. OT (Toronto), M.Ed. (Brock)

Sarah A. Rochon/B.Sc. OT (Queen's)

In addition, a number of part-time faculty teaching in the B.H.Sc. (O.T. and P.T.) programmes have appointments in the School of Occupational Therapy and Physiotherapy. If further information is requested, please contact the School of Occupational Therapy and Physiotherapy at (416) 525-9140, ext. 2867.

#### **Note:**

Occupational Therapy and Physiotherapy courses are open only to

students who are registered in the Bachelor of Health Sciences Second Degree Programme in Occupational Therapy or Physiotherapy.

## OCCUPATIONAL THERAPY ...

### Courses

#### Block I - Basic Skills

##### **OCCUP TH 1T15 PROBLEM-BASED TUTORIAL I**

Students are introduced to small groups and problem-based learning using a variety of health problems in order to explore the biological, psychological, social and behavioural determinants of health. The role of Occupational Therapy in case management is also explored.

Five hours (tutorial); 14 weeks

##### **OCCUP TH 1L17 CLINICAL SKILLS LAB I**

Students develop basic interviewing, assessment and activity analysis skills.

Seven hours (lab); 14 weeks

##### **OCCUP TH 1S13 INQUIRY SEMINAR I**

Students in both the Occupational Therapy and Physiotherapy Programmes will study together issues of importance to both professions. Themes for exploration include a definition of health, the history, development and future directions for the professions of OT and PT.

Three hours (lecture/seminar); 14 weeks

#### Block II - Child Health

##### **OCCUP TH 1T23 PROBLEM-BASED TUTORIAL II**

II Students explore various clinical problems encountered in the practice of paediatric occupational therapy.

Five hours (tutorial); eight weeks Two hours (tutorial); six weeks

##### **OCCUP TH 1L24 CLINICAL SKILLS LAB II**

Students develop assessment and treatment skills for paediatric populations.

Seven hours (lab); eight weeks

##### **OCCUP TH 1S23 INQUIRY SEMINAR II**

Students investigate various conceptual issues related to child health during infancy, childhood and adolescence.

Five hours (lecture/seminar); eight weeks

##### **OCCUP TH 1C26 CLINICAL EDUCATION I**

Students integrate knowledge and skills into clinical practice in a paediatric setting under supervision of a qualified therapist.

35-40 hours (fieldwork); six weeks

#### Block III - Adult Physical Health

##### **OCCUP TH 1T33 PROBLEM-BASED TUTORIAL III**

Students explore various clinical problems encountered in the field of adult rehabilitation.

Five hours (tutorial); eight weeks Two hours (tutorial); six weeks

##### **OCCUP TH 1L34 CLINICAL SKILLS LAB III**

Students develop assessment and treatment skills for physically disabled adult populations.

Seven hours (lab); eight weeks

##### **OCCUP TH 1S33 INQUIRY SEMINAR III**

Students investigate various conceptual issues related to adult physical health.

Five hours (lecture/seminar); eight weeks

##### **OCCUP TH 1C36 CLINICAL EDUCATION II**

Students integrate knowledge and skills into clinical practice in an adult rehabilitation setting under the supervision of a qualified therapist.

35-40 hours (fieldwork); six weeks

#### Block IV - Adult Mental Health

##### **OCCUP TH 2T43 PROBLEM-BASED TUTORIAL IV**

Student explore various clinical problems encountered in the practice of adult mental health.

Five hours (tutorial); eight weeks Two hours (tutorial); six weeks

##### **OCCUP TH 2L44 CLINICAL SKILLS LAB IV**

Students develop assessment and treatment skills for mentally ill populations.

Seven hours (lab); eight weeks

##### **OCCUP TH 2S43 INQUIRY SEMINAR IV**

Students investigate various conceptual issues related to adult mental health.

Five hours (lecture/seminar); eight weeks

##### **OCCUP TH 2C46 CLINICAL EDUCATION III**

Students integrate knowledge and skills into clinical practice in a mental health



setting under the supervision of a qualified therapist.  
35-40 hours (fieldwork); six weeks

**Block V - Aging and Health**

**OCCUP TH 2T53 PROBLEM-BASED TUTORIAL V**

Students explore various clinical problems encountered in the practice area of aging and health.

Five hours (tutorial); eight weeks Two hours (tutorial); six weeks

**OCCUP TH 2L54 CLINICAL SKILLS LAB V**

Students develop assessment and treatment skills for geriatric populations.

Seven hours (lab); eight weeks

**OCCUP TH 2S53 INQUIRY SEMINAR V**

Students explore various conceptual issues in the area of aging and health.

Five hours (lecture/seminar); eight weeks

**OCCUP TH 2C56 CLINICAL EDUCATION IV**

Students integrate knowledge and skills into clinical practice in a geriatric setting under the supervision of a qualified therapist.

35-40 hours (fieldwork); six weeks

**Block VI - Integration**

Occupational Therapy and Physiotherapy students study together in all Block VI courses.

**OCCUP TH 2T64 PROBLEM-BASED TUTORIAL VI**

Priority health problems are explored in-depth through contact with resource people and clients in the community, using a population health/community health perspective. Issues involving quality assurance and economics are also included.

Four hours (tutorial); 14 weeks

**OCCUP TH 2L63 CLINICAL SKILLS LAB VI**

Within the broad framework of the Management Sciences, students study management theory and organizational behaviour, and develop basic organizational and management skills.

Three hours (lab); 14 weeks

**OCCUP TH 2I65 INDEPENDENT STUDY I**

Student study focuses on scientific inquiry through research related to occupational therapy/physiotherapy. Such research may involve literature searches, simple research design or proposal preparation, or participation in ongoing research with a faculty member.

Five hours; 14 weeks

**OCCUP TH 2S63 INQUIRY SEMINAR VI**

Students focus on population health/community health issues. Students identify their own learning needs, arrange resource sessions accordingly, and select a community health problem for in-depth study.

Three hours (lecture/seminar); 14 weeks

**Block VII**

**OCCUP TH 2C76 CLINICAL ELECTIVE**

Students select an area of professional practice for a 6-week elective. Areas of practice might include clinical practice, administration, research or consultation. An appropriate setting will be selected by the student in consultation with the Clinical Education Co-ordinator.

35-40 hours (fieldwork); six weeks

**PHYSIOTHERAPY ...**

**Block I**

**PHYSIOTH 1T15 MUSCULOSKELETAL I**

The problem-based tutorials in Block 1 are designed to introduce the student to the anatomy, physiology, pathology, and assessment and treatment of peripheral musculoskeletal systems. In addition, students begin to acquire a basic level of knowledge of psychological and sociological determinants of health. The problems will provide an opportunity to gain knowledge of the roles and functions of physiotherapy as related to specific conditions.

Five hours (tutorial); 14 weeks

**PHYSIOTH 1L17 CLINICAL SKILLS LAB I**

The clinical skills labs focus on the clinical assessment, diagnosis and introduction to treatment of peripheral joints. The labs integrate relevant human biology, biomechanics, clinical skills and measurement concepts. Students are responsible for completing modules on therapeutic heat and cold and ultrasound.

Seven hours (lab); 14 weeks

**PHYSIOTH 1S13 INQUIRY SEMINAR I**

Students in both the Occupational Therapy and Physiotherapy Programmes will study together issues of importance to both professions. Themes for exploration include a definition of health, the history, development and future directions for the professions of OT and PT.

Three hours (lecture/seminar); 14 weeks

**Block II**

**PHYSIOTH 1T23 MUSCULOSKELETAL II**

Students continue studying the musculoskeletal system in the problem-based tutorials by focusing on the anatomy, pathology, assessment and treatment of spinal conditions. Skills in musculoskeletal differential diagnosis are developed further.

Five hours (tutorial); eight weeks Two hours (tutorial); six weeks

**PHYSIOTH 1L24 CLINICAL SKILLS LAB II**

Students acquire basic level competencies in the assessment and treatment of spinal conditions. Students are responsible for completing further electrotherapy modules. Effectiveness of physiotherapy interventions in spinal and musculoskeletal conditions are considered.

Seven hours (lab); eight weeks

**PHYSIOTH 1S23 INQUIRY SEMINAR II**

Seminars focus on the concept of pain. Students will explore pain from the biological, psychological, behavioural and treatment aspects.

Five hours (lecture/seminar); eight weeks

**PHYSIOTH 1C26 CLINICAL EDUCATION I**

Students practice in a variety of clinical facilities to integrate knowledge and skills in providing care for episodic musculoskeletal problems.

35-40 hours (fieldwork); six weeks

**Block III**

**PHYSIOTH 1T33 MUSCULOSKELETAL III**

Students continue the study of the more complex and/or chronic injuries and diseases of the musculoskeletal system in all age groups, including the arthritides, and chronic pain. This block also provides an opportunity for the students to explore the natural history of a condition.

Five hours (tutorial); eight weeks Two hours (tutorial); six weeks

**PHYSIOTH 1L34 CLINICAL SKILLS LAB III**

Students acquire the advanced manual assessment and treatment skills which are required to manage clients of all ages with complex and chronic musculoskeletal problems.

Seven hours (lab); eight weeks

**PHYSIOTH 1S33 INQUIRY SEMINAR III**

Seminars focus on issues related to determinants of health and chronicity. Themes to be explored include cultural, ethnic and racial factors in health, biopsychosocial aspects of chronic illness and its management.

Five hours (lecture/seminar); eight weeks

**PHYSIOTH 1C36 CLINICAL EDUCATION II**

Students practice in selected clinical facilities to integrate knowledge and skills into clinical practice with appropriate clients with chronic or complex musculoskeletal problems.

35-40 hours (fieldwork); six weeks

**Block IV**

**PHYSIOTH 2T43 CARDIOPULMONARY**

Students study the pathology, etiology, assessment and physiotherapeutic management of cardiac and pulmonary conditions. Criteria for establishing causation are also addressed.

Five hours (tutorial); eight weeks Two hours (tutorial); six weeks

**PHYSIOTH 2L44 CLINICAL SKILLS LAB IV**

Students acquire the assessment and treatment skills which are required for the physiotherapeutic management of clients with cardiac and/or pulmonary conditions.

Seven hours (lab); eight weeks

**PHYSIOTH 2S43 INQUIRY SEMINAR IV**

Seminars focus on issues important to the practice of physiotherapy with cardiopulmonary patients. Themes include exercise physiology, stress and health, locus of control, balance of life, nutrition, and pharmacology.

Five hours (lecture/seminar); eight weeks

**PHYSIOTH 2C46 CLINICAL EDUCATION III**

Students integrate learning and skills with clinical practice for a selected group of clients with cardiac and/or pulmonary conditions in a variety of clinical

facilities.

35-40 hours (fieldwork); six weeks

### Block V

#### PHYSIOTH 2T53 NEUROLOGY

Students study the pathology, etiology, assessment and physiotherapeutic treatment of clients of all ages with neurological problems.

Five hours (tutorial); eight weeks

Two hours (tutorial); six weeks

#### PHYSIOTH 2L54 CLINICAL SKILLS LAB V

Students acquire basic level skills to assess and treat clients with neurological conditions.

Seven hours (lab); eight weeks

#### PHYSIOTH 2S53 INQUIRY SEMINAR V

Seminars focus on issues important to the practice of physiotherapy with clients who manifest neurological problems. Themes include the behavioral sciences, brain function, thinking skills, human function, dependency, decision making including prognosticating, and the disability/impairment paradigm.

Five hours (lecture/seminar); eight weeks

#### PHYSIOTH 2C56 CLINICAL EDUCATION IV

Students practice in a variety of clinical facilities to integrate learning and clinical skills for the management of neurological problems in all age groups.

35-40 hours (fieldwork); six weeks

### Block VI

Occupational Therapy and Physiotherapy students study together in all Block VI courses.

#### PHYSIOTH 2T64 INTEGRATION

Priority health problems are explored in-depth through contact with resource people and clients in the community, using a population health/community health perspective. Issues involving quality assurance and economics are also included.

Four hours (tutorial); 14 weeks

#### PHYSIOTH 2L63 CLINICAL SKILLS LAB VI

Within the broad framework of the Management Sciences, students study management theory and organizational behaviour, and develop basic organizational and management skills.

Three hours (lab); 14 weeks

#### PHYSIOTH 2I65 INDEPENDENT STUDY

Student study focuses on scientific inquiry through research related to occupational therapy/physiotherapy. Such research may involve literature searches, simple research design or proposal preparation, or participation in ongoing research with a faculty member.

Five hours; 14 weeks

#### PHYSIOTH 2S63 INQUIRY SEMINAR VI

Seminars focus on population health/community health issues. Students identify their own learning needs, arrange resource sessions accordingly, and select a community health problem for in-depth study.

Three hours (lecture/seminar); 14 weeks

### Block VII

#### PHYSIOTH 2C76 CLINICAL ELECTIVE

Students select an area of professional practice for a 6-week elective. Areas of practice might include clinical practice, administration, research or consultation. An appropriate setting will be selected by the student in consultation with the Clinical Education Co-ordinator.

35-40 hours (fieldwork); six weeks

## PEACE STUDIES

(SEE MINORS AND THEMATIC AREAS OF STUDY)

## PHARMACOLOGY

With the exception of PHARMAC 4B03, these courses are available only to those students registered in Honours Biology and Pharmacology.

### Department Note:

PHARMAC 3A06, 3B06, 4A03, 4AA3, 4C03, 4D03 and 4E03 will be based on self-directed problem based learning.

## Courses

### PHARMAC 3A06 INTRODUCTION TO PHARMACOLOGY

Receptor theory and classification, receptor response coupling, mechanisms of drug absorption, distribution, metabolism and excretion and their roles in drug selectivity.

One tutorial (one hour), one tutorial (two hours); two terms

Prerequisite: Registration in the Honours Biology and Pharmacology programme

### PHARMAC 3B06 METHODS IN PHARMACOLOGY

Methods to study effects of drugs in vitro (such as organ baths, ligand binding, and electrophysiological actions) and analysis of pharmacological data.

One lab (nine hours); two terms

Prerequisite: Credit or registration in PHARMAC 3A06

### PHARMAC 4A03 DRUG AND SIGNAL TRANSMISSION I

Introduction to the effects of drugs on communication by chemical signals in biological systems.

One tutorial (one hour), one tutorial (two hours); one term

Prerequisite: PHARMAC 3A06

### PHARMAC 4AA3 DRUG AND SIGNAL TRANSMISSION II

The continuation of Pharmacology 4A03.

One tutorial (one hour), one tutorial (two hours); one term

Prerequisite: PHARMAC 4A03

### PHARMAC 4B03 DRUGS AND BEHAVIOUR

Behavioural measures to study drug action and the use of drugs to study the organization and physiochemical mechanisms in normal and abnormal behaviour.

Three lectures or two lectures and one tutorial; one term

Prerequisite: PHARMAC 3A06 or BIOLOGY 3AA3

### PHARMAC 4C03 PRINCIPLES OF TOXICOLOGY

General principles of toxicology, adverse effects of selected agents on man and other organisms.

One tutorial (one hour), one tutorial (two hours); one term

Prerequisite PHARMAC 3A06

### PHARMAC 4D03 DRUG DESIGN

Principles of drug design based on drug transport, metabolism and selectivity of action at the target sites with emphasis on quantitative structure-activity relationships.

One tutorial (one hour), one tutorial (two hours); one term

Prerequisite: PHARMAC 3A06

### PHARMAC 4E03 EPIDEMIOLOGY OF EFFECTS OF DRUGS AND TOXICANTS

Methods for collection of data and its analysis regarding action of drugs, toxicants and environmental chemicals in animal and human populations.

One tutorial (one hour), one tutorial (two hours); one term

Prerequisite: PHARMAC 3A06

### PHARMAC 4F09 SENIOR THESIS

A thesis based upon a research project carried out under the direction of a member of the Faculty.

Prerequisite: PHARMAC 3A06

## PHILOSOPHY

### Faculty as of January 15, 1993

#### Chair

Wilfrid Waluchow

#### Professors Emeriti

Horace A. Dulmage/B.A., B.D. (*McMaster*), Ph.D. (*Chicago*)

James H. Noxon/B.A., M.A. (*Queen's*), Ph.D. (*Edinburgh*)

John E. Thomas/B.A., B.D. (*McMaster*), M.A., Ph.D. (*Duke*)

#### Professors

Nicholas Griffin/B.A. (*Leicester*), Ph.D. (*Australian National*)

Gary B. Madison/B.A. (*St. Joseph's College*), M.A. (*Marquette*), Ph.D. (*Paris*)

Evan Simpson/A.B. (*Amherst*), Ph.D. (*Duke*)

#### Associate Professors

Samuel Ajzenstat/B.A., M.A. (*Toronto*), Ph.D. (*Pennsylvania*)

Catherine Beattie/B.A. (*McMaster*), M.A. (*Guelph*), Ph.D. (*London*)

Stanley G. Clarke/Visiting Professor  
 Constantine Georgiadis/M.A. (Warsaw), Ph.D. (London)  
 David L. Hitchcock/B.A. (McMaster), Ph.D. (Claremont)  
 Sami M. Najm/A.A. (Beirut), B.A. (Wesleyan), M.A., Ph.D. (Yale)  
 Spiro Panagiotou/B.Sc., M.A. (Guelph), Ph.D. (St. Andrews)  
 Michael Radner/B.A. (Carleton College, Minn.), M.A., Ph.D. (Minnesota)  
 Mark Vorobej/B.A. (Carleton), M.A., Ph.D. (Toronto)  
 Wilfrid Waluchow/B.A., M.A. (Western), D.Phil. (Oxford)

#### Assistant Professors

Barry G. Allen/B.A., (Lethbridge), M.A., Ph.D. (Princeton)  
 Elisabeth Boetzkes/B.A., M.A. (Alberta), Ph.D. (Calgary), MTh. (Newman  
 Theological College, Edmonton)  
 Jill LeBlanc/B.A. (McMaster), M.A., Ph.D. (Toronto)

#### Lecturer

Marina Vitkin/B.A. (Manitoba), M.A. (Toronto)

#### Instructors

Joan Houlding/part-time Paul Viminitz/B.A. (Regina), M.A. (Dalhousie)/part-time

#### Associate Members

Kenneth M. Blackwell (Russell Archivist, Mills Library), B.A. (Victoria), M.L.S. (Western), M.A. (McMaster), Ph.D. (Guelph)  
 James C. Gaa (School of Business), B.A. (Michigan State), A.M., Ph.D. (Washington, St. Louis), Ph.D. (Illinois)

### Department Notes:

1. The Department of Philosophy offers two Level I courses, PHILOS 1B06 and PHILOS 1D06, which are designed to introduce the student to the study of the subject. No student may take more than one of these courses.
2. The Department of Philosophy offers courses in four major areas of Philosophy, namely History of Philosophy, Logic, Ethics and Theory of Value, and Theory of Knowledge and Metaphysics. Students are advised to include courses from each of these areas in their programmes.
3. Students who do not meet the specified prerequisites for a course may, in exceptional circumstances, obtain permission of the instructor to take the course.

### Courses

#### PHILOS 1B06 PHILOSOPHY AND SOCIETY

An introduction to philosophy, through the social-political thought of two or more of Plato, Hobbes, Mill and Marx, focusing on rival views of human nature and the state, social conflict, inequality and justice.

Two lectures, one tutorial; two terms

Antirequisite: PHILOS 1D06

#### PHILOS 1D06 PROBLEMS IN PHILOSOPHY

A critical investigation of philosophical arguments concerning God, politics, morality, human nature, knowledge and art.

Two lectures, one tutorial; two terms

Antirequisite: PHILOS 1B06

#### PHILOS 2A06 ANCIENT GREEK PHILOSOPHY

A study of Western philosophical thought from its earliest beginnings to the triumph of Christianity in the Roman Empire, with emphasis on Plato and Aristotle.

Three lectures; two terms

Prerequisite: Registration in Level II and above

Cross-list: CLASSICS 2P06

#### PHILOS 2B03 INTRODUCTORY LOGIC

Sentential and quantification logics are introduced and applied to arguments in English.

Three lectures; one term

Prerequisite: Registration in Level II and above

#### PHILOS 2C06 DESCARTES TO HUME

A study of 17th- and 18th-Century European and British philosophy, dealing with the major philosophical issues raised by the 17th-Century scientific revolution.

Three lectures; two terms

Prerequisite: Registration in Level II and above

#### PHILOS 2D03 MORAL ISSUES

An introduction to moral philosophy, accenting biomedical ethics. Issues such

as abortion, human experimentation, euthanasia, and genetic screening will be investigated in cooperation with members from the Faculty of Health Sciences.

Two lectures, one tutorial; one term

Prerequisite: Registration in Level II and above

Cross-list: RELILG ST 2C03

Enrolment is limited.

#### PHILOS 2F03 PHILOSOPHICAL PSYCHOLOGY

A consideration of such questions as: In what terms might human nature be described? How do intentional and unintentional behaviour differ? How do physical and mental states differ? When is action free? Can intelligence be duplicated artificially?

Three lectures; one term

Prerequisite: Registration in Level II and above

#### PHILOS 2G03 SOCIAL AND POLITICAL ISSUES

A philosophical examination of some contemporary issues in public policy, such as environmental problems, the question of a just distribution of society's goods and services, and problems of liberty and coercion.

Two lectures, one tutorial; one term

#### PHILOS 2H03 AESTHETICS

An introduction to some main theories of the nature of art, criticism, and the place of art in life and society.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: ART HIST 2H03

Offered in alternate years.

#### PHILOS 2M03 SCIENTIFIC METHOD

Theory structure and justification in the sciences compared to reasoning in pseudosciences (e.g. theories of paranormal or 'psi' phenomena).

Three lectures; one term

Prerequisite: Registration in Level II and above

Offered in alternate years.

#### PHILOS 2N03 BUSINESS ETHICS

An analysis of ethical issues arising in contemporary business life. Sample topics include: fair and unfair competition; responsibilities towards employees, society and the environment; honesty and integrity in business; the moral status of corporations.

Two lectures, one tutorial; one term

Prerequisite: Registration in Level II and above

#### PHILOS 2R03 REASONING

An introduction to important types of reasoning, including philosophical reasoning, with emphasis on concepts rather than techniques and some exposure to commonly used symbolic notation.

Three lectures; one term

Prerequisite: Registration in a programme in Philosophy

Antirequisite: HUMANITIES 1C03, 2C03 or ARTS & SCI 1B06

Other students who want a Reasoning course are advised to take HUMANITIES 2C03.

#### PHILOS 3A06 FROM KANT TO HEGEL

The philosophies of Kant and Hegel viewed in relation to each other and to other philosophies of the period, such as those of Rousseau or Schelling.

One lecture (two and one half hours); two terms

Prerequisite: PHILOS 2C06

#### PHILOS 3B03 PHILOSOPHIES OF EXISTENCE

An examination of the 19th-century forerunners of contemporary existential philosophy, concentrating principally on the thought of Kierkegaard and Nietzsche.

One lecture (two and one half hours); one term

Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme

Offered in alternate years.

#### PHILOS 3C03 ADVANCED BIOETHICS

An advanced study of the application of ethical theory to selected problems in health care, relating to the problem of the sanctity versus the quality of life.

Three lectures; one term

Prerequisite: PHILOS 2D03 or RELIG ST 2C03 with a grade of at least B, and at least three additional units of Philosophy; or registration in Level III or IV of an Honours programme in Philosophy

Offered in alternate years.

#### PHILOS 3D03 PRAGMATISM

A study of the most distinctive American contribution to philosophy with

emphasis on such figures as C.S. Peirce, William James, John Dewey, C.I. Lewis, and Richard Rorty.

Three lectures; one term

Prerequisite: Six units of Philosophy and registration in Level III or IV of any programme

*Offered in alternate years.*

### **PHILOS 3F03 INTERMEDIATE LOGIC**

A study of formal languages and their interpretations, including soundness and completeness proofs, and some major results such as Godel's theorems.

Three lectures; one term

Prerequisite: PHILOS 2B03

*Offered in alternate years.*

### **PHILOS 3G03 ETHICS**

An introduction to the major types of ethical theory and the problem of their justification.

Three lectures; one term

Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme

### **PHILOS 3H03 PHILOSOPHY OF RELIGION**

An analysis of the concept of religion in light of the philosophical claims of religious experience, practice, and belief.

Three lectures; one term

Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme

*Offered in alternate years.*

### **PHILOS 3I03 PHILOSOPHY AND FEMINISM**

A study of philosophical issues in feminist thought.

Three lectures; one term

Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme

*Offered in alternate years.*

### **PHILOS 3K03 PHILOSOPHY OF EDUCATION**

A systematic account of education through a critical analysis of the concepts of teaching, learning, and subject matter.

Two lectures, one tutorial; one term

Prerequisite: At least six units of Philosophy

*Offered in alternate years.*

### **PHILOS 3N03 POLITICAL PHILOSOPHY**

A study of major political concepts and issues, such as social contract, ideology, justice, freedom vs. equality, reform vs. revolution, state vs. individual.

Three lectures; one term

Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme

Antirequisite: PHILOS 3N06

*Offered in alternate years.*

### **PHILOS 3O03 THEORY OF KNOWLEDGE**

A study of scepticism and certainty, knowledge and belief, perception, memory, and truth.

Three lectures; one term

Prerequisite: PHILOS 2C06

### **PHILOS 3P03 PHILOSOPHIES OF WAR AND PEACE**

A philosophical appraisal of the rationality and morality of the conduct of war and proposals for fostering peace among nations.

Three lectures; one term

Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme

*Offered in alternate years.*

### **PHILOS 3Q03 PHILOSOPHY OF LAW**

An investigation of the nature of law and of issues arising within legal systems. These issues include legal reasoning, equality, legal insanity, punishment, and the Charter of Rights and Freedoms.

Three lectures; one term

Prerequisite: At least six units of Philosophy and registration in Level III or IV of any programme

### **PHILOS 3W03 READING COURSE**

A tutorial course in which individual students meet regularly with an instructor on a list of readings outside normally available course offerings. It is the student's responsibility to secure the agreement of an instructor and to complete a proposal form (available in the Philosophy Department office),

before the beginning of the Drop and Add Period in the term for which the student enrolls.

Prerequisite: Registration in Level III or IV of a programme in Philosophy, with a Cumulative Average of at least 6.0

### **PHILOS 3WW3 SUPERVISED STUDY IN PHILOSOPHY AND BIOLOGY (I)**

Students regularly meet with instructors from the Departments of Philosophy and Biology to discuss a list of readings.

Tutorials; one term

Prerequisite: Six units of Philosophy and six units of Biology

### **PHILOS 4A03 THE RATIONALISTS**

A critical study of selected texts of one or more Rationalist philosophers.

Seminar (Two and one half hours); one term

Prerequisite: PHILOS 2C06, and registration in Level III or IV of any programme

*Offered in alternate years.*

### **PHILOS 4B03 THEORY OF VALUE**

A study of human practices of evaluation in morality, politics, art, religion, and economics.

Seminar (Two and one half hours); one term

Prerequisite: PHILOS 3G03, and registration in Level III or IV of any programme

*Offered in alternate years.*

### **PHILOS 4C03 PLATO**

A critical examination of Plato's writings with reference to selected central philosophical issues.

One lecture, one seminar (two hours); one term

Prerequisite: PHILOS 2A06 and registration in Level III or IV of any programme

Cross-list: CLASSICS 4C03

*Offered in alternate years.*

### **PHILOS 4D03 20TH-CENTURY ANALYTIC PHILOSOPHY**

A study of some main currents of 20th-century philosophy, including the work of such figures as Wittgenstein, Quine, and Davidson.

Seminar (two and one half hours); one term

Prerequisite: PHILOS 2B03, and registration in Level III or IV of a programme in Philosophy

*Offered in alternate years.*

### **PHILOS 4E03 EXISTENTIALISM AND PHENOMENOLOGY**

A study of selected texts of major existential and phenomenological philosophers in the 20th-century, such as Camus, Heidegger, Jaspers, Marcel.

Seminar (two and one half hours); one term

Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme

### **PHILOS 4F03 RECENT EUROPEAN PHILOSOPHY**

Contemporary trends in European Philosophy as represented by such writers as Derrida, Foucault and Habermas.

Seminar (two and one half hours); one term

Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme

*Offered in alternate years.*

### **PHILOS 4G03 BERTRAND RUSSELL**

An introduction to various aspects of Russell's philosophical thought. Each year two or three topics in his theory of knowledge, metaphysics, philosophy of language and social philosophy will be selected for special attention.

One lecture (two hours), one seminar (one hour); one term

Prerequisite: PHILOS 2B03, and registration in Level III or IV of any programme

*Offered in alternate years.*

### **PHILOS 4H03 METAPHYSICS**

An investigation of metaphysical concepts, such as substance, individuation, identity, essence, quality, process, mind, time and causality. Some contemporary criticisms of metaphysics will be discussed.

Seminar (2 1/2 hours); one term

Prerequisite: PHILOS 2A06 and 2C06, and registration in Level III or IV of a programme in Philosophy

### **PHILOS 4I03 MEDIEVAL PHILOSOPHY**

A study of one or more central medieval philosophers, such as Augustine, Aquinas, or William of Ockham.

Seminar (two and one half hours); one term

Prerequisite: One of PHILOS 2A06, 2C06

*Offered in alternate years.*

### **PHILOS 4J03 ARISTOTLE**

A systematic study of Aristotle's major doctrines.

Seminar (two and one half hours); one term

Prerequisite: PHILOS 2A06 and registration in Level III or IV of any programme

Cross-list: CLASSICS 4J03

Offered in alternate years.

#### PHILOS 4W03 INDEPENDENT STUDY

In consultation with a member of the Department of Philosophy, students will prepare an essay on an approved topic, on the basis of a list of readings outside normally available course offerings. It is the student's responsibility to secure the agreement of an instructor and to complete a proposal form (available in the Philosophy Department office), before the beginning of the Drop and Add Period in the term for which the student enrolls.

Prerequisite: Registration in Level IV of an Honours programme in Philosophy  
Antirequisite: PHILOS 4Z06

#### PHILOS 4WW3 SUPERVISED STUDY IN PHILOSOPHY AND BIOLOGY (II)

Students regularly meet with instructors from the Departments of Philosophy and Biology to discuss a list of readings.

Tutorials; one term

Prerequisite: Six units of Philosophy and six units of Biology

#### PHILOS 4Z06 THESIS

Reading and research under the supervision of two members of the Department. A major paper is required as well as a formal examination. It is the student's responsibility to secure the agreement of an instructor and to complete a proposal form (available in the Philosophy Department office), before the beginning of the Drop and Add Period in term one.

Prerequisite: Registration in Level IV of any Honours programme in Philosophy, with a Cumulative Average of at least 8.5

Antirequisite: PHILOS 4W03

## PHYSICAL EDUCATION

### Faculty as of January 15, 1993

#### Chair

D. Sale

#### Professors Emeriti

Frank J. Hayden/B.A. (Western), M.A., Ph.D. (Illinois)

Alan J. Smith/B.S.A., M.Ed. (Toronto), D.Ed. (SUNY, Buffalo)

#### Professors

J. Duncan MacDougall/B.A., B.P.H.E. (Queen's), M.S. (Oregon), Ph.D. (Wisconsin)

Digby G. Sale/B.P.H.E. (Toronto), M.A. (Western), Ph.D. (McMaster)

#### Associate Professors

Cameron J. Blimkie/ B.A., B.P.E. (McMaster), M.A., Ph.D. (Western)

Peter Donnelly/Dip.Ed. (City of Birmingham College), B.A. (Hunter College, N.Y.), M.S., Ph.D. (Massachusetts)

Digby Elliott/B.Sc., M.Sc., Ph.D. (Waterloo)

William H. Fowler/B.A. (Western), M.P.E. (Springfield)

Raymond B. Johnson/B.A. (Western), M.Ed. (SUNY, Buffalo), Ph.D. (Temple)

Mary E. Keyes/B.A., M.A. (Western), Ph.D. (Ohio State)

Timothy D. Lee/B.H.K., M.A. (Windsor), Ph.D. (Louisiana State)

Neil McCartney/B.Ed. (Exeter), Ph.D. (McMaster)

Fredrick A. Moyes/Dip.P.E. (Jordanhill), M.Ed. (Leicester)/part-time

Cindy Riach/B.A., B.P.H.E., B.Ed., M.Sc. (Queen's), Ph.D. (Waterloo)

Janet L. Starkes/B.A. (Western), M.Sc., Ph.D. (Waterloo)

Phillip G. White/B.Sc. (London), Cert.Ed. (Carnegie), M.Sc., Ph.D. (Waterloo)

#### Assistant Professors

Nicholas Cipriano/B.P.H.E., M.Sc. (Lakehead)

James J. Dowling/B.H.K., M.H.K. (Windsor), Ph.D. (Waterloo)

Robert J. Henderson/B.P.E. (McMaster) M.A. (Alberta)

Audrey Hicks/B.P.E., M.Sc., Ph.D. (McMaster)

Susan E. Inglis/B.P.E., M.A. (Alberta), Ph.D. (Ohio State)

Andrea M. Mann/B.A., B.P.E. (McMaster), M.Sc. (Dalhousie), Ph.D. (Ohio State)

David C. Wilson/B.Ed. (Bristol), M.A. (York)

#### Lecturers

Michael Cain/B.A. (York), M.S.S. (U.S.S.A.)

Thérèse A. Quigley/B.A. B.Ed. (Western), M.A. (Alberta)

#### Instructors

Stephen E. Bruno/B.Sc. (Weber State)

Theresa Burns/B.P.H.E. (Toronto)

Deborah E. Marinoff/B.Sc. (York)

Barry M. Phillips/B.Sc., B.Ed. (Acadia), M.S.S. (United States Sports Academy)

#### Part-time Instructors

John Hay/B.A., B.P.H.E. (Queen's), M.Sc. (Alberta), Ph.D. (McMaster)

Brian Maraj/B.P.E. (McMaster), M.A. (Western)

#### Associate Members

Oded Bar-Or/Pediatrics/M.D. (Hebrew Un., Jerusalem)

Scott Garner/Medicine/B.Sc. (Med.) (Manitoba), M.D. (Manitoba)

A.J. McComas/B.Sc., M.B., B.S. (Durham), F.R.C.P.(C)

Robert S. McKelvie/B.Sc., M.Sc., M.D. (Western)

#### Department Notes:

- Not all Physical Education courses listed in this Calendar are taught every year. Students are advised to consult the time-table which is published annually by the Registrar's Office to determine whether a course is offered.
- With the permission of the instructor, the following courses **may be taken** as elective credit by undergraduates not in Physical Education: 3J03, 3P03, 3Q03, 3SS3, 4E03, 4J03, 4L03, 4M03, 4Q03.  
All other Physical Education courses are **open only** to students registered in the Bachelor of Physical Education programme.
- Required Area theory** courses are: PHYS ED 1A06, 1B03, 1E03, 1F03, 2A03, 2B03, 2C06, 2D03, 2F03, and BIOLOGY 1J03.  
**Required Area practicum** courses are: 1SOO (McMaster Swimming Test), 1CAO (CPR/First Aid), PRO2 (Gymnastics), PRO3 (Track), PRO4 (Games), PRO5 (Dance), PRO6 (Fitness).  
**Area Electives:** All other Physical Education courses listed or offered. Enrolment in some Level III and IV elective courses may be limited and may require a prerequisite or permission of the instructor.
- Registration in all courses marked \*\* listed as selected topics and independent research requires written permission of the Department. Registration with appropriate permission must be completed no later than the last day for registration as stated in the Calendar under *Sessional Dates*.

#### Courses

##### PHYS ED 1A06 HUMAN ANATOMY

Macroscopic and microscopic anatomy, with particular reference to the locomotor, nervous, cardiovascular, respiratory, digestive, endocrine, and urogenital systems.

Three hours (lectures, labs); two terms

##### PHYS ED 1B03 SOCIOLOGY OF SPORT

Critical examination of contemporary issues and problems of sport in Canadian society.

Three hours (lectures and discussion); one term

##### PHYS ED 1E03 MOTOR DEVELOPMENT

Physical growth patterns and the development of perceptual-motor abilities. Age-appropriate motor behaviour, from infancy to old age, is investigated.

Three hours (lectures, labs); one term

##### PHYS ED 1F03 BIOMECHANICS I

An introduction to basic mechanical principles and concepts as applied to physical activity.

Three hours (lectures, labs); one term

##### PHYS ED 2A03 BIOMECHANICS II

Study of the kinematics and kinetics of human movement, including electromyography, fluid and tissue mechanics.

Three hours (two lectures, one lab); one term

##### PHYS ED 2B03 PSYCHOMOTOR BEHAVIOUR

Motor learning principles and performance determinants are investigated, together with other relevant psychological determinants of gross motor behaviour.

Two lectures, one lab; one term

##### PHYS ED 2C06 PHYSIOLOGY OF EXERCISE

The effects of exercise on the physiological systems, and the application of physiological principles to human exercise performance.

Two lectures, one lab (two hours); two terms

**PHYS ED 2D03 PHILOSOPHY OF PHYSICAL EDUCATION AND SPORT**

Critical examination of the concepts, theories, and assumptions associated with physical education and sport.

Three hours (lectures and discussion); one term

**PHYS ED 2F03 HISTORY OF PHYSICAL EDUCATION AND SPORT IN CANADA**

The origins and development of modern physical education and sport in Canada, including individual leaders and contributing cultural factors.

Three hours (lectures and seminars); one term

**PHYS ED 3B03 ADAPTED PHYSICAL ACTIVITY**

Physical activity and movement designed to meet the needs, interests, and abilities of individuals referable to special physical activity programmes.

Three lectures; one term

Co-requisite: Registration in PR89

**PHYS ED 3C03 MEASUREMENT AND EVALUATION**

Introduction to research design and scientific method; elementary statistics.

Three hours (lecture); one term

**PHYS ED 3F03 SPORT AND PHYSICAL EDUCATION ADMINISTRATION I**

A macro perspective of sport organizations, including administrative functions such as planning, organizing, marketing, meeting management, scheduling, and legal liability.

Three hours (lectures; seminars); one term

**PHYS ED 3G03 BEHAVIOURAL ASPECTS OF PLAY AND GAME INVOLVEMENT**

Behavioural and developmental patterns of play from infancy through adulthood are examined in light of selected theories and contemporary practices in physical education and recreation.

Three hours (lectures); one term

**PHYS ED 3H03 HISTORICAL INTERPRETATIONS OF SPORT AND PHYSICAL ACTIVITY**

Inquiry into the development of physical activity and sport from ancient to modern civilizations in the perspective of cultural change.

Two lectures, one seminar, one term

*Enrolment is limited.*

**PHYS ED 3J03 AESTHETICS OF SPORT AND DANCE**

An inquiry into involvement in sport and dance and the search for meaning and reality in these non-verbal forms of expression and communication.

Three hours (lectures, seminars); one term

*With permission of the instructor this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.*

**PHYS ED 3K03 SPORTS INJURIES**

Methods of dealing with injuries under following headings: prevention; preliminary assessment and response; first aid; basic CPR; and post-medical care.

One lecture, one tutorial, one lab; one term

*Enrolment is limited.*

*Priority will be given to Level IV Physical Education students.*

**PHYS ED 3L03 SPORT AND PHYSICAL EDUCATION ADMINISTRATION II (BEHAVIOURAL CONCEPTS)**

An examination of concepts and issues of organizational behaviour in a variety of work environments.

Three hours (lectures and seminars); one term

Prerequisite: PHYS ED 3F03, or may be taken as a B.A. elective in Level III or IV of Social Work.

*Enrolment is limited.*

**PHYS ED 3M03 FOUNDATIONS OF ATHLETIC COACHING**

An examination of the principles governing athletic coaching with emphasis placed on the theoretical and behavioural aspects.

Three hours; one term

Antirequisite: PHYS ED 3M06

**PHYS ED 3P03 SPORT AND SOCIAL DEVELOPMENT**

Macro-analysis of sport and culture, considering the place of sport and leisure in cultural transmission and cultural change.

Three hours (lectures and discussion); one term

*With permission of the instructor, this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.*

Cross-list: SOCIOL 3DD3

**PHYS ED 3Q03 SPORT AND SMALL GROUP DYNAMICS**

Micro-analysis of sport in small social systems; investigation of the dynamics

of involvement in sport encounters, the team as a small group, and sport subcultures.

Three hours (lectures and discussion); one term

*With permission of the instructor, this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.*

Cross-list: SOCIOL 3EE3

**PHYS ED 3SS3 BODY, MIND, SPIRIT**

An exploration of the relationship between body, mind and spirit from the standpoint of eastern and western religious thought with special reference to current perspectives. Course work includes experiential workshops. With permission of the instructor, this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.

Three-hour seminar; one term

Cross-list: RELIG ST 3SS3

*Enrolment is limited.*

**PHYS ED 4A06 ADVANCED BIOMECHANICS**

In-depth study of the mechanics of human movement with application to specific position and movement problems; relationship of the mechanics to selected neurophysiological mechanisms.

Three hours (lectures, labs); two terms

Prerequisite: Permission of the instructor

*Enrolment is limited.*

**PHYS ED 4B03 PHYSICAL ACTIVITY AND CORONARY HEART DISEASE**

An examination of the role of physical activity in the prevention and rehabilitation of coronary heart disease.

Three lectures; one term

**PHYS ED 4C06 HUMAN PERFORMANCE PHYSIOLOGY**

Factors affecting human physical performance, with emphasis upon procedures for maximizing sport performance.

Two lectures, one lab; two terms

Prerequisite: Registration in Level IV

*Enrolment is limited.*

**PHYS ED 4D06 OUTDOOR EDUCATION: ECOLOGICAL PERSPECTIVES AND CRITICAL PEDAGOGY**

An examination of Outdoor Education programmes and their historical, philosophical and sociological foundations.

Three hours (lectures, seminars); two terms

Prerequisite: Registration in Level IV

*Enrolment is limited.*

**PHYS ED 4E03 MOTOR CONTROL**

Neuromuscular control mechanisms underlying motor skill performance. Topics include basic neuroanatomy, mechanisms of sensation and regulation of voluntary movement.

Two lectures, one lab; one term

*With permission of the instructor, this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.*

*Enrolment is limited.*

**PHYS ED 4F03 SELECTED TOPICS IN PHYSICAL EDUCATION**

Topics of contemporary interest with emphasis upon current theory and research. Students should consult the undergraduate department concerning the topics to be examined.

Three hours (lectures, seminars); one term

Antirequisite: PHYS ED 4O03 in 1989-90

**PHYS ED 4H03 FITNESS-AND WELLNESS-CONCEPTS AND APPRAISAL TECHNIQUES**

The concepts and principles of fitness and wellness will be studied with an examination and application of fitness and wellness appraisal techniques.

Three hours (lectures, labs, presentations); one term

**PHYS ED 4I03 PHYSICAL ACTIVITY, LEISURE AND AGING**

An examination of concepts and theories of physical activity and leisure with respect to aging and vitality in later life.

Three hours (lectures); one term

Prerequisite: Registration in Level III or IV Physical Education or Gerontology programme

Antirequisite: PHYS ED 4F03 in 1987/88 or 1988/89

Cross-list: GERONTOL 4I03

**PHYS ED 4J03 PERSPECTIVES IN DANCE: DANCE IN CONTEMPORARY SOCIETY**

A survey of modern dance forms of the 20th century and their relationship to education, therapy, injuries, technology and aesthetics. Students view films,

attend performances and participate in dance workshops.

Three hours (lectures, seminars); one term

*With permission of the instructor, this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.*

**PHYS ED 4K03 PERCEPTUAL-MOTOR BEHAVIOUR: AN INTEGRATIVE ANALYSIS**

An advanced examination of current topics regarding perceptual-motor behaviour with particular reference to everyday experiences.

Three hours (lectures, labs); one term

*Enrolment is limited.*

**PHYS ED 4L03 COMPARATIVE PHYSICAL EDUCATION AND SPORT (SELECTED TOPICS)**

Contemporary physical education in selected countries, with special attention given to international sports competition.

Two lectures, one seminar; one term

*With permission of the instructor, this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.*

*Enrolment is limited.*

**PHYS ED 4M03 SPORT PSYCHOLOGY**

Principles of sport psychology are applied to individual and team performance issues. Research is emphasized and topics include: personality, motivation, arousal, perception, biofeedback, the process of competition, children in sport, and ethics in sport psychology.

Two lectures, one lab; one term

*With permission of the instructor, this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.*

*Enrolment is limited.*

**PHYS ED 4N03 ATHLETIC COACHING: PRACTICAL AND APPLIED SCIENTIFIC ASPECTS**

Analysis of bio-physical components of athletic coaching emphasizing planning and implementation of a yearly training programme. Feedback on field experience will be the central focus.

Three hours; one term

Prerequisite: PHYS ED 3M03. Students registered in 4N03 must also register for PR88 (Coaching Placement Experience).

Antirequisite: PHYS ED 3M06

*Enrolment is limited.*

**PHYS ED 4O03 HEALTH SCIENCE: PHYSICAL AND ENVIRONMENTAL**

Selected transactions between the individual, the environs and disease agents are explored as these transactions influence human diseases.

Three hours (lectures, seminars); one term

*Open to students with credit in Physical Education 4O03 in 1989-90.*

**PHYS ED 4P03 HEALTH SCIENCE: BEHAVIOURIAL**

Development of an understanding of those health topics based primarily on the behavioural sciences. Specifically included are mental health, psychoactive drugs, and human sexuality.

Three hours (lectures, seminars); one term

**PHYS ED 4Q03 PAEDIATRIC EXERCISE PHYSIOLOGY**

Physiologic aspects of physical activity in children and adolescents in health and disease.

Two lectures, one lab; one term

Prerequisite: Permission of the instructor; grade in PHYS ED 2C06 is considered in selection of students

*With permission of the instructor this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.*

*Enrolment is limited.*

**PHYS ED 4R03\*\* INDIVIDUAL STUDY PROJECT**

Investigation of a selected theoretical or applied problem mutually acceptable to instructor and student.

Prerequisite: Permission of the Undergraduate Coordinator and supervising instructor. Open to Level IV B.P.E. students.

**PHYS ED 4S03 ADAPTED PHYSICAL EDUCATION: SELECTED TOPICS**

Focus on current issues in adaptives, including sections on aging, health impairments, and educational integration.

Three hours (two lectures, one seminar); one term

Prerequisite: PHYS ED 3B03, PR89

*Enrolment is limited.*

**PHYS ED 4T03 GENDER, SPORT AND LEISURE**

The influence of sport and leisure on the social construction of masculinity and femininity.

Three hours (seminars); one term

Prerequisite: Registration in Level III or IV Physical Education, or a Sociology programme or permission of the instructor

*Enrolment is limited.*

**PHYS ED 4V03 HUMAN FACTORS**

The abilities and limitations of human performance are examined with respect to how we interact with objects in our environment.

Three hours (lectures, labs); one term

*Enrolment is limited.*

**PHYS ED 4Z03 SELECTED TOPICS IN ADMINISTRATIVE STUDIES**

An examination of selected topics related to administrative theory and its application to sport, fitness and recreation programmes.

Three hours (seminars and presentations); one term

Prerequisite: PHYS ED 3F03 and 3L03

*Enrolment is limited.*

**PRACTICUM COURSES**

*In the four levels of the B.P.E. programme, each student must complete a minimum of 13 units of practicum.*

One unit of practicum will normally comprise 24 hours; these hours may be compressed into one week (Camp or Orientation Week), spread over a Term (Field Work Placement) or, more usually, extend over a six-week period of four hours per week.

**Selection and Required Achievement in Practicum Classes**

For students currently in course all practicum courses, in all Levels, must be completed with a *minimum grade of D-* in each.

Beginning in 1992-93 students entering Level I must complete all practicum courses with a minimum grade of B in each.

**Level I: One unit**

Level I students take 1S00 McMaster Swimming Test, 1CAO CPR/First Aid and PRO2 Basic Gymnastics.

**Level II: Four units**

Level II students take PRO3 Track and Field, PRO4 Games, PRO5 Dance and PRO6 Fitness.

**Levels III and IV: Six units**

Level III and IV students take three units per level.

**General Regulations**

1. Students requiring direct entry into an Advanced course without meeting the requirements of the appropriate preceding basic course(s) must satisfy the instructor, both practically and theoretically, that they are qualified. The prerequisite standard for Advanced level courses *does not* give credit for, nor does it count as, one of the 13 units required by the Department.
2. A student wishing to take more than three courses per Level, or more than one course per session, must obtain permission from the Undergraduate Coordinator of the Department.

**Outdoor Activity Courses**

Courses in outdoor activities, e.g., canoe tripping, cross-country, winter camping, etc. may be offered outside the regular time-tabled programme and in off-campus settings.

It is not compulsory to take a course from the outdoor activity area, but interested students will receive comparable recognition for satisfactory completion of such courses, that is: one unit credit for each 24-hour course completed with at least a D- grade. A course fee is normally required in these offerings.

**Field Work Practicum**

Practicum courses may also be offered in the form of field work or leadership experiences, e.g., Cardiac Rehabilitation, Outdoor Education, Administration, Adapted Physical Activity.

The Field Work practicum occurs outside the normal time-tabled schedule, and requires permission from the supervising instructor.



**PHYSICS AND ASTRONOMY**

Faculty as of January 15, 1993

**Chair**

D.W.L. Sprung

**Associate Chair**

D.L. Welch

**Professors Emeriti**Bertram N. Brockhouse/B.A. (*British Columbia*), M.A., Ph.D. (*Toronto*), D.Sc. (*Waterloo, McMaster*), F.R.S.C., F.R.S.Martin W. Johns/M.A. (*McMaster*), Ph.D. (*Toronto*), D.Sc. (*Brandon*), F.R.S.C.John A. Kuehner/B.Sc. (*Bishop's*), M.A. (*Queen's*), Ph.D. (*Liverpool*), F.R.S.C.Carman C. McMullen/M.Sc., Ph.D. (*McMaster*)Melvin A. Preston/B.A., M.A. (*Toronto*), Ph.D. (*Birmingham*), D.Sc. (*McMaster*), C.D., F.R.S.C.Robert G. Summers-Gill/M.A. (*Saskatchewan*), Ph.D. (*California*)Anatole B. Volkov/B.S. (*North Carolina*), M.S., Ph.D. (*Wisconsin*)**Professors**Edward A. Ballik/B.Sc. (*Queen's*), D.Phil. (*Oxford*)A. John Berlinsky/B.Sc. (*Fordham*), M.Sc., Ph.D. (*Pennsylvania*)Rajat K. Bhaduri/M.Sc. (*Calcutta*), Ph.D. (*McMaster*)I. David Brown/B.Sc., Ph.D. (*London*)Dennis G. Burke/B.E., M.Sc. (*Saskatchewan*), Ph.D. (*McMaster*)John A. Cameron/B.A. (*Toronto*), Ph.D. (*McMaster*)Jules P. Carbotte/B.Sc. (*Manitoba*), M.Sc., Ph.D. (*McGill*), F.R.S.C.W. Brian Clarke/B.A. (*Dublin*), Ph.D. (*McMaster*)Malcolm F. Collins/M.A., Ph.D. (*Cambridge*)W. Ross Datars/M.Sc. (*McMaster*), Ph.D. (*Wisconsin*), F.R.S.C.David A. Goodings/B.A. (*Toronto*), Ph.D. (*Cambridge*)Archie A. Harms/B.Sc. (*British Columbia*), M.Sc. Eng., Ph.D. (*Washington*),P. Eng. William E. Harris/B.Sc. (*Alberta*), M.Sc., Ph.D. (*Toronto*)Terence J. Kennett/M.Sc., Ph.D. (*McMaster*)Geraldine A. Kenney-Wallace/L.R.I.C., A.R.I.C. (*London*), M.Sc., Ph.D. (*British Columbia*), F.R.S.C.Yukihisa Nogami/B.Sc., D.Sc. (*Kyoto*)William V. Prestwich/B.Sc., Ph.D. (*McMaster*)Ralph E. Pudritz/B.Sc. (*British Columbia*), M.Sc. (*Toronto*), Ph.D. (*British Columbia*)Donald W.L. Sprung/B.A. (*Toronto*), Ph.D., D.Sc. (*Birmingham*), F.R.S.C.Carl V. Stager/B.Sc. (*McMaster*), Ph.D. (*M.I.T.*)Peter G. Sutherland/B.Sc. (*McGill*), M.S., Ph.D. (*Illinois*)David W. Taylor/B.A., D.Phil. (*Oxford*)Thomas Timusk/B.A. (*Toronto*), Ph.D. (*Cornell*)James C. Waddington/B.Sc. (*Queen's*), Ph.D. (*McMaster*)Derek Walton/B.Sc. (*Toronto*), Ph.D. (*Harvard*)**Associate Professors**David R. Chettle/B.Sc., M.Sc., Ph.D. (*Birmingham*)Bruce D. Gaulin/B.Sc. (*McGill*), Ph.D. (*McMaster*)Harold K. Haugen/B.Sc. (*Acadia*), M.Eng. (*McMaster*), Ph.D. (*Aarhus*)Catherine Kallin/B.Sc. (*British Columbia*), A.M., Ph.D. (*Harvard*)Douglas L. Welch/B.Sc., Ph.D. (*Toronto*)**Assistant Professors**Neil McKay/B.Sc. (*Queen's*), M.Sc., Ph.D. (*McMaster*) part-timeDavid E. Venus/B.Sc. (*Queen's*), Ph.D. (*Toronto*)Christine D. Wilson/B.Sc. (*Toronto*), Ph.D. (*California Institute of Technology*)**Associate Members**Claude Nahmias/B.Sc. (*American University of Cairo*), Ph.D. (*Surrey*) (*Radiology*)Michael S. Patterson/B.Sc. (*Queen's*), M.Sc. (*McMaster*), Ph.D. (*Toronto*) (*Radiology*)Andrew J. Rainbow/B.Sc. (*Manchester*), M.Sc. (*London*), Ph.D. (*McMaster*) (*Radiology*)David A. Thompson/B.Sc., Ph.D. (*Reading*) (*Engineering Physics*)Colin E. Webber/B.Sc. (*Birmingham*), M.Phil., Ph.D. (*Surrey*) (*Radiology*)Brian C. Wilson/B.Sc., Ph.D. (*Glasgow*) (*Radiology*)Douglas R. Wyman/B.Math. (*Waterloo*), Ph.D. (*McMaster*) (*Radiology*)**Senior Demonstrator**J. Everett Cairns/B.Eng., M.Sc. (*McMaster*)**Department Notes:**

1. The Department reserves the right to withdraw a Level III or IV course which is not specifically required in a Physics programme if the registration falls below four.
2. Students in Level III or IV of Physics programmes will find a number of relevant electives among offerings of the Department of Biology and the Department of Engineering Physics.

**Courses****PHYSICS 1A06 MECHANICS, ELECTRICITY AND MODERN PHYSICS**

Lectures and laboratory work on mechanics, electricity, atomic and nuclear physics. Primarily intended for students proceeding in the physical sciences. Three lectures, one lab (three hours) every other week; two terms

Prerequisite: At least 70% in OAC Physics, and registration in MATH 1A06, 1AA6 or ARTS &amp; SCI 1D06, and MATH 1B03

Antirequisite: PHYSICS 1B06, 1C06

**PHYSICS 1B06 GENERAL PHYSICS I**

Lectures, demonstrations, and laboratory work in general physics. This course places less stress on the use of mathematics, and covers a wider range of topics, than Physics 1A06. Intended primarily for students proceeding in the life sciences.

Three lectures, one lab (three hours) every other week; two terms

Prerequisite: At least 60% in OAC Physics, and registration in one of MATH 1A06, 1AA6, 1C06 or ARTS &amp; SCI 1D06

Antirequisite: PHYSICS 1A06, 1C06

**PHYSICS 1C06 INTRODUCTORY PHYSICS**

Lectures, demonstrations and laboratory work in physics, with particular stress on topics in mechanics, wave motion, optics and electricity, for students with less than 60% in, or without OAC Physics.

Three lectures, one tutorial, one lab (three hours) every other week; two terms

Prerequisite: Registration in one of MATH 1A06, 1C06, ARTS &amp; SCI 1D06

Antirequisite: PHYSICS 1A06, 1B06, OAC PHYSICS with at least 60%

**PHYSICS 1D03 INTRODUCTORY MECHANICS**

A course for engineering students. Statics, kinematics, Newtonian dynamics, energy.

Three lectures; one lab (three hours) every other week; one term

Prerequisite: Registration in Engineering I

**PHYSICS 1E03 WAVES, ELECTRICITY AND MAGNETIC FIELDS**

A course for engineering students. Oscillations and waves, interference; electrostatics, electric potential, circuit elements; magnetic fields, magnetic induction.

Three lectures, one lab (three hours) every other week; one term

Prerequisite: Registration in Engineering I

**PHYSICS 2A03 GENERAL PHYSICS II**

A sequel to Physics 1B06. Electricity and magnetism with an emphasis on applications to chemistry.

Three lectures; one term

Prerequisite: One of PHYSICS 1A06, 1B06, 1C06, and one of MATH 1A06, 1AA6, 1C06, ARTS &amp; SCI 1D06

Antirequisite: PHYSICS 2B06

**PHYSICS 2B06 ELECTRICITY AND MAGNETISM**

Electrostatics, D.C. and A.C. circuits, the magnetic field; Faraday's law of induction; Maxwell's equations.

Three lectures, first term; two lectures, second term; one lab (three hours) every other week; two terms

Prerequisite: One of PHYSICS 1A06, 1B06, 1C06

Corequisite: Concurrent registration in MATH 2G03 and 2O03 or in 2A06 and 2C03 or in 2N03.

Antirequisite: PHYSICS 2A03

**PHYSICS 2C03 SPECIAL RELATIVITY AND PARTICLE PHYSICS**

Lorentz transformations, relativistic kinematics, collisions; an introduction to ideas of modern particle physics, fundamental interactions and the building blocks of matter.

Three lectures, first term

Prerequisite: Registration in an Honours programme in Physics or a programme in Engineering Physics or Honours Mathematics.

**PHYSICS 2D03 MECHANICS**

Dynamics of a particle, central field problem, many-particle systems, the mechanics of rigid bodies, Lagrange's equations.

Three lectures, second term

Prerequisite: Registration in an Honours programme in Physics or a programme in Engineering Physics or Honours Mathematics

Antirequisite: PHYSICS 2G03

**PHYSICS 2E03 ASTRONOMY AND THE SOLAR SYSTEM**

Basic observational astronomy. Historical development of ideas about the solar system. A modern view of the planets; the origin and evolution of the solar system.

Three lectures; one term

Prerequisite: One of PHYSICS 1A06, 1B06, 1C06 and one of MATH 1A06, 1AA6, 1C06 or ARTS & SCIENCE 1D06

Offered in 1993-94, alternating with PHYSICS 2F03.

**PHYSICS 2F03 A SURVEY OF STELLAR AND GALACTIC ASTRONOMY**

The physical properties of stars and stellar evolution. The interstellar medium. Galactic structure. Normal and peculiar galaxies. Cosmology and the large-scale distribution of matter in space.

Three lectures; one term

Prerequisite: One of PHYSICS 1A06, 1B06, 1C06 and one of MATH 1A06, 1AA6, 1C06, ARTS & SCI 1D06

Offered in 1994-95, alternating with PHYSICS 2E03.

**PHYSICS 2G03 MECHANICS OF A PARTICLE**

Vectorial treatment of the mechanics of a particle in three dimensions. Special Relativity.

Two lectures, one tutorial; one term

Prerequisite: One of PHYSICS 1A06, 1B06, 1C06, and MATH 1B03 or registration in MATH 2G03

Antirequisite: PHYSICS 2D03

**PHYSICS 2H03 THERMAL PHYSICS**

Introduction to heat and the kinetic theory of gases.

Three lectures, one lab (three hours); one term

Prerequisite: One of PHYSICS 1A06, 1B06, 1C06 and one of MATH 1A06, 1AA6, 1C06, ARTS & SCI 1D06

Antirequisite: CHEM 2P06

**PHYSICS 2J03 PHYSICS OF MUSICAL SOUND**

Sound waves, production of sound by musical instruments; properties of the ear, musical scales and intervals; auditorium acoustics.

Three lectures with demonstrations; one term

Prerequisite: Registration in Level II, III or IV of a non-science programme. Knowledge of Grade 12 Mathematics would be helpful.

**PHYSICS 2M03 MECHANICS**

An introduction to mechanics including kinematics, dynamics, and rotational dynamics.

Three lectures, one tutorial; one term

Prerequisite: Registration in Level II, III or IV of a Physical Education programme.

Same as first term of PHYSICS 1C06.

**PHYSICS 3A03 RELATIVITY**

An introduction to general relativity.

Three lectures; one term

Prerequisite: PHYSICS 2C03 and registration in any Honours programme in Science or in the Faculty of Engineering

Offered in 1994-95 and in alternate years.

**PHYSICS 3B06 ELECTRONICS**

NeTwork theory and filters, semiconductor devices, amplifier circuits, D.C. power supplies, integrated circuits, operational amplifiers and digital circuits.

Two lectures, both terms; one lab (two hours); two terms

Prerequisite: PHYSICS 2B06 or both ENG PHYS 2A03 and 2E04

**PHYSICS 3C03 ANALYTICAL MECHANICS**

Variational principles, Lagrange's equations, small oscillations, Hamilton's equations, canonical transformations, Hamilton-Jacobi theory, canonical perturbation theory, continuous systems and fields.

Three lectures; one term

Prerequisite: Credit or registration in, MATH 3C03 and registration in any Honours Science programme or any programme in the Faculty of Engineering; or registration in Honours Mathematics and Physics; or permission of the instructor.

Offered in 1993-94 and in alternate years.

**PHYSICS 3G03 SEISMOLOGY**

Methods of seismic exploration; earthquakes; studies of the earth's interior.

Three lectures; one term

Prerequisite: PHYSICS 2D03, or 2G03, and either MATH 2G03 and 2O03 or 2A06 and 2C03

Offered in 1994-95 and in alternate years.

**PHYSICS 3H04 INTERMEDIATE LABORATORY**

Experiments in atomic and neutron physics, optics and spectroscopy, mechanics.

One lecture, one term; one lab (three hours) two terms

Prerequisite: PHYSICS 2B06 and credit or registration in PHYSICS 3M03 or 3O03

**PHYSICS 3K04 THERMODYNAMICS AND STATISTICAL MECHANICS**

The laws of thermodynamics, with emphasis on the mathematical structure of the theory; classical and quantum statistical mechanics.

Two lectures; two terms

Prerequisite: PHYSICS 2H03 and either MATH 2G03 and 2O03 or 2A06 and 2C03

Antirequisite: CHEM 4Y03

**PHYSICS 3M03 QUANTUM MECHANICS AND ITS APPLICATIONS I**

An introductory course in quantum mechanics with applications to natural phenomena.

Three lectures; one term

Prerequisite: PHYSICS 2B06 or ENG PHYS 2A03 and 2E04 or ENGINEER 2M04, and MATH 3C03; or registration in Honours Mathematics and Physics. MATH 3C03 may be taken concurrently.

**PHYSICS 3MM3 QUANTUM MECHANICS AND ITS APPLICATIONS II**

A continuation of Physics 3M03.

Three lectures; one term

Prerequisite: PHYSICS 3M03

**PHYSICS 3N03 PHYSICAL OPTICS**

Interference; Fraunhofer and Fresnel diffraction; Maxwell's equations and the electromagnetic character of light; polarization and double refraction; interference of polarized light; selected topics in modern optics.

Three lectures; one term

Prerequisite: PHYSICS 2B06 or ENG PHYS 2A03 and 2E04, and MATH 2G03 and 2O03, or 2A06 and 2C03, or 2P04 and 2Q04

Antirequisite: PHYSICS 3Q03

**PHYSICS 3O03 MODERN PHYSICS**

Phenomenological basis for quantum physics, topics from atomic and photon physics; wave phenomena; Schrödinger equation for one dimensional systems.

Three lectures; one term

Prerequisite: PHYSICS 2A03 or 2B06

Antirequisite: PHYSICS 3M03

**PHYSICS 3Q03 INTRODUCTORY QUANTUM MECHANICS**

Operator algebra. The Schrödinger equation. The square well, harmonic oscillator, barriers, perturbations, transition matrix elements, and selected three dimensional problems.

Three lectures; one term

Prerequisite: PHYSICS 3O03 and MATH 3C03

Antirequisite: PHYSICS 3MM3

**PHYSICS 3R03 COMPUTATIONAL MEDICAL PHYSICS**

A problem-based introduction to the use of numerical methods in medical physics.

Three lectures, one lab (three hours); one term

Prerequisite: Registration in Level III Honours Medical and Health Physics

First offered in 1994-95.

**PHYSICS 3S03 PHYSICS OF THE EARTH**

Special topics in physics applied to earth sciences. Structure of the earth's interior, geomagnetism, global tectonics, nuclear techniques in geophysics.

Three lectures; one term

Prerequisite: PHYSICS 2B06 or ENG PHYSICS 2A03 and 2E04, and MATH 2G03 and 2O03 or 2A06 and 2C03

Offered in 1993-94 and alternate years.

**PHYSICS 3T03 INTERACTION OF RADIATION WITH MATTER**

The interactions of nuclear radiations with matter: detectors, dosimetry, tracer methods, the production and use of X-rays.

Three lectures; one term

## 210 POLISH

Prerequisite: Credit or registration in PHYSICS 3M03 or 3O03

### PHYSICS 3X03 STARS AND STELLAR SYSTEMS

Observational properties of stars. Distance measurement in space. Galactic structure; properties of Galaxies, and cosmology.

Three lectures and occasional lab periods; one term

Prerequisite: PHYSICS 2D03 or 2G03, PHYSICS 2B06 and 2H03, COMP SCI 1MA3

*Offered in 1993-94, alternating with PHYSICS 3Y03.*

### PHYSICS 3Y03 STELLAR STRUCTURE

The physics of stellar interiors. The main sequence and the life cycle of a star. Stellar evolution, including white dwarfs, neutron stars, and black holes.

Three lectures; one term

Prerequisite: PHYSICS 2D03 or 2G03, PHYSICS 2B06 and 2H03, COMP SCI 1MA3

*Offered in 1994-95, alternating with PHYSICS 3X03.*

### MATH 3C03 MATHEMATICAL PHYSICS I

Linear algebra and eigenvalue problems, partial differential equations, orthogonal functions, Fourier series, Legendre functions, spherical harmonics.

Three lectures; one term

Prerequisite: MATH 2A06 and 2C03, or 2G03 and 2O03, or 2P04 and 2Q04, and PHYSICS 2D03 or 2G03

Antirequisite: MATH 3J04, 3K03 or 3V06

### MATH 3D03 MATHEMATICAL PHYSICS II

Functions of a complex variable, probability and statistics, boundary value problems, Bessel functions.

Three lectures; one term

Prerequisite: Mathematics 3C03

Antirequisite: MATH 3J04, 3K03, 3V06

### PHYSICS 4A03 SPECIAL TOPICS

Independent study of the scientific literature, including the preparation of seminars and reports on assigned topics.

Two lectures or seminars; two terms

Prerequisite: Registration in a programme in which PHYSICS 4A03 is required or is a specified option.

Antirequisite: PHYSICS 4A02

### PHYSICS 4B04 ELECTROMAGNETIC THEORY

Development of Maxwell's equations; multipoles, series solutions, special relativity and radiation from dipoles.

Two lectures; two terms

Prerequisite: PHYSICS 2B06 or ENG PHYS 2A03 and 2E04, and MATH 3D03; or registration in Honours Mathematics and Physics

### PHYSICS 4D06 DIGITAL LOGIC AND COMPUTER SYSTEMS

The design and use of digital logic systems and their application to data acquisition and control techniques. The project-oriented laboratory involves both hardware and software.

Two lectures, one lab (three hours); two terms

Prerequisite: PHYSICS 2B06, or ENG PHYS 2A03 and 2E04

Antirequisite: COMP ENG 3HB3, ELEC ENG 2H03, 3H03

### PHYSICS 4E03 NUCLEAR PHYSICS

Nuclear masses and stability; radioactivity and nuclear reactions; elementary nuclear models.

Three lectures; one term

Prerequisite: PHYSICS 3MM3, or a grade of at least B- in PHYSICS 3Q03 or registration in Level IV Honours Medical and Health Physics or Honours Applied Physics (Medical and Health Option) or Physics Major (Medical and Health Option).

### PHYSICS 4F03 QUANTUM MECHANICS

A sequel to Physics 3MM3, including general structure of quantum mechanics, matrix mechanics, perturbation theory, and the variational method.

Three lectures; one term

Prerequisite: PHYSICS 3MM3, and MATH 3D03; or registration in Honours Mathematics and Physics

### PHYSICS 4G03 COMPUTATIONAL PHYSICS

A course using microcomputers to solve selected problems in physics. The emphasis is in applying computational methods to physics, rather than numerical methods or computer programming.

One lab (three hours); one term

Prerequisite: PHYSICS 3MM3; COMP SCI 1MA3

### PHYSICS 4J04 ADVANCED LABORATORY

Projects in atomic, nuclear and solid state physics. Three or four projects are

required, one of which may be associated with a faculty research programme. One lab (three hours); two terms

Prerequisite: Registration in a programme in which PHYSICS 4J04 is required or is a specified option; or permission of Chair of Department.

### PHYSICS 4K03 SOLID STATE PHYSICS

Crystal structure and binding; lattice vibrations; electron energy bands; metals and semiconductors; magnetism.

Three lectures; one term

Prerequisite: PHYSICS 3MM3 or a grade of at least B- in 3O03 and 3Q03

### PHYSICS 4Q04 RESEARCH PROJECT

An experimental or theoretical project to be carried out under the supervision of a faculty member. A report will be required.

Lab (six hours); two terms

Prerequisite: Registration in Level IV of an Honours or Major Medical and Health Physics programme; or registration in Level IV of any Physics programme, at least a C.A. of 9.0 or a C.A.A. of at least 10.0, and permission of the Chair of the Department.

### PHYSICS 4R03 RADIATION AND RADIOISOTOPE METHODOLOGY

Lectures and laboratory work in the techniques and theory of the measurement of radiation. Topics include radioactivity and radioactive decay, solid state dosimetry, principles of radioactive detectors, counting statistics and data reduction, advanced multidetector systems.

One lecture, one lab (three hours) every other week; two terms

Prerequisite: PHYSICS 2B06, or ENG PHYS 2A03 and 2E04, and registration in Honours Medical and Health Physics or Honours Applied Physics (Medical and Health Option) or Physics Major (Medical and Health Option); or permission of the instructor.

### PHYSICS 4T03 INTRODUCTION TO MEDICAL PHYSICS

Basic concepts in radiology, nuclear medicine, radiotherapy, physiological measurements and laser applications.

Three lectures; one term

Prerequisite: PHYSICS 3T03 or ENG PHYS 3D03, and MATH 2G03 and 2O03 or 2A06 and 2C03

### PHYSICS 4U03 PARTICLE PHYSICS

Mesons and baryons; the quark model; local gauge invariance; symmetries; the electromagnetic, weak and strong interactions.

Three lectures; one term

Prerequisite: Physics 4F03

For Graduate Courses see *Calendar of School of Graduate Studies.*

## PHYSIOTHERAPY

(SEE OCCUPATIONAL THERAPY AND PHYSIOTHERAPY)

## POLISH

Courses and programmes in Polish are administered within the Department of Modern Languages of the Faculty of Humanities.

### Courses

#### POLISH 1Z06 BEGINNERS'S POLISH

An introduction to basic conversational and written Polish, teaching the skills of listening, speaking, reading and writing.

Five hours (lectures and lab practice); two terms

*Students with prior knowledge of the language, as determined by a placement test, may be required to take an appropriate alternative.*

*Alternates with POLISH 2Z06.*

#### POLISH 2Z06 INTERMEDIATE POLISH

A course designed to further the student's command of oral and written Polish. It will concentrate on developing conversational skills, as well as studying basic grammatical structures and rules of composition.

Four hours; two terms

Prerequisite: POLISH 1Z06

*Alternates with POLISH 1Z06.*

# POLITICAL SCIENCE

## Faculty as of January 15, 1993

### Chair

Kim Richard Nossal

### Professors Emeriti

Adam Bromke/M.A. (*St. Andrews*), Ph.D. (*Montreal and McGill*)  
 Gordon P. Means/B.A. (*Reed College*), M.A., Ph.D. (*Washington*)  
 Derry Novak/B.A. (*Toronto*)  
 Klaus H. Pringsheim/B.A. (*California, Los Angeles*), M.A. (*Columbia*)

### Professors

Michael M. Atkinson/B.A. (*Alberta*), M.A., Ph.D. (*Carleton*)  
 William M. Chandler/B.A. (*Cornell*), Ph.D. (*North Carolina*)  
 William D. Coleman/B.A. (*Carleton*), A.M., Ph.D. (*Chicago*)  
 Marshall N. Goldstein/B.A. (*Florida*), Ph.D. (*North Carolina*)  
 Henry J. Jacek/B.S.S. (*Fairfield*), M.A., Ph.D. (*Georgetown*)  
 Thomas J. Lewis/B.A. (*Carleton*), M.A., Ph.D. (*SUNY, Buffalo*)  
 Kim Richard Nossal/B.A., M.A., Ph.D. (*Toronto*)  
 Peter J. Potichnyj/B.A. (*Temple*), M.A., Ph.D. (*Columbia*)  
 Mark Sproule-Jones/B.Sc. (*London*), M.A., Ph.D. (*Indiana*)/V.K. Copps Chair  
 in Urban Studies

Michael B. Stein/B.A. (*McGill*), M.A., Ph.D. (*Princeton*)

### Associate Professors

Howard Aster/B.A. (*McGill*), M.A. (*Yale*), Ph.D. (*London*)  
 George B. Breckenridge/M.A. (*Glasgow and Duke*), Ph.D. (*Duke*)  
 Barbara A. Carroll/B.A. (*Manitoba*), M.A. (*Carleton*), Ph.D. (*American*)  
 Roman R. March/B.A. (*Manitoba*), M.A. (*Carleton*), Ph.D. (*Indiana*)  
 Stefania S. Miller/M.A. (*McMaster*), Ph.D. (*Toronto*)  
 John W. Seaman/B.A. (*Mount Allison*), M.A. (*Dalhousie*), Ph.D. (*Toronto*)  
 Richard W. Stubbs/B.Sc. (*Wales*), M.A. (*Lancaster*), Ph.D. (*Alberta*)

### Assistant Professors

Tony Porter/B.A. (*McGill*), M.A., Ph.D. (*Carleton*)  
 Donald M. Wells/B.A. (*Western*), M.A. (*British Columbia*), Ph.D. (*Toronto*)  
 Charlotte A. B. Yates/B.A. (*Winnipeg*), M.A. (*Queen's*), Ph.D. (*Carleton*)

### Associate Members

Roy Adams/B.A. (*Pennsylvania State*), M.A., Ph.D. (*Wisconsin*)/Business  
 Rhoda E. Howard/*(Sociology)*, B.A., M.A., Ph.D. (*McGill*)  
 James J. Rice/B.A. (*Sir George Williams*), B.S.W., M.S.W. (*Calgary*), Ph.D.  
 (*Exeter*)/Social Work

## Department Notes:

- Level I Courses:** POL SCI 1B03 and POL SCI 1C03 are divided into several sections taught by different instructors. Course descriptions for the different sections of Level I courses are available from the Department of Political Science (Kenneth Taylor Hall, Room 527)
- The Department of Political Science offers courses in four main areas: Canadian Politics, Comparative Politics, Political Theory, and International Politics. The courses are grouped as follows:
 

**Canadian Politics:**  
 POL SCI 2G06, 3DD6, 3EE3, 3FF3, 3GG3, 3HH3, 3II3, 3JJ3, 3NN6, 3Z06, 4CC3, 4K06, 4O06, 4P03, 4S06, 4W06.

**Comparative Politics:**  
 POL SCI 2B06, 2K06, 2M06, 2P06, 3B06, 3D03, 3GG3, 3K06, 3M06, 3P06, 3PP3, 3QQ3, 3RR3, 3V03, 3VV3, 3W03, 3Y06, 4AA6, 4F06, 4G06, 4J06, 4P03, 4Q06.

**Political Theory:**  
 POL SCI 2O06, 3A06, 3I06, 3KK6, 3O06, 3R03, 4BB6, 4DD6, 4E06, 4S06, 4U06.

**International Politics:**  
 POL SCI 2E06, 3AA3, 3BB3, 3EE3, 3E03, 3FF3, 4F06, 4M06, 4MM6.

 The remaining courses are grouped as follows:
 

**Research Methods:**  
 POL SCI 2F06, 3G03, 3H03

**Other:**  
 POL SCI 1A06, 1B03, 1C03, 3UU3, 4Z06
- Courses Offered:**  
 Not every Political Science course listed in this Calendar is offered every year. Students should consult the Department after April 1st for the list of

courses that will be offered in the following academic year.

- Advice on Programme of Study:** All students are encouraged to seek advice from members of the Department in developing a programme of study. All Honours students are strongly advised to discuss their programme with an Undergraduate Advisor to ensure that it meets Departmental requirements.
- Prerequisites:** Students should be alerted to those Level II courses that are required to qualify for a number of Level III and Level IV courses. Students who wish to enter courses but who lack the necessary prerequisites must obtain the permission of the instructor.
- Required Courses:** POL SCI 2F06 and 2O06 are required for students enrolled in Honours Political Science programmes, and recommended for students in B.A. programmes. However, if students take both these required courses at Level III, they may experience difficulties acquiring the necessary prerequisites for courses at Levels III and IV. Therefore, the Department strongly encourages students to take one of these courses at Level II and the other at Level III. Because POL SCI 2O06 is a prerequisite for Level III and IV courses in political theory, the order in which POL SCI 2O06 and 2F06 will depend on the particular course of study chosen; further advice on this may be sought from an Undergraduate Advisor.
- Limited Enrolment Courses:** Level III courses identified as "enrolment limited" have a limit of 50 students; priority will be given to Political Science students.  
 With the exception of 4Z06, enrolment in all Level IV courses is limited. In courses cross-listed in the Graduate Calendar (4BB6, 4E06, 4O06), the limit is 14 undergraduate students; in all others, the limit is 18. Admission to Level IV limited enrolment courses is by preregistration preferential ballot. Preference will be given in order to students in the following categories: Level IV Honours and Combined Honours Political Science; Continuing Students who are in Level IV; Level III Honours Political Science programmes; B.A. in Political Science; Others.  
 All students including part-time degree students, are urged to consult the Departmental Office (Kenneth Taylor Hall, Room 527) no later than May 1, regarding balloting for the following academic year. Permission slips from the Department will be required to complete registration in Level IV limited-enrolment courses.

## Courses

### POL SCI 1B03 INTRODUCTION TO POLITICAL SCIENCE: CONCEPTS AND IDEAS

An introduction to key concepts and ideas about the state, society, and the citizen that underlie the study and the practice of politics.

Three hours (lecture and tutorials); one term

Antirequisite: POL SCI 1A06

See Department Note 1.

### POL SCI 1C03 INTRODUCTION TO POLITICAL SCIENCE: INSTITUTIONS AND ISSUES

An introductory examination of selected political institutions and political issues.

Three hours (lecture and tutorials); one term

Antirequisite: POL SCI 1A06

See Department Note 1.

### POL SCI 2B06 POLITICS IN THE U.S.A.

A study of the development, nature, and functioning of the political system of the U.S.A.

Three hours (lectures); two terms

### POL SCI 2E06 INTERNATIONAL POLITICS

A study of the institutions and processes of the international political system.

Three hours (lectures and tutorials); two terms

### POL SCI 2F06 THE SYSTEMATIC STUDY OF POLITICS

An introduction to the study of concept and theory formation, and an overview of the scope, research methods, and statistical techniques of political science.

Three hours (lectures and tutorials); two terms

Antirequisite: ECON 2B03, CHEM ENG 4C03, COMMERCE 2QA3, GEOG 2L03, PSYCH 2G03, 2R06, or any Statistics course other than STATS 2D03  
 See Department Note 6.

### POL SCI 2G06 POLITICS IN CANADA

A study of the development, nature and functioning of the political system of Canada.

Three hours (lectures and tutorials); two terms

### POL SCI 2O06 POLITICAL THEORY

An introduction to modes of thinking theoretically about politics, expressed in

## 212 POLITICAL SCIENCE

political philosophy, ethical theory, history of political thought, political science, and structuralism.

Three hours (lectures); two terms

See Department Note 6.

### **POL SCI 3A06 HISTORY OF POLITICAL IDEAS**

A study of the political ideas of some eminent thinkers from classical times to the 19th century.

Three lectures; two terms

Prerequisite: POL SCI 2O06; or permission of the instructor

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3AA3 INTERNATIONAL POLITICS IN THE POSTWAR PERIOD**

A survey of international relations from 1945 focusing on the various approaches to international politics.

Three hours (lectures and seminars); one term

Prerequisite: POL SCI 2E06

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3DD6 POLITICAL PARTICIPATION AND ELITIST POLITICS IN CANADA**

An analysis of the impact of social structure, ideology, and political culture on structures of political participation and elitist politics in Canada.

Three hours (lectures and seminars); two terms

Prerequisite: POL SCI 2G06

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3E03 THE POLITICS OF INTERNATIONAL ECONOMIC ORGANIZATIONS**

An analysis of the structure, function and politics of the principal multilateral organizations governing the postwar international economy.

Three lectures, one term

Prerequisite: POL SCI 2E06

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3EE3 INTERNATIONAL RELATIONS: NORTH-SOUTH**

An examination of recent North-South relations concentrating on such issues as commodity trade, protectionism, the debt crisis and negotiations over a new international economic order.

Three hours (lectures and seminars); one term

Prerequisite: POL SCI 2E06

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3FF3 CANADIAN FOREIGN POLICY**

An analysis of recent issues in Canada's external relations designed to indicate themes, problems and constraints in the making and execution of foreign policy in Canada.

Three hours (lectures and seminars); one term

Prerequisite: A Political Science course beyond Level I.

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3G03 STATISTICAL ANALYSIS**

An outline of levels of measurement and descriptive statistics, and a study of the logic of statistical inference and its applications.

Three hours (lectures and labs); one term

Prerequisite: POL SCI 2F06

Antirequisite: ECON 3O06 or STATS 3D06

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3GG3 POLITICS OF FEDERALISM**

An analysis of the constitutional framework, evolution, and structure of the federal system in Canada and/or other Western countries.

Three hours (lectures and seminars); one term

Prerequisite: A course in Political Science beyond Level I.

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3II3 ELECTIONS AND ELECTORAL BEHAVIOUR IN CANADA**

A study of the development, nature and functioning of the electoral process in Canada and the basis of voters' decisions.

Three hours (lectures and seminars); one term

Prerequisite: POL SCI 2G06

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3JJ3 PROVINCIAL POLITICS IN CANADA**

A study of the development, nature and functioning of the political systems of the Canadian provinces.

Three hours (lectures and seminars); one term

Prerequisite: POL SCI 2G06

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3K06 POLITICS OF THE SOVIET UNION AND ITS SUCCESSOR STATES**

The study of the development and functions of the Soviet political system and its successor states, with concentration on Belarus, Russia and Ukraine, and a comparison with the Baltic states, Central Asia, and Transcaucasia.

Three lectures; two terms

Antirequisite: POL SCI 2K06

### **POL SCI 3KK6 POLITICAL THOUGHT OF HEGEL AND MARX**

A study of Hegel and Marx through a reading of selected works, in particular Philosophy of Right and Capital.

Three hours (lectures and seminars); two terms

Prerequisite: A course in Political Theory or Philosophy

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3M06 POLITICS OF EASTERN EUROPE**

An analysis of the political structures, institutions and processes of East European political systems, with emphasis on Poland, the Czech Republic and Slovakia.

Three hours (lectures and seminars); two terms

Prerequisite: A course in Political Science beyond Level I.

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3NN6 PUBLIC LAW**

A study of the nature and function of public law, with special reference to constitutional law and judicial behaviour.

Three hours (lectures and seminars); two terms

Prerequisite: POL SCI 2G06

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3O06 MODERN POLITICAL THOUGHT**

A critical analysis of modern political ideas, from the early nineteenth century to the present time, with special emphasis on the theories of modern conservatism, liberalism, socialism, fascism and democracy.

Three lectures; two terms

Prerequisite: POL SCI 2O06 or PHILOS 1B06; or permission of the instructor

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3PP3 POLITICS IN GERMANY**

A study of the development of the German political system, including analysis of political culture, ideological traditions, parties, elites and the policy process.

Three hours (lectures and seminars); one term

Prerequisite: A course in Political Science beyond Level I.

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3QQ3 POLITICS IN FRANCE**

A study of the development and functioning of the French political system, including analysis of political culture, ideological traditions, parties, elites and the policy process.

Three hours (lectures and seminars); one term

Prerequisite: A course in Political Science beyond Level I.

*Enrolment is limited: Priority is given to students in a Political Science programme.*

### **POL SCI 3RR3 POLITICS IN ITALY**

A study of the development and functioning of the Italian political system, including analysis of political culture, ideological traditions, parties, elites and the policy process.

Three hours (lectures and seminars); one term

Prerequisite: A course in Political Science beyond Level I.

*Enrolment is limited: Priority is given to students in a Political Science programme.*

**POL SCI 3S03 LOCAL GOVERNMENT AND POLITICS IN CANADA**

A description of the laws and institutions of local government; examination of relationships with citizens and other levels of government; the dynamics of local politics.

Three hours (lectures and discussion); one term

Prerequisite: POL SCI 2G06

*Enrolment is limited: Priority is given to students in a Political Science programme.*

**POL SCI 3UU3 READING COURSE**

Topics to be arranged between an individual student and instructor.

One term

Prerequisite: Registration in Level III or IV of any programme in Political Science, and the written permission of an Undergraduate Advisor on behalf of the Department. A written proposal must be submitted to the Department prior to the term in which the course is to be taken.

**POL SCI 3W03 POLITICS IN BRITAIN**

A study of the development and functioning of the British political system, including political culture, political parties and parliamentary institutions.

Three hours (lectures and seminars); one term

Prerequisite: A course in Political Science beyond Level I or HISTORY 2N06

*Offered in alternate years.*

*Enrolment is limited: Priority is given to students in a Political Science programme.*

**POL SCI 3Z06 PUBLIC ADMINISTRATION**

An examination of the role of public administration in seeking collective solutions to common problems at all levels of government in Canada.

Three hours (lectures and seminars); two terms

Prerequisite: POL SCI 2G06, and one other Political Science course beyond Level I.

*Enrolment is limited: Priority is given to students in a Political Science programme.*

**POL SCI 4AA6 PROBLEMS IN AMERICAN POLITICS**

An examination in depth of one of the important dimensions of the American political system.

Three hours (seminars); two terms

Prerequisite: POL SCI 2B06. A permission slip from the Department is required for registration in this course. Open only to Level IV Students.

*Offered in alternate years.*

*Enrolment is limited.*

**POL SCI 4BB6 THE TRIAL OF SOCRATES**

Plato's understanding of the status of philosophy with respect to politics and rhetoric on the basis of the dialogues thematically connected to the trial and death of Socrates.

Three hours (seminars); two terms

Prerequisite: Registration in Level IV of any programme, and a course in Political Theory. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4DD6 CRITIQUES OF MARX'S THOUGHT**

Specific topics in Marx's thought, such as class struggle, imperialism, crisis theory, the role of the state and others, will be evaluated in the light of contemporary criticism.

Two hours (seminar); two terms

Prerequisite: POL SCI 3KK6; or permission of the instructor. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4E06 LIBERAL-DEMOCRATIC THEORY AND MARKET SOCIETY**

This course seeks to trace the emergence and to assess the adequacy of the contemporary liberal-democratic theory of the welfare and regulatory state.

Two to three hours (seminars); two terms

Prerequisite: Registration in Level IV of any programme, and a course in Political Theory. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4F06 HUMAN RIGHTS: INTERNATIONAL AND NATIONAL**

An examination of the concept of human rights as reflected in international and national declarations and practices.

Three hours (seminar); two terms.

Prerequisite: Six units of International Relations, and six units of Comparative

Politics. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4G06 COMPARATIVE PUBLIC POLICY**

A critical analysis of the formation, content and impact of public policy within advanced industrial societies.

Three hours (seminar); two terms.

Prerequisite: Six units of Comparative Politics. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4J06 COMPARATIVE POLITICS: EVOLUTION OF SOVIET TYPE SYSTEMS**

A comparative analysis of the political ideologies, institutions and practices of former communist political systems.

Seminar; two terms

Prerequisite: Six units of Comparative Politics. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

*Offered in alternate years.*

**POL SCI 4K06 ADVANCED TOPICS IN PUBLIC ADMINISTRATION**

An examination in depth of one or more of the important topics, problems, or perspectives in the study of public administration.

Three hours (seminar); two terms.

Prerequisite: POL SCI 3Z06; open only to Level IV students. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4M06 ISSUES IN INTERNATIONAL POLITICS**

An examination of selected topics in international politics and foreign policy.

Two hours (seminars); two terms

Prerequisite: Registration in Level IV of any programme, and a course in International Relations. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4MM6 INTERNATIONAL RELATIONS OF THE PACIFIC RIM**

An examination of the major international and regional economic and strategic issues that currently preoccupy the governments and peoples of the Pacific Rim.

Three hours (seminars); two terms

Prerequisite: Registration in Level IV of any programme, and a course in International Relations. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4O06 CANADIAN PUBLIC POLICY**

An examination of the patterns of public policy in Canada and a critical evaluation of several types of explanation.

Seminar (three hours); two terms

Prerequisite: POL SCI 2G06. Open only to Level IV students. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4Q06 POLITICAL SYSTEMS OF DEVELOPING AREAS**

An examination of the social movements and political systems of the non-Western less-developed areas of the world. Consideration is given to techniques of analysis and to theories of modernization and development as applied to Third World countries.

Three hours; two terms

Prerequisite: Six units of Comparative Politics. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4S06 CANADIAN POLITICAL THEORY**

An investigation into the character of Canadian liberalism and the various critiques of liberalism found in the works of G.P. Grant, C.B. Macpherson, George Woodcock and other Canadian political theorists.

Three hours (seminar); two terms

Prerequisite: Two courses from Political Theory, Canadian Politics, or Philosophy; or permission of the instructor. A permission slip from the Department is required for registration in this course.

*Enrolment is limited.*

**POL SCI 4U06 PROBLEMS OF POLITICAL PHILOSOPHY**

A study in detail and in depth of writings by a limited number of political thinkers, focusing upon one of the central problems of political philosophy.

Two hours (seminars); two terms

Prerequisite: A course in Political Theory. A permission slip from the Department is required for registration in this course.

Enrolment is limited.

#### **POL SCI 4W06 QUEBEC POLITICS**

The political ideology of Quebec-based parties and movements, the impact of industrialization upon Quebec culture, and the economic implications of separatism.

Three hours (seminar); two terms

Prerequisite: POL SCI 2G06. A permission slip from the Department is required for registration in this course.

Enrolment is limited.

#### **POL SCI 4Z06 HONOURS ESSAY**

A major piece of scholarly writing designed to cap the undergraduate Honours programme in Political Science. The subject matter is to be different from that covered in 3UU3, if the student is registered or has credit in that course.

Two terms

Prerequisite: Registration in Level IV of any Honours programme in Political Science. For registration in the summer, written permission of the Course Coordinator is also required.

For Graduate Courses, see *Calendar of School of Graduate Studies*.

## PSYCHOLOGY

### Faculty as of January 15, 1993

#### Chair

H.P. Weingarten

#### Professors Emeriti

Bernard R.W. Heron/M.A., Ph.D. (*McGill*)

Herbert M. Jenkins/A.B. (*Oberlin*), Ph.D. (*Harvard*)

Alfred B. Kristofferson/B.S., M.A., Ph.D. (*Michigan*)

P. Lynn Newbigging/B.A. (*Saskatchewan*), M.A. (*Toronto*), Ph.D. (*London*)

#### Professors

Lorraine G. Allan/B.A., M.A. (*Toronto*), Ph.D. (*McMaster*)

Ian M. Begg/B.A., M.A., Ph.D. (*Western*)

Lee R. Brooks/A.B. (*Columbia*), M.S., Ph.D. (*Brown*)

D. William Carment/B.A. (*Saskatchewan*), M.A., Ph.D. (*Toronto*)

Martin Daly/B.A. (*Toronto*), M.A. (*McGill*), Ph.D. (*Toronto*)

Denys deCatanzaro/B.A., M.A. (*Carleton*), Ph.D. (*British Columbia*)

Bennett G. Galef/A.B. (*Princeton*), M.A., Ph.D. (*Pennsylvania*)

Larry L. Jacoby/B.A. (*Washburn*), M.A., Ph.D. (*Southern Illinois*)

Betty A. Levy/B.A. (*Dalhousie*), M.A., Ph.D. (*Toronto*)

Stephen W. Link/B.A. (*Colorado*), Ph.D. (*Stanford*)

Daphne M. Maurer/B.A. (*Swarthmore*), M.A. (*Pennsylvania*), Ph.D. (*Minnesota*)

G. Rolfe Morrison/B.Sc., M.Sc. (*McGill*), Ph.D. (*Brown*)

John R. Platt/B.A. (*Kansas*), Ph.D. (*Texas*)

Roy M. Pritchard/B.Sc., Ph.D. (*Reading*)

Ronald J. Racine/B.Sc. (*Oregon*), M.Sc., Ph.D. (*McGill*)

Larry E. Roberts/B.A., Ph.D. (*Minnesota*)

Shepard Siegel/A.B. (*New York*), M.S., Ph.D. (*Yale*)

Grant K. Smith/B.Sc., Ph.D. (*McGill*)

Harvey Weingarten/B.Sc. (*McGill*), M.S., M.Phil., Ph.D. (*Yale*)

#### Associate Professors

Richard B. Day/B.A. (*Massachusetts*), M.A. (*Iowa*), Ph.D. (*McMaster*)

Stephen P. Tipper/B.Sc. (*Huddersfield*), M.Sc. (*Sussex*), D.Phil. (*Oxford*)

#### Assistant Professors

James R. Blackburn/B.Sc. (*McGill*), M.A., Ph.D. (*British Columbia*)

Paula J. Durlach/B.A. (*Swarthmore*), M.S., Ph.D. (*Yale*)

David W. Jamieson/B.Sc. (*Toronto*), M.A., Ph.D. (*Waterloo*)

Laurel J. Trainor/ARCT (*Royal Conservatory of Toronto*), B.Mus., M.A., Ph.D. (*Toronto*)

#### Associate Members

Marianne W. Kristofferson/ (*Psychiatry*) B.A., Ph.D. (*Cincinnati*)

Charles E. Cunningham (*Psychiatry*)/B.A. (*California State*), M.A. (*San Diego*)

State), Ph.D. (*The American University*).

Christopher David Rollo/ (*Biology*), B.Sc., M.Sc. (*Guelph*), Ph.D. (*British Columbia*)

Henry Szechtman/ (*Biomedical Sciences*) B.Sc., Ph.D. (*Pittsburgh*)

#### **Department Notes:**

1. The University reserves the right to limit enrolment in any course. Where priorities have to be established, first consideration will be given to Honours B.Sc. and Honours B.A. Psychology students.
2. Registration in all courses marked \*\* (i.e. selected topics, independent research, individual readings and honours essays) requires written permission of the Department. Registration with appropriate permission must be completed no later than the last day for registration as stated in the Calendar under *Sessional Dates*.
3. In certain cases students lacking the specific prerequisites listed for a course may be deemed, by the course instructor, to have equivalent qualifications. In such cases permission to register in the course may be requested from the instructor.

#### **Courses**

##### **PSYCH 1A06 GENERAL PSYCHOLOGY**

A broad survey of the subject matter of psychology. Topics covered include physiological psychology, perception, learning, animal behaviour, development, cognition, psychopathology and social psychology.

Three hours (lectures and tutorials); two terms

##### **PSYCH 2A03 THEORIES OF HUMAN DEVELOPMENT**

A general survey of human development with an emphasis on the childhood years.

Three lectures; one term

Prerequisite: PSYCH 1A06

Antirequisite: PSYCH 3G03

##### **PSYCH 2B03 PERSONALITY**

An introduction to the scientific study of personality which will consider theory, assessment and research in five approaches to personality: psychodynamic, biological, trait, behavioural and humanistic.

Three lectures; one term

Prerequisite: PSYCH 1A06

##### **PSYCH 2C03 INTRODUCTION TO SOCIAL PSYCHOLOGY**

An overview of research and theory in areas such as social perception, attitude and attitude change, social influence, interpersonal attraction, altruism, aggression, small group processes.

Three lectures; one term

Prerequisite: PSYCH 1A06

##### **PSYCH 2E03 SENSORY PROCESSES**

General processes mediating sensation and perception. Topics include neural principles of sensory pathways, the measurement of perception and the role of sensory processes in behaviour.

Three lectures; one term

Prerequisite: PSYCH 1A06

##### **PSYCH 2F03 FUNDAMENTALS OF NEUROSCIENCE**

Fundamentals of nervous system and endocrine function in humans and animals, including neurophysiology, neural transmission and neuroanatomy.

Prerequisite: PSYCH 1A06 and BIOLOGY 1A06

Antirequisite: PSYCH 3F03

##### **PSYCH 2G03 PSYCHOLOGICAL STATISTICS**

An introduction to descriptive statistics and to the logic of statistical inference. This course is intended to provide an understanding of statistical procedures commonly found in the psychological literature.

Three lectures; one term

Prerequisite: STATS 1L03 or MATH 1L03 or any other three units of Level I Mathematics, and registration in B.A. Psychology

Antirequisite: PSYCH 2R06, 2R03, 2RR3, STATS 2R06, or equivalent

Prerequisite (starting 1994): One of MATH 1A06, 1AA6, 1C06, 1B03 or 1M03, and registration in B.A. Psychology or B.A. Psychology Major.

Antirequisite: PSYCH 2R06, 2R03, 2RR3, STATS 2R06 or equivalent

##### **PSYCH 2H03 HUMAN LEARNING AND COGNITION**

The psychological study of knowledge and how people use it. Topics include pattern recognition, remembering and reasoning.

Three lectures, one term

Prerequisite: PSYCH 1A06



**PSYCH 2003 NEUROPSYCHOLOGY I**  
Neural organization and the relationship between human brain function and behaviour.

Three lectures; one term

Prerequisite: PSYCH 1A06

Antirequisite: PSYCH 2F03, 2W06, 3F03

**PSYCH 2R03 RESEARCH DESIGN AND STATISTICS FOR PSYCHOLOGISTS I**

Statistical principles in the design and analysis of experiments in psychology. Parametric and non-parametric techniques for single sample and multi sample designs.

Three lectures; one term

Prerequisite: One of MATH 1A06, 1C06, 1M03, 1N06 and registration in a Psychology or B.Sc. Life Sciences or Honours Science programme

Antirequisite: PSYCH 2R06 or STATS 2D03, 2MA3, 2MB3, 2M03 or 2R06

Prerequisite (starting 1994): One of MATH 1A06, 1AA6, 1C06 or both MATH 1B03 AND 1M03, and registration in a Psychology, B.Sc. Life Science or Honours Science programme

Antirequisite: PSYCH 2R06, STATS 2D03, 2MA3, 2MB3, 2M03 or 2R06

**PSYCH 2RR3 RESEARCH DESIGN AND STATISTICS FOR PSYCHOLOGISTS II**

Advanced statistical principles in the design and analysis of experiments in psychology. Parametric and non-parametric techniques for Two sample and multi sample designs.

Three lectures; one term

Prerequisite: PSYCH 2R03 and registration in a Psychology, B.Sc. Life Science or Honours Science programme; or PSYCH 2G03 with permission of the instructor.

Antirequisite: PSYCH 2R06 or STATS 2D03, 2MA3, 2MB3, 2M03 or 2R06

**PSYCH 2T03 PRINCIPLES OF CONDITIONING**

An experimental survey of conditioning processes based on the study of animal behaviour.

Three lectures; one term

Prerequisite: PSYCH 1A06

**PSYCH 3A03 AUDITION**

An introduction to auditory perception. The emphasis is on the application of classical and modern psychoacoustical methods to the development of theories of hearing.

Three lectures; one term

Prerequisite: PSYCH 2E03 and registration in a Psychology, B.Sc. Life Science or Honours Science programme.

**PSYCH 3B03 SPECIAL POPULATIONS**

Selected topics in developmental disability, perceptual or cognitive handicap, or behavioural disorder.

Three lectures; one term

Prerequisite: Registration in a Psychology, B.Sc. Life Science or Honours Science programme

*Psychology 3B03 may be repeated for a maximum of six units credit provided each repetition is on a different population and with the permission of the instructor.*

**PSYCH 3C06 SOCIAL PSYCHOLOGY LABORATORY**

Students collect, analyse and interpret data, and in the second term carry out a research project of their own design.

Two lectures, one lab (three hours); two terms

Prerequisite: Permission of the department which must be obtained by March 1, and PSYCH 2C03, and one of PSYCH 2R06 or 2RR3, or STATS 2R06

*Enrolment is limited.*

**PSYCH 3D03 SELECTED TOPICS IN SOCIAL PSYCHOLOGY**

Study of research on attitudes and attitude change, or social influence, or dyadic relations.

Three lectures; one term

Prerequisite: PSYCH 2C03

**PSYCH 3DD3 PSYCHOLOGICAL ASPECTS OF AGING**

An examination of the cognitive and social-psychological aspects of aging: sensation, perception, attention, memory, intelligence, communication, personality, attitudes and mental health.

Three hours (lectures and seminar); one term

Prerequisite: PSYCH 1A06 and GERONTOL 1A06 or SOC SCI 2G06

Cross-list: GERONTOL 3D03. Students in a Psychology programme (except those in Gerontology and Psychology) must register for this course as PSYCH 3DD3.

**PSYCH 3E03 AUDITION LABORATORY**

Experimental investigation of the role of auditory processes in the perception of music. The emphasis is on all phases of experimentation including report writing.

One lab (three hours); one term

Prerequisite: Permission of the department which must be obtained by March 1, and PSYCH 3A03, and one of PSYCH 2R06 or 2RR3, or STATS 2R06.

*Enrolment is limited.*

**PSYCH 3FF3 PHYSIOLOGICAL PSYCHOLOGY**

Advanced topics in physiological psychology with an emphasis on the neurobiology of learning and memory.

Three hours (lectures and seminar); second term

Prerequisite: PSYCH 2F03 or 3F03

**PSYCH 3G03 DEVELOPMENT DURING INFANCY**

Social and cognitive development in the first Two years of life. Topics include fetal development, development of perception, memory and concepts.

Three lectures; one term

Prerequisite: Successful completion of the requirements for Level II Psychology

Antirequisite: PSYCH 3M06

**PSYCH 3H03 INTELLECTUAL DEVELOPMENT AFTER INFANCY**

The development of perception, memory, language and concepts after infancy.

Three lectures; one term

Prerequisite: PSYCH 3G03, and PSYCH 2G03, 2R06 or 2R03

**PSYCH 3I03 PRACTICA IN PSYCHOLOGY**

Supervised laboratory and field placements will be arranged for a maximum of 16 students each year. The placements may vary from year to year, but will include cognitive, language, perceptual, memory, neuropsychological and behavioral disorders. A 20 page final report must be submitted to the co-ordinator by April 1. Applications must be submitted to the co-ordinator by February One of the preceding year, with selection for placements announced by March 15.

Prerequisite: PSYCH 2RR3, registration in Level III or IV of an Honours Psychology, or Combined Honours Psychology programme, and permission of the co-ordinator.

*Enrolment is limited.*

**PSYCH 3J03 NEUROPHYSIOLOGY OF VISION**

Neurophysiological and clinical aspects of perceptual processes. One component of the course will examine perceptual processes in terms of the major visual pathways and brain structures. The second component will relate this to specific perceptual deficits.

Three lectures; one term

Prerequisite: PSYCH 2E03 and 2H03

**PSYCH 3K03 PSYCHOLOGICAL MEASUREMENT**

Theory of psychological testing and measurement. Topics include the statistical bases and assumptions of measurement, test validity and reliability and the measurement of human characteristics.

Three lectures; one term

Prerequisite: PSYCH 1A06, and one of PSYCH 2G03, 2R06, 2R03, Statistics 2R06. Students with grades less than B- in PSYCH 2G03 are advised not to enrol in this course.

**PSYCH 3L03 LABORATORY IN ANIMAL CONDITIONING**

Students undertake experimental exercises intended to demonstrate principles of simple learning. Experiments are conducted at times of the student's choosing within normal hours of operation.

Tutorials, lab by appointment; one term

Prerequisite: PSYCH 2T03 and permission of the department which must be obtained by March 1.

Antirequisite: PSYCH 2U03

*Enrolment is limited.*

**PSYCH 3M03 MOTIVATION AND EMOTION**

Theory and data concerning human and nonhuman motivation and emotion, drawing on perspectives from evolution, physiology, learning, and culture.

Three lectures; one term

Prerequisite: PSYCH 2T03

**PSYCH 3N06 ABNORMAL PSYCHOLOGY**

Topics basic to clinical psychology, including models of behavioural disorder, classification of abnormal behaviour, evaluation of diagnostic practice, and determinants and treatment of mental illness.

Three lectures; two terms

Prerequisite: Registration in a Psychology, B.Sc. Life Science or Honours

Science programme, or registration in Level III or IV of a Nursing or a Social Work programme.

**PSYCH 3O03 NEUROPSYCHOLOGY II**

Neural organization and the relationship between human brain function and behaviour. A continuation of PSYCH 2O03.

Three lectures; one term

Prerequisite: PSYCH 2O03 or 2F03

Antirequisite: PSYCH 2W06

**PSYCH 3P03 PSYCHOLOGICAL TOPICS IN THINKING**

Areas to be covered include human inference, decision making, and creative problem solving.

Three lectures; one term

Prerequisite: PSYCH 2H03

**PSYCH 3Q03\*\* INDIVIDUAL STUDY I**

A library project that may extend over both terms. Students intending to register must first consult a faculty member and the course co-ordinator.

Prerequisite: Permission of the course co-ordinator

Antirequisite: PSYCH 3QQ3

**PSYCH 3QQ3\*\* INDIVIDUAL LAB STUDY I**

A laboratory project that may extend over both terms. Students intending to register must first consult a faculty member and the course coordinator.

Prerequisite: Permission of the course coordinator

Antirequisite: PSYCH 3Q03

**PSYCH 3R03 INTRODUCTION TO ANIMAL BEHAVIOUR**

The development, stimulus control, and function of behaviour as seen in evolutionary perspective. Instinctive behaviour, learned behaviour, and their interactions.

Three lectures; one term

Prerequisite: Registration in a Psychology, B.Sc. Life Science or Honours Science programme, or in a four-level programme in Biochemistry or Biology.

**PSYCH 3S03 ANIMAL BEHAVIOUR LABORATORY**

Experiments involving a wide variety of animal species, both vertebrate and invertebrate.

One lab (three hours); one term

Prerequisite: Permission of the department which must be obtained by March 1, and PSYCH 3R03, and registration in a four-level programme in Psychology or Biology.

*Enrolment is limited.*

**PSYCH 3T03 SOCIOBIOLOGY**

Social behaviour of people and other animals from the perspective of evolutionary theory. Topics include aggression, altruism, kinship, parent-offspring interaction, sex and reproduction.

Three lectures; one term

Prerequisite: One of ANTHROP 2D03, 2E03, BIOLOGY 2C03, 3J03, PSYCH 3R03

**PSYCH 3U03 HUMAN LANGUAGE PROCESSING**

Cognitive processes involved in encoding, storing and retrieving spoken and written language will be discussed in terms of information processing models.

Three lectures; one term

Prerequisite: PSYCH 2H03 and registration in Level III or IV of a Psychology, B.Sc. Life Science or Honours Science programme

**PSYCH 3V03 LABORATORY IN**

**HUMAN MEMORY AND COGNITION**

Experiments illustrating important issues in human memory and cognition. Problems in the design, analysis, and reporting of experiments will be emphasized. Individual projects required.

One lab (three hours); one term

Prerequisite: Permission of the department which must be obtained by March 1, and PSYCH 3U03, and PSYCH 2R06 or STATS 2R06, or credit in or registration in PSYCH 2RR3.

*Enrolment is limited.*

**PSYCH 3WW3 PSYCHOPHYSICS**

The course reviews, discusses, and illustrates how psychological theories and experiments about discrimination, preference and choice, are crucial to the development of modern experimental psychology.

Three lectures; one term Prerequisite: PSYCH 2E03 and PSYCH 2R06 or 2RR3

Antirequisite: PSYCH 3W06

**PSYCH 3Y03 SELECTED TOPICS IN BEHAVIOUR THEORY**

Issues of contemporary interest in animal learning and behaviour will be examined in depth.

Three lectures; one term

Prerequisite: PSYCH 2T03 and registration in a Psychology, B.Sc. Life

Science or Honours Science programme

*PSYCH 3Y03 may be repeated, for a total of six units credit, if on a different topic and with permission of the instructor.*

**PSYCH 3Z03 RESEARCH METHODS IN PSYCHOLOGY**

An advanced course examining the principles and techniques of research and data analysis in psychology.

Three lectures; one term

Prerequisite: PSYCH 2R06 or 2RR3 and registration in Honours Psychology

Antirequisite: BIOLOGY 3T03

**PSYCH 4A03 CONTEMPORARY TOPICS IN HISTORICAL PERSPECTIVE**

Discussion of the background and current status of several issues of contemporary interest.

Three hours (lectures and seminar); one term

Prerequisite: Registration in Level IV Honours Psychology or Level IV Major Psychology with a C.A.A. of at least 7.0 and permission of the instructor.

**PSYCH 4B03 HISTORY OF PSYCHOLOGY**

An historical account of the main lines of development of psychology.

Three lectures; one term

Prerequisite: Registration in Level IV Honours Psychology or Level IV Major Psychology with a C.A.A. of at least 7.0.

**PSYCH 4D06 PSYCHOLOGY THESIS**

Students conduct research projects with individual faculty members. Three copies of a completed thesis must be submitted by the end of classes.

Prerequisite: Registration in Level IV of an Honours Psychology programme with a C.A.A. of at least 9.0, and permission of the course co-ordinator, which must be obtained by March 1. If PSYCH 3Q03, 3QQ3, 4Q03, or 4QQ3 is taken concurrently with PSYCH 4D06, a different faculty member must supervise each course.

**PSYCH 4F03 SELECTED TOPICS IN NEUROSCIENCE**

Neurobiology at an advanced level. Topics include membrane biophysics, electrophysiology and pharmacology of excitable cells, synaptic and dendritic mechanisms and neural plasticity.

Three lectures; one term

Prerequisite: One of PSYCH 3F06, 3F03, BIOLOGY 3P03, 3U06, 3UU3, and registration in Level IV Honours Psychology, Biology or Biology/Psychology

**PSYCH 4G03 NEUROSCIENCE LABORATORY**

Seminars and laboratory experience in current problems in neurobiology.

Two hours, seminar; three hours lab; one term

Prerequisite: Permission of the Department which must be obtained by March 1, and PSYCH 4F03.

*Enrolment is limited.*

**PSYCH 4I03 MODELS IN BRAIN AND COGNITIVE SCIENCES**

A discussion of the contemporary literature on computer models of neural and cognitive processes with practical exercises.

Three hours (seminar); one term

Prerequisite: Registration in Level IV of an Honours programme in Psychology; or Level IV of an Honours B.Sc. programme.

**PSYCH 4Q03\*\* INDIVIDUAL STUDY II**

A library project that may extend over both terms. Students intending to register must first consult a faculty member and the course co-ordinator.

Prerequisite: Permission of the course co-ordinator. Open only to students in Level IV of an Honours Psychology programme or Level IV Major Psychology with a C.A.A. of at least 7.0.

Antirequisite: PSYCH 4QQ3

**PSYCH 4QQ3\*\* INDIVIDUAL LAB STUDY II**

A laboratory project that may extend over both terms. Students intending to register must first consult a faculty member and the course co-ordinator.

Prerequisite: Permission of the course co-ordinator. Open only to students in Level IV of an Honours Psychology programme.

Antirequisite: PSYCH 4Q03

For **Graduate Courses** see *Calendar of School of Graduate Studies*.

**RELIGIOUS STUDIES****Faculty as of January 15, 1993****Acting Chair**

G. Vallee

**Professors Emeriti**

John G. Arapura/B.A. (*Serampore College, and Bishop's College, Calcutta*), S.T.M. (*Union Theological Seminary*), M.A., Ph.D. (*Columbia*)  
 Yun-hua Jan/M.A., Ph.D. (*Visva-Bharati*)  
 Johannis J. Mol/B.D. (*Union Theological Seminary*), M.A., Ph.D. (*Columbia*)  
 Ben F. Meyer/B.A. (*Gonzaga, Spokane*), Ph.L. (*Mount St. Michael's, Spokane*), M.A. (*Gonzaga*), M.S.T. (*Santa Clara*), S.T.L. (*Alma; Los Gatos*), S.S.L. (*Istituto Biblico*), S.T.D. (*Gregorian*)

**Professors**

A. Eugene Combs/B.A. (*Trinity, San Antonio*), M.Div. (*Union Theological Seminary*), Ph.D. (*Columbia*)  
 Phyllis Granoff/B.A. (*Radcliffe College*), Ph.D. (*Harvard*)  
 David R. Kinsley/B.A. (*Drew*), B.D. (*Union Theological Seminary*), M.A., Ph.D. (*Chicago*)  
 John C. Robertson/B.A. (*Texas Wesleyan College*), B.D. (*Southern Methodist University*), S.T.M., M.A., Ph.D. (*Yale*)  
 Koichi Shinohara/B.L., M.L. (*Tokyo*), Ph.D. (*Columbia*)  
 Gerard Vallee/B.A. (*Laval*), M.A. (*Montreal*), Ph.D. (*Munster*)  
 Paul Younger/A.B. (*LaFayette*), M.A. (*Banaras*), B.D. (*Serampore*), Th.M., M.A., Ph.D. (*Princeton*)

**Associate Professors**

Ellen Badone/B.A., M.A. (*Toronto*), Ph.D. (*California, Berkeley*)  
 Louis I. Greenspan/M.A. (*Dalhousie*), Ph.D. (*Brandeis*)  
 Rosalind Lefebvre/Ph.D. (*Harvard*), Ph.D. (*Toronto*)/part-time  
 Graeme MacQueen/B.A., M.A. (*McMaster*), Ph.D. (*Harvard*)  
 Alan Mendelson/A.B. (*Kenyon College*), M.A. (*Brandeis*), Ph.D. (*Chicago*)  
 Adele Reinhartz/B.A. (*Toronto*), M.A., Ph.D. (*McMaster*)  
 Eileen Schuller/B.A. (*University of Alberta*), M.A. (*Toronto*), Ph.D. (*Harvard*)  
 S.R. Westerholm/B.A., M.A. (*Toronto*), D.Th. (*Lund*)  
 Wayne K. Whillier/B.A. (*Sir George Williams*), Ph.D. (*McMaster*)

**Assistant Professors**

P. Travis Kroeker/B.A. (*Winnipeg*), M.A. (*Manitoba*), Ph.D. (*Chicago*)  
 Zdravko Planinc/B.A., M.A. (*York*), A.M., Ph.D. (*Harvard*)  
 Robert Sharf/B.A., M.A. (*Toronto*), Ph.D. (*Michigan*)

**Department Notes:**

Students are advised to consult both the Department's Handbook and the Undergraduate Timetable for a list of the courses offered in the current year.

**Level I ...****Courses****RELIG ST 1B06 WORLD RELIGIONS**

A comparative study of religions such as Hinduism, Buddhism, Islam, Christianity, and Judaism with special reference to selected texts, traditions and thought.

Two lectures, one tutorial; two terms

**RELIG ST 1D06 MODERN STUDY OF THE BIBLE**

An introduction to the discipline of modern biblical criticism focusing on the development of selected central themes.

Two lectures, one tutorial; two terms

**RELIG ST 1E06 IDEAS OF LOVE**

This course will discuss the variety of accounts of love in Western civilization from the time of the ancient Greeks and the rise of Christianity to modernity.

Two lectures, one tutorial; two terms

**RELIG ST 1F06 WAR AND THE PROBLEM OF MEANING**

This course uses lectures, films, and selected writings from religion, politics and literature to examine, in a comparative manner, the ways in which different traditions have understood the meaning and end of war.

Two lectures, one tutorial; two terms

**RELIG ST 1I06 RELIGIOUS THEMES IN MODERN LITERATURE**

An introduction to religious themes, imagery and issues through a study of

selected modern literature.

Two lectures, one tutorial; two terms

**Asian Religions ...****RELIG ST 2A03 THE CONFUCIAN TRADITION**

A study of selected passages from early Confucian writings on education, government, family and human civilization (The Analects, Mencius, Xunzi); some attention will be given to the "new" reading of Confucian classics that "Neo-Confucian" scholars proposed to meet the challenge of Buddhism.

Two lectures, one tutorial; one term

**RELIG ST 2J06 INDIA: ITS CULTURE, SOCIAL HISTORY, RELIGION AND PHILOSOPHY**

A systematic study of the intellectual and spiritual traditions of India. The course will include political, economic and social thought, as well as religion and philosophy.

Two lectures, one tutorial; two terms

**RELIG ST 2L03 LIFE, WORK AND TEACHINGS OF MAHATMA GANDHI**

A study of the central religious and ethical ideas of Gandhi in the context of his life; in particular: his doctrines of Non-violent Struggle and Truth-act; his place in contemporary consciousness, particularly in the struggle for human harmony and preservation of the earth and its living species; and his revolutionary view of Truth itself as God.

Two lectures, one tutorial; one term

**RELIG ST 2P06 JAPANESE CIVILIZATION**

Introduction to Japanese history, society, and culture through a study of the religious traditions, literature, and art of Japan.

Two lectures, one tutorial; two terms

Cross-list: JAPANESE 2P06

**RELIG ST 2PP3 INDIAN PHILOSOPHY**

An introduction to the basic assumptions of Indian philosophy incorporating traditional stories as illustrative of important philosophical concepts.

Two lectures, one tutorial; one term

**RELIG ST 2TT3 TAOISM AND THE SEARCH FOR IMMORTALITY IN CHINA**

This course is an introduction to the Taoist tradition in China. We will begin with the classics of "Philosophical Taoism", including the Lao-tzu and the Chuang-tzu. We will then turn to the scriptures of the medieval period which taught meditation, ritual and alchemy as paths to immortality.

Two lectures, one tutorial; one term

**RELIG ST 3AA3 POPULAR RELIGION IN INDIA**

The Music, Dance and Festivals of Indian Temples will be analyzed in terms of their social, psychological and political implications.

Two lectures, one tutorial; one term

**RELIG ST 3E03 JAPANESE RELIGION**

A study of Japanese religion and how it functions in Japanese society. Topics will include Shinto, Shamanism, Ancestor Worship, Japanese Buddhism and the New Religions of Japan.

Two lectures, one tutorial; one term

Prerequisite: Open; 1B06 or 2P06 is recommended.

Cross-list: JAPANESE 3E03

**RELIG ST 3H03 STORYTELLING IN EAST ASIAN RELIGIONS**

An in-depth study of selected stories that illustrate the teachings of Confucianism, Taoism and Buddhism.

Two lectures, one tutorial; one term

**RELIG ST 3I03 STORYTELLING IN INDIAN RELIGION**

A survey of some of the many stories that were told by Buddhists, Jains and Hindus as a form of popular religious instruction and of the various uses made of humour and wit in religious teaching.

Two lectures, one tutorial; one term

**RELIG ST 3U03 THE BUDDHIST TRADITION IN INDIA AND SOUTH-EAST ASIA**

A study of Buddhist doctrine, ritual, and institutions. Topics include "primitive Buddhism," the rise of Mahayana, the doctrine of emptiness, and contemporary Theravada.

Two lectures, one tutorial; one term

**RELIG ST 3UU3 THE BUDDHIST TRADITION IN EAST ASIA**

An examination of Buddhist doctrine, ritual, and institutions in China and Japan. Emphasis will be on Pure Land, Ch'an, and Zen.

Two lectures, one tutorial; one term

Cross-list: JAPANESE 3UU3 Biblical Studies and Early Christianity

### Biblical Studies and Early Christianity ...

#### RELIG ST 2B03 WOMEN IN THE BIBLICAL TRADITION

This course will focus on the portrayal of women in the Hebrew Scriptures and the New Testament. Among the texts to be dealt with are examples of biblical narrative and legal material, the gospels, the letters of Paul and extra-biblical material.

Two lectures, one tutorial; one term

#### RELIG ST 2D06 THE BIBLICAL WORLD: AN INTRODUCTION TO THE BACKGROUND OF THE OLD TESTAMENT

The social and political world of the Old Testament period (second millennium to 300 B.C.E.). Special attention will be given to the nature of the physical environment and to the results of archaeology.

Two lectures, one tutorial; two terms

#### RELIG ST 2DD3 THE FIVE BOOKS OF MOSES

An examination of selected texts from the Pentateuch and their significance for Ancient Israelite religion and modern thought.

Two lectures, one tutorial; one term

*For a study of the whole Hebrew Bible, RELIG ST 2D06, 2DD3, 2EE3, 3M03 are recommended.*

#### RELIG ST 2EE3 THE PROPHETS

The role and teaching of biblical prophets in their ancient setting and their impact on modern religious life and thought.

Two lectures, one tutorial; one term

#### RELIG ST 2E06 INTRODUCTION TO THE STUDY OF THE NEW TESTAMENT

A survey of early Christian history and New Testament literature. Attention is paid to the Jewish background to Christianity and to the contemporary Jewish and Hellenistic worlds.

Two lectures, one tutorial; two terms

#### RELIG ST 2F03 THE SPREAD OF CHRISTIANITY

A study of the historical reasons why Christianity emerged as the religion which satisfied the quest for salvation in the early centuries of the Christian era.

Two lectures, one tutorial; one term

#### RELIG ST 2FF6 HISTORY OF ANCIENT JUDAISM

A study of Judaism from the Babylonian Exile through the Rabbinic Period, with emphasis on the growth of religious movements and the political status of Jews and Judaism.

Two lectures, one tutorial; two terms

#### RELIG ST 2VV3 BIBLICAL LITERATURE

A survey introduction to biblical literature (Old Testament, New Testament, and selected Apocrypha and Pseudepigraphica) and the history of biblical interpretation to meet the particular needs of students of Western literature.

Two lectures, one tutorial; one term

Cross-list: COMP LIT 2G03

#### RELIG ST 2Z03 GREEK AND ROMAN RELIGION

A study of the role of religion in Greek and Roman public and private life.

Three lectures; one term

Prerequisite: Registration in Level II and above

Cross-list: CLASSICS 2Z03

#### RELIG ST 3K03 INTRODUCTION TO HELLENISTIC JUDAISM

An examination of the mutual interaction of Judaism and Hellenism: the impact of Greek thought on Judaism and the contribution of Hellenistic Jewish philosophy.

Two lectures, one tutorial; one term

Prerequisite: Any of RELIG ST 2NN3, 2E06, 2FF6, 2G06, 2X03, 2Z03; or permission of the instructor

#### RELIG ST 3M03 SONGS OF DAVID: POETRY IN THE HEBREW BIBLE

A literary, exegetical, and theological study of poetry in the Hebrew Bible, with primary reference to the Psalms but including poems in the Pentateuch, Prophets, and Writings.

Two lectures; one tutorial; one term

#### RELIG ST 3O03 THE FOURTH GOSPEL

An examination of the historical and literary backgrounds of the Gospel of John followed by a study of its context, major themes, and distinctive contribution to Christian thought.

Two lectures, one tutorial; one term

Prerequisite: One of RELIG ST 2NN3, 2E06, 2G06, 2R06; or permission of the instructor

#### RELIG ST 3T03 MODERN RESEARCH IN THE LIFE AND TEACHINGS OF JESUS

An examination of the views of representative modern scholars with an analysis of the texts on which their views rest, along with a consideration of the problem of the relationship between faith and historical events.

Two lectures, one tutorial; one term

Prerequisite: One of RELIG ST 2NN3, 2E06, 2G06, 2R06; or permission of the instructor

#### RELIG ST 3X03 THE LETTERS OF PAUL

An examination of the principal themes in Paul's letters, with special emphasis on his Christology, anthropology, and soteriology. Modern scholarly views will be considered.

Two lectures, one tutorial; one term

Prerequisite: One of RELIG ST 2NN3, 2E06, 2G06, 2R06; or permission of the instructor

### Western Religious Thought ...

#### RELIG ST 2C03 MORAL ISSUES

An introduction to moral philosophy accenting biomedical ethics. Issues such as abortion, human experimentation, euthanasia, and genetic screening will be investigated in cooperation with members of the Faculty of Health Sciences.

Two lectures, one tutorial; one term

Prerequisite: Registration in Level II and above

Cross-list: PHILOS 2D03

#### RELIG ST 2G06 RELIGION AND THE CULTURE OF THE 20TH CENTURY

A study of the treatment of religion and human spirituality in formative intellectual movements of the twentieth century such as modernism, positivism, neo-Marxism and conservatism.

Two lectures, one tutorial; two terms

#### RELIG ST 2H03 ISSUES IN WAR AND PEACE

Religious thinking and practice on militarism, the restraint of war and paths to peace, including just war, nonviolence, pacifism and revolution.

Two lectures, one tutorial; one term

#### RELIG ST 2I03 RELIGION AND SOCIAL JUSTICE

An examination of conceptions of justice in modern society and their relationship to religious understandings of human nature and society.

Two lectures, one tutorial; one term

#### RELIG ST 2II3 CHRISTIANITY IN THE PATRISTIC PERIOD (100-800)

The development of Christianity in the first centuries C.E. in relation to competing alternatives such as Judaism, Graeco-Roman cults and philosophies.

Two lectures, one tutorial; one term

#### RELIG ST 2JJ3 CHRISTIANITY IN THE MEDIEVAL PERIOD (800-1500)

The development of Christianity in the Middle Ages and its relation to the political and intellectual context. Primary texts will illustrate typical aspects of medieval religion, learned and popular.

Two lectures, one tutorial; one term

#### RELIG ST 2KK3 CHRISTIANITY IN THE REFORMATION PERIOD

The place of the Reformation movement in the development of Christianity, its background, context and sequels. Attention given to the life and thought of Martin Luther and his impact on Western culture.

Two lectures, one tutorial; one term

#### RELIG ST 2R06 DIVINE JUSTICE

A study of the concept of the just God and the problem of evil with primary reference to the treatment of the issue in biblical, classical and modern thought.

Two lectures, one tutorial; two terms

#### RELIG ST 2S06 POST HOLOCAUST JUDAISM

Contemporary Jewish reflections on the tradition, on the holocaust, on Zionism, and the Jewish condition.

Two lectures, one tutorial; two terms

#### RELIG ST 2ZZ3 RELIGIOUS THEMES IN SHAKESPEARE

This course will study the presentation of religious controversies and the use of religious reference and symbolism in several of Shakespeare's plays.

Two lectures, one tutorial; one term

#### RELIG ST 3D03 GOD, REASON AND EVIL

An examination of religious understandings of the nature of reason and evil, and the issues these concepts raise for those holding religious beliefs.

Two lectures, one tutorial; one term

**RELIG ST 3KK3 POST-REFORMATION DEVELOPMENTS IN CHRISTIANITY**

Topics in Christianity (Protestant and Catholic) from the 17th to the 20th centuries. Attention is given to the interaction between secular and religious movements, and to Christianity's reaction to worldwide changes.

Two lectures, one tutorial; one term

**RELIG ST 3LL3 RELIGION AND HUMAN NATURE**

What is the nature of human nature and its fulfilment? A study of recent philosophical, scientific and religious anthropology.

Two lectures, one tutorial; one term

**RELIG ST 3MM3 SCEPTICISM, ATHEISM AND RELIGIOUS FAITH**

Is religious faith essential to, inimical to, or irrelevant to authentic human existence? A study of Nietzsche and Kierkegaard.

Two lectures, one tutorial; one term

**RELIG ST 3NN3 THE ENCOUNTER OF SCIENCE AND RELIGION**

What is the meaning of modern science, and especially, modern technology for us today as individual human beings and as a society? Readings, as time permits, from Toulmin, Kuhn, Mumford, Ellul, Bell, Grant and Huxley.

Two lectures, one tutorial; one term

**Contemporary and Comparative Religions ...**

**RELIG ST 2AA3 MYSTICISM IN HINDU AND CHRISTIAN TRADITIONS**

An exploration of the unique and common characteristics of mysticism in the Hindu and Christian traditions, both in its philosophical and popular expression through the study of selected texts.

Two lectures, one tutorial; one term

**RELIG ST 2BB3 IMAGES OF THE DIVINE FEMINE**

An examination of goddesses and religious heroines from a variety of cultures: tribal, eastern and western.

Two lectures, one tutorial; one term

**RELIG ST 2K03 MYTH**

Major definitions and theories of myth are discussed in conjunction with primary readings from mythological texts.

Two lectures, one tutorial; one term

Cross-list: ANTHROP 2KK3

**RELIG ST 2M03 DEATH AND DYING: COMPARATIVE VIEWS**

A comparative examination of death in selected religious texts, traditions and thought.

Two lectures, one tutorial; one term

Prerequisite: Registration in Level II and above

**RELIG ST 2N03 DEATH AND DYING: THE WESTERN EXPERIENCE**

An examination of death in religious experience as expressed through Western art and literature.

Two lectures, one tutorial; one term

Prerequisite: Registration in Level II and above

**RELIG ST 2O06 AN INTRODUCTION TO THE HISTORY OF THE ISLAMIC WORLD**

A survey of the history of the Islamic world to 1800: the origins of Islam, its spread through Africa and into Europe, the development of the Ottoman Empire.

Three lectures; two terms

Prerequisite: Registration in Level II and above

Cross-list: HISTORY 2E06

**RELIG ST 2QQ3 CULTS IN NORTH AMERICA**

An examination of recent religious trends in North America. The Hare Krishna Movement, the Unification Church, Scientology, Wicca, New Age Spirituality, and Satanism will be covered.

Two lectures, one tutorial; one term

**RELIG ST 2SS3 WOMEN AND RELIGION**

A study of the status and roles of women in several religions, such as Hinduism, Buddhism, Confucianism, Christianity, Judaism, and Islam. Important women religious figures and feminist theology will also be studied.

Two lectures, one tutorial; one term

**RELIG ST 2W03 RELIGION AND ECOLOGY**

Attitudes toward nature or the environment in Native, Asian and Western Religious Traditions; the underlying assumptions of our contemporary view of the natural world.

Two lectures, one tutorial; one term

**RELIG ST 2WW3 HEALTH, HEALING AND RELIGION**

An examination of the different ways in which religion and health are related. Ideas of sickness and techniques of healing will be studied in a variety of traditional and modern religious contexts.

Two lectures, one tutorial; one term

**RELIG ST 3A03 SACRAL POETRY IN RELIGIOUS TRADITIONS**

This course provides an in depth critical study in English translation of sacral poetry, from ancient, middle and modern sources, including scriptural texts, mystical writings and secular authors.

Two lectures, one tutorial; one term

**RELIG ST 3B03 NATIVE AND ETHNIC RELIGIONS IN CANADA**

A study of the effect of religion on native and ethnic identity, frontier religion and the new sects and cults.

Two lectures, one tutorial; one term

Cross-list: SOCIOL 3Q03

**RELIG ST 3BB3 MAJOR DENOMINATIONS IN CANADA**

A study of the major denominations in Canada, their history and their relation to national, regional and class identity.

Two lectures, one tutorial; one term

Cross-list: SOCIOL 3BB3

**RELIG ST 3J06 RELIGION AND MODERN SOCIETY**

An introduction to the thoughts and theories of scholars who have studied the relation between religion and society. In the first term, the emphasis will be on pre-World War II writings. In the second term, the empirical materials of the sociology of religion since World War II will be surveyed.

Two lectures, one tutorial; two terms

Prerequisite: Any course in Anthropology, Philosophy, Religious Studies or Sociology

Cross-list: SOCIOL 3M06

**RELIG ST 3JJ6 ANTHROPOLOGY OF RELIGION**

A survey and evaluation of theoretical perspectives employed by anthropologists in the study of religion. Specific ethnographic examples will be drawn primarily, but not exclusively, from non-Western cultures.

Two lectures, one tutorial; two terms

Cross-list: ANTHROP 3JJ6

**RELIG ST 3SS3 BODY, MIND AND SPIRIT**

An exploration of the relationship of body, mind and spirit from the standpoints of eastern and western religious thought with special reference to current perspectives. Course work includes experiential workshops.

Seminar (three hours); one term

Cross-list: PHYS ED 3SS3

Enrolment is limited.

**Departmental Courses ...**

**RELIG ST 3F03 APPROACHES TO THE STUDY OF RELIGION**

A study of the various ways religious phenomena can be studied, e.g. psychologically, sociologically, philosophically, theologically, comparatively, etc. Attention is also given to the history of the discipline of religious studies.

Two lectures, one tutorial; one term

Prerequisite: Six units of Religious Studies courses above Level I

**RELIG ST 4A06 HONOURS SEMINAR**

A seminar in selected topics in the study of religion, including a presentation and discussion of research conducted by students in the Honours Research Course (4J06).

Seminar (Three hours); two terms

Prerequisite: Registration in Level IV Honours Religious Studies

**RELIG ST 4J06 HONOURS RESEARCH COURSE**

Students in this course will work closely with faculty members who specialize in the fields in which they plan to write their honours essay.

Two terms

Prerequisite: Registration in Level IV Honours Religious Studies

**RELIG ST 4W06 GUIDED READING IN RELIGIOUS STUDIES**

Independent study on a topic approved by the instructor.

Two terms.

Prerequisite: Permission of the instructor

**RELIG ST 4Y03 GUIDED READING IN RELIGIOUS STUDIES**

Independent study on a topic approved by the instructor.

One term

Prerequisite: Permission of the instructor

**Sanskrit ...****SANSKRIT 3A06 INTRODUCTION TO SANSKRIT GRAMMAR**

Basic course in the elements of Sanskrit grammar. No previous knowledge of Sanskrit is required.

Three lectures; two terms

**SANSKRIT 4B06 READINGS IN SANSKRIT TEXTS**

Intermediate course with readings in selected texts.

Three lectures; two terms

Prerequisite: SANSKRIT 3A06

**Hebrew ...****HEBREW 2A06 HEBREW**

The inductive study of the Hebrew language, leading to the mastery of the general principles of grammar and syntax. Prose work throughout the year. Three lectures; two terms

**HEBREW 3A06 INTERMEDIATE HEBREW**

Extensive readings in biblical prose (selections from some or all of the following: The Pentateuch, Former Prophets, Ruth and Esther), and some readings in the second term in Rabbinic literature (Mishna and Aggada).

Two terms

Prerequisite: HEBREW 2A06

**Chinese ...**

See separate listing in the Calendar.

**Japanese ...**

See separate listing in the Calendar.

For **Graduate Courses**, see *Calendar of School of Graduate Studies*.

**RUSSIAN**

Courses and programmes in *Russian* are administered within the Department of Modern Languages of the Faculty of Humanities.

**Department Note:**

Students should note that the Department has classified its Russian language courses under the following categories:

**Introductory Level Language Course**

RUSSIAN 1Z06

**Intermediate Level Language Course**

RUSSIAN 2C06

**Advanced Level Language Courses**

RUSSIAN 3C06, 4C06

**Courses****RUSSIAN 1Z06 BEGINNER'S INTENSIVE RUSSIAN**

An intensive beginner's course designed for students with no prior knowledge of the language. This course gives the student a basic knowledge of Russian grammar, while emphasizing spoken Russian. The course is enhanced by a CALL (Computer-Aided Language Learning) module.

Four hours (including lab practice); two terms

*Students with prior knowledge of the language as determined by a placement test may be required to take an appropriate alternative.*

**RUSSIAN 2B03 20TH-CENTURY SHORT STORY**

Readings in the original language of short stories of Zoshchenko, Rasputin, Kazakov, Platonov.

Three lectures; one term

Prerequisite: RUSSIAN 1Z06

**RUSSIAN 2C06 INTERMEDIATE LANGUAGE STUDY**

Four hours; two terms

Prerequisite: OAC Russian, or RUSSIAN 1Z06

**RUSSIAN 3C06 ADVANCED LANGUAGE STUDY**

Four hours; two terms

Prerequisite: RUSSIAN 2C06

**RUSSIAN 4C06 CONVERSATION AND ADVANCED COMPOSITION**

Three lectures; two terms

Prerequisite: RUSSIAN 3C06

**RUSSIAN 4I03 INDEPENDENT STUDY**

The student will prepare, under the supervision of a faculty member, a research paper involving independent study in an area where the student has already demonstrated competence.

Tutorials; one term

Prerequisite: Registration in Level IV or a programme in Russian, and permission of the Independent Study Committee for Russian

**RUSSIAN 4T03 TOPICS IN RUSSIAN LITERATURE I**

Previous topics include: 19th-Century Lyric Poetry, 20th-Century Short Story, 19th-Century Drama. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: RUSSIAN 2C06

Antirequisite: The same topic taken under RUSSIAN 4G03

*RUSSIAN 4T03 may be repeated, if on a different topic, to a total of six units.*

*Offered in alternate years.*

**RUSSIAN 4TT3 TOPICS IN RUSSIAN LITERATURE II**

Previous topics include: Soviet Plays of the 1920s. Consult the Department concerning topic to be offered.

Seminar (two hours); one term

Prerequisite: RUSSIAN 2C06

Antirequisite: The same topic taken under RUSSIAN 4I03

*RUSSIAN 4TT3 may be repeated, if on a different topic, to a total of six units.*

*Offered in alternate years.*

**SANSKRIT**

(SEE RELIGIOUS STUDIES, SANSKRIT)

**SCIENCE**

These *Science* courses are designed primarily for students in the Humanities and Social Sciences, to give an appreciation of important areas of modern science (the exception is SCIENCE 4I03). These courses do not assume any specific background in science.

Other *Science* courses that may be of interest to students in the Humanities and Social Sciences are offered by Department. They are:

BIOCHEM 2E03

Introductory Biochemistry

BIOLOGY 1J03

Human Physiology

CHEM 1C03

General Chemistry

CHEM 2D03

Introductory Organic Chemistry

COMP SCI 1ZA3

Introduction to Computing and Computer Use

GEOLOGY 1C03

Earth Processes

PHYSICS 2J03

Physics of Musical Sound

PHYSICS 2M03

Mechanics

STATS 1A03

Introduction to Statistical Reasoning

STATS 1L03

Probability and Linear Algebra

**Courses****SCIENCE 2A03 THE NATURE OF MATTER**

Contemporary ideas about the structure of atoms and molecules; the collective behaviour of large numbers of atoms in solids, liquids, and gases and the technological implications of such behaviour.

Three lectures; one term

Prerequisite: Registration in Level II, III, or IV of a non-science programme. No mathematics is required.

**SCIENCE 2C03 CONTINENTAL DRIFT AND PLATE TECTONICS**

A review of modern ideas of crustal movement, the origin of volcanoes and earthquakes and the construction of mountain belts, as portions of the crust drift and collide.

Two lectures, one tutorial; one term

Prerequisite: Registration in Level II, III, or IV of a non-science programme

Antirequisite: GEOLOGY 1A03, 1A06, or 1C03

**SCIENCE 2D03 ASTRONOMY**

A survey of modern and historical concepts in astronomy. Light and the telescope; distance measurement in space; the structure and evolution of stars, galaxies, cosmology.

Three lectures; one term

Prerequisite: Registration in Level II, III, or IV of a non-science programme

Grade 12 Mathematics required.

**SCIENCE 2G03 THE WORLD'S SUPPLY OF FOOD**

Man's food requirements; how food is produced; alternative approaches to

alleviating world hunger.

Three lectures or two lectures, one tutorial; one term

Prerequisite: Registration in Level II, III, or IV of any programme

*Enrolment is limited to 100.*

### SCIENCE 2H03 THE MOLECULAR BASIS OF LIFE

A survey of the molecular basis of life; the current revolution in biology caused by recombinant DNA technology and its implications for the future.

Three lectures; or two lectures, one tutorial; one term

Prerequisite: Registration in Level II, III, or IV of any programme

Antirequisite: BIOLOGY 1A06 or 1G06

*Offered in alternate years.*

### SCIENCE 2K03 HEREDITY, EVOLUTION AND THE ENVIRONMENT

Introduction to the principles of human genetics and evolutionary biology, the adaptation of organisms to their environment, biological diversity and integrated ecosystems.

Three lectures or two lectures and one tutorial; one term

Prerequisite: Registration in Level II, III, or IV of any programme

Antirequisite: BIOLOGY 1A06 or 1G06

*Offered in alternate years.*

### SCIENCE 2L03 EARTH RESOURCES AND THE ENVIRONMENT

Origin and exploration of ore deposits and fossil fuels. Water resources and their pollution; radioactive waste disposal.

Two lectures, one tutorial; one term

Prerequisite: Registration in Level II, III, or IV of a non-science programme

Antirequisite: GEOLOGY 1A03, 1A06 or 1C03

### SCIENCE 4I03 INQUIRY

Inquiry seminars are designed to develop skills basic to the systematic investigation of public issues related to Science.

Prerequisite: Enrolment in an Honours (Complementary Studies Option) programme in the Faculty of Science in which Science Inquiry is required.

*Enrolment is limited.*

*First offered in 1994-95*

## SOCIAL SCIENCE

### Courses

#### SOC SCI 2B06 INTRODUCTION TO THE STUDY OF PEACE

The concept of peace; an analysis of contemporary war and of conditions for peace, grounded in specific case studies; the roles of values, ideologies and strategies in the attainment of peace; peace research as a discipline.

Three hours (lectures and discussions); two terms

#### SOC SC 2C03 GENOCIDE AND ETHNOCIDE

The general sociological and political issue of genocide approached through the analysis of three types: (1) ethnocide (Armenians, Jews, Gypsies), (2) politicide (the Ukraine, Cambodia), (3) ethnocide of indigenous peoples in settler societies.

Three hours; one term

#### SOC SC 2D03 PEACE AND DEVELOPMENT

Analysis of economies of less developed countries and the processes of transformation that govern their growth and development. Special emphasis will be placed on the relationship between development and peace. Topics include structural change, dependency theory, new economic order, self-reliance, the role of multi-nationals in the Third World, militarism and development, international aid and debt, world hunger, the global environment, world distribution of resources, industry and technology and finally, the theory and practice of unequal exchange.

Three hours; one term

#### SOC SCI 2E03 SELECTED TOPICS IN INTERDISCIPLINARY STUDIES I

An interdisciplinary examination of selected topics of current interest to social scientists. Topics will vary from year to year.

Three hours (lectures and seminars); one term

Prerequisite: Students interested in this course should consult the Office of the Associate Dean (Studies) of the Faculty of Social Sciences concerning the topics to be examined in any year.

#### SOC SCI 2F03 SELECTED TOPICS IN INTERDISCIPLINARY STUDIES II

An interdisciplinary examination of selected topics of current interest to social scientists. Topics will vary from year to year. (This course should not normally be considered as an extension of SOC SCI 2E03.)

Three hours (lectures and seminars); one term

Prerequisite: Students interested in this course should consult the Office of the Associate Dean (Studies) of the Faculty of Social Sciences concerning the topics to be examined in any year.

## SOCIAL WORK

### Faculty as of January 15, 1993

#### Director

M. Susan Watt

#### Professors Emeriti

Cyril Greenland/M.Sc. (North Wales), Ph.D. (Birmingham)

Harry L. Penny/Dip. Theol. (Union College, British Columbia), B.A., M.S.W. (British Columbia)

Michael Wheeler/B.A. (London), M.S.W. (British Columbia), Dip. Sc. Admin. (London School of Economics)

#### Professors

Michael J. MacLean/B.A. (St. Thomas), M.A. (Sussex), Ph.D. (London)

M. Susan Watt/B.A., M.S.W., Adv. Dip. S.W. (Toronto), D.S.W. (UCLA)

#### Associate Professors

Jane Aronson/B.Sc. (New University of Ulster), B.S.W., M.S.W. (McGill), Ph.D. (Toronto)

Ralph A. Brown/B.A., M.S.W. (Waterloo Lutheran), D.S.W. (UCLA)

James W. Gladstone/B.A. (McGill), M.S.W. (British Columbia), Ph.D. (Toronto)

L. William Lee/B.A. (St. Thomas, Texas), M.S.W., Adv. Dip. S.W., Ed.D. (Toronto)

J. McEwan Macintyre/B.A., M.S.W. (British Columbia), D.S.W. (Southern California)

Sally Palmer/B.A. (Western), B.S.W., M.S.W., Ph.D. (Toronto)

James J. Rice/B.A. (Sir George Williams), B.S.W., M.S.W. (Calgary), Ph.D. (Exeter)

#### Assistant Professors

Roy Cain/B.S.W., M.S.W., Ph.D. (McGill)

Patricia M. Daenzer/B.A., B.S.W., (York), M.S.W., Ph.D. (Toronto)

Nora Gold/B.S.W. (McGill), M.S.W., Ph.D. (Toronto)

Sheila Sammon/B.A. (Nazareth College, New York), M.S.W. (Toronto)

#### Lecturer

Sheree D. Meredith/B.A. (Trent), M.S.W. (Wilfrid Laurier)

#### Associate Members

N.C. Agarwal/B.A., M.A. (Delhi), Ph.D. (Minnesota), (Business)

J.A. Johnson, M.A., Ph.D. (Minnesota), (Economics)

#### Practice Instructors

Michael Balkwill/B.A., B.S.W., M.A. (McMaster)

Mel Basbaum/B.A. (Sir George Williams), M.S.W. (McGill)

Donna P. Carroll/B.A. (Brock), M.S.W. (Wilfrid Laurier)

Richard P. Csiernik/B.A., B.S.W., B.Sc. (McMaster); M.S.W. (Toronto)

Mary Ciotti/B.S.W. (Western), M.S.W. (Toronto), C.C.C.W. (Fanshaw)

Mary Ann Covi/B.A. (State University of New York at Buffalo), M.S.W. (Toronto)

Mary Forster/B.A. (Guelph), M.S.W. (Wilfrid Laurier)

M. Heather Gardner/B.A., B.S.W. (McMaster), M.S.W. (Toronto)

Heather M. Goulden/B.Sc. (London), M.S.W. (Carleton)

Gordon Greenway/B.A., M.S.W. (Carleton)

Paul Haalboom/B.A. (McMaster), M.S.W. (Carleton)

Bob Lang/B.A., B.S.W. (McMaster), M.S.W. (Wilfrid Laurier)

Steve McCann/B.A. (York), M.S.W. (Wilfrid Laurier)

R. Malcolm Powell/B.A., B.S.W., M.A. (SWP) (McMaster)

Tony Quick/B.A. (St. Mary's), M.S.W. (Dalhousie)

Shelley M. Rempel/B.A. (Toronto), B.S.W., M.A. (McMaster)

Katrina Renshaw/B.A., B.S.W. (McMaster), M.S.W. (McGill)

Brenda Symons-Moulton/B.A., B.S.W. (McMaster), M.S.W. (Wilfrid Laurier)

Bill Vickers/B.A. (Marietta College), M.S. Education (Niagara University),

M.S.W. (State University of New York at Buffalo)

Emmy C. Weisz/B.A., B.S.W. (McMaster), M.S.W. (Toronto)

Margie Woods/B.A., B.S.W., M.S.W. (Toronto)



**Department Notes:**

1. Except when designated as \* these courses are open only to students registered in the Combined B.A./B.S.W. Programme, or the B.S.W. programme for a second degree.
2. Registration in all courses marked \* listed as selected topics, independent research, individual readings and honours essays requires written permission of the Department. Registration with appropriate permission must be completed by all students, including those registered in the combined B.A./B.S.W. or B.S.W. Second Degree programmes, no later than the last day for registration as stated in the Calendar under *Sessional Dates*.

**Courses****SOC WORK 2B06 SOCIAL WELFARE: GENERAL INTRODUCTION**

Purposes and values of social welfare programmes and services. Social welfare policy and the social security system in Canada in historical perspective.

Lectures and discussion; two terms

*Term 1 of this course is the same as LABR ST 2B03 and Term 2 is the same as LABR ST 2BB3. Students in a Social Work programme must register for this course as SOC WORK 2B06.*

**SOC WORK 2C03 INTRODUCTION TO SOCIAL WORK PRACTICE**

Knowledge base; social work values, fields of practice and types of intervention.

Lectures, films, discussions, small task-groups; one term

Antirequisite: SOC WORK 2C06

**SOC WORK 2D03\* INTERPERSONAL COMMUNICATION AND INTERVIEWING**

Theories of interpersonal communication. Basic skills in interpersonal communication and interviewing.

Lectures, discussions, exercises; one term

Prerequisite: Permission of the School of Social Work is required.

Antirequisite: SOC WORK 2C06

*Enrolment is limited.*

**SOC WORK 3C03\* SOCIAL ASPECTS OF HEALTH AND DISEASE\***

Exploration of the meaning of health and sickness in our society. Organization and delivery of health care. Consideration of ethical and other issues.

Lectures, discussion and selective use of community resources; one term

Prerequisite: Permission of the School of Social Work is required by all students  
This course may be taken as elective credit by undergraduates not in Social Work.

*Enrolment is limited.*

**SOC WORK 3D06 THE PRACTICE OF GENERAL SOCIAL WORK I**

Social work intervention processes; interviewing; development of basic skills in formation of relationships with individuals, families, groups and communities. Seminars, workshops; two terms

Option of equivalent summer block in combination with SOC WORK 3DD6 (summer). Priority for summer block given to B.S.W. (Second Degree) students.

Prerequisite: SOC WORK 2B06, 2C03, 2D03, PSYCH 2A03, and registration in SOC WORK 3DD6

Antirequisite: SOC WORK 3D09

Credit in this course is dependent on achieving a minimum grade of C+ in SOC WORK 3D06 and a "Pass" in SOC WORK 3DD6

*Enrolment is limited.*

**SOC WORK 3DD6 FIELD PRACTICUM I**

Field practicum to develop basic intervention and interviewing skills, particularly in the formation of relationships with individuals, families, groups and communities. Students participate in defining learning goals and experiences. Field experience equivalent to 10 hours per week; two terms

Option of equivalent summer block placement in combination with SOC WORK 3D06 taken in the summer. Priority for summer block given to B.S.W. (Second Degree) students.

Prerequisite: Registration in SOC WORK 3D06. This course is evaluated on a "Pass/Fail" basis.

Credit in this course is dependent on receiving a "Pass" in SOC WORK 3DD6 and a minimum grade of C+ in SOC WORK 3D06.

*Enrolment is limited.*

**SOC WORK 3G03\* SOCIAL WELFARE POLICY AND PROCESS\***

Role of values and assumptions in the development of welfare policies. Analysis of key concepts in policy planning. Study of policy and programmes in selected areas.

Lectures and seminars; one term

Prerequisite: Permission of the School of Social Work is required by all students  
*This course may be taken as elective credit by undergraduates not in Social Work.*

*Enrolment is limited.*

**SOC WORK 3H03\* JUSTICE AND SOCIAL WELFARE\***

Human rights and the role of law in enhancing civil liberties in Canada. Social work, law and social change. Study of selected issues and review of administrative discretion.

Seminars; one term

Prerequisite: Permission of the School of Social Work is required by all students

*This course may be taken as elective credit by undergraduates not in Social Work.*

*Enrolment is limited.*

**SOC WORK 3J03\* TECHNOLOGY AND SOCIAL WELFARE\***

Problems of social policy posed by the impact of technology in such areas as work and leisure, income maintenance, participation in decision-making and social planning.

Seminars; one term

Prerequisite: Permission of the School of Social Work is required by all students

*This course may be taken as elective credit by undergraduates not in Social Work.*

*Enrolment is limited.*

**SOC WORK 3N03 SELECTED THEORIES OF SOCIAL WORK INTERVENTION**

Examination and analysis of social work intervention with individuals and their families.

Seminars; one term

Prerequisite: Credit or registration in PSYCH 2A03

Antirequisite: SOC WORK 4N03

**SOC WORK 3O03 HUMAN SEXUALITY**

Basic information on anatomy, physiology, psychology and sociology of sexuality and fertility. Attitudinal self-awareness, communication skills, values regarding sexual identity and roles; analysis of policy issues.

Seminars; one term

**SOC WORK 3P03\* CONCENTRATED STUDIES IN SOCIAL WORK PRACTICE**

Completion of a major project focusing on a selected social work problem or issue.

Tutorials; two terms

Prerequisite: Permission of the supervising instructor and course co-ordinator

**SOC WORK 3R03 SOCIAL WORK WITH GROUPS**

This course will provide a theoretical knowledge of group practice models for social work within an historical and didactic social work framework.

Lectures, discussions and tutorials; one term

*Enrolment is limited.*

**SOC WORK 4A03\* SOCIAL POLICY AND THE AGING POPULATION**

Critical examination of the social and economic implications of the aging population and the nature of social welfare policy with respect to the aged.

Three hours (seminar); one term

Prerequisite: Enrolment in the B.A./B.S.W. or B.S.W. (Second Degree) programme.

Cross-list: GERONTOL 4S03

*Enrolment is limited.*

**SOC WORK 4D06 THE PRACTICE OF GENERAL SOCIAL WORK II**

Seminars to deepen understanding and further develop practice skills.

Two terms

Option of equivalent block placement in combination with SOC WORK 4DD6

Prerequisite: SOC WORK 3D06, 3DD6 and registration in SOC WORK 4DD6

Antirequisite: SOC WORK 4D12

*Credit in this course is dependent on achieving a minimum grade of C+ in SOC WORK 4D06 and a "Pass" in SOC WORK 4DD6.*

*Enrolment is limited.*

**SOC WORK 4DD6 FIELD PRACTICUM II**

Field experience to refine practice skills. Students spend the equivalent of two days per week in social agencies, or with other organizations, in supervised practice.

Option of equivalent block placement in conjunction with SOC WORK 4D06.  
Prerequisite: Registration in SOC WORK 4D06. This course is evaluated on a

"Pass/Fail" basis.

*Credit in this course is dependent on receiving a "Pass" in SOC WORK 4DD6 and a minimum grade of C+ in SOC WORK 4D06.*

*Enrolment is limited.*

**SOC WORK 4G03♦ SELECTED SOCIAL ISSUES AND SOCIAL WORK PRACTICE**

Critical examination of social work practice in respect to selected social issues. Topics will vary from year to year and the School should be consulted for details for any particular year.

Seminars; one term

Prerequisite: Permission of the School of Social Work is required by all students  
*This course may be repeated if on a different topic.*

**SOC WORK 4J03♦ SOCIAL CHANGE AND SOCIAL WELFARE\***

Critical examination of the meaning of social change as a concept and event. Review of strategies of social change and of attempts to effect social change.

Seminars; one term

Prerequisite: Permission of the School of Social Work is required by all students  
*This course may be taken as elective credit by undergraduates not in Social Work.*

*Enrolment is limited.*

**SOC WORK 4K03♦ CONCENTRATED STUDIES IN SOCIAL WELFARE POLICY**

Independent study of a particular issue of interest in social welfare, and completion of a major essay or project.

Discussion and tutorials; two terms

Prerequisite: Permission of the supervising instructor and course co-ordinator

**SOC WORK 4M03♦ INTERNATIONAL AND COMPARATIVE SOCIAL WELFARE\***

Comparative perspective on problems of social structures in shaping social welfare institutions. Scope and limits of international collaboration.

Seminars; one term

Prerequisite: Permission of the School of Social Work is required by all students  
*This course may be taken as elective credit by undergraduates not in Social Work.*

*Enrolment is limited.*

**SOC WORK 4O03 COMMUNITY WORK**

Analysis of major community work strategies, historical antecedents, current developments and future potential in Canada. Student participation in the analysis of a community project is expected.

Seminars; one term

Prerequisite: Registration or credit in SOC WORK 3D06 and 3DD6, or 3D09; or permission of the instructor

**SOC WORK 4P03 PROFESSIONAL ISSUES**

A seminar focusing on the status, roles and values of the professional social worker in contemporary society.

Seminars; one term

Prerequisite: Registration or credit in SOC WORK 3D06 and 3DD6, or 3D09

**SOC WORK 4T03 SOCIAL WORK PRACTICE WITH WOMEN**

Study of feminist and non-sexist social work practice (with individuals, groups and the community) and implications for women of selected social policies.

Seminars; one term

**SOC WORK 4V03 SOCIAL WORK PRACTICE WITH THE AGED**

A critical analysis of the social context in which the aged live, and an examination of social work methods as they apply to the aged.

Seminars; one term

**SOC WORK 4W03 CHILD WELFARE**

This course analyzes the Canadian child welfare system, its policies and programmes and teaches skills for working with children, families and substitute caregivers.

Lectures, discussions, skills development; one term

Prerequisite: SOC WORK 2B06, 2C03, 2D03 and PSYCH 2A03

**SOC WORK 4X03 FAMILY IN SOCIAL WORK PRACTICE**

Examination of relevant aspects of family theory for social work practice; models of family intervention.

Seminars; one term

Prerequisite: Credit or registration in SOC WORK 3D06 and 3DD6, or 3D09; or permission of the instructor

Antirequisite: SOC WORK 3M03

**SOC WORK 4Y03 METHODS OF APPLIED SOCIAL RESEARCH**

Examination of the conceptual framework of scientific inquiry relating to social work research and practice. Survey of selected research from other disciplines relevant to social work.

Seminars; one term

Antirequisite: SOC WORK 3K03

**SOC WORK 4Z03♦ SPECIAL TOPICS IN SOCIAL WELFARE POLICY\***

Critical examination of social welfare policy in respect to selected social issues. Topics will vary from year to year and the School should be consulted for details for any year.

Seminars; one term

Prerequisite: Permission of the School of Social Work is required by all students  
*This course may be taken as elective credit by undergraduates not in Social Work.*

*This course may be repeated if on a different topic.*

*Enrolment is limited.*

For Graduate Courses see *Calendar, School of Graduate Studies.*

## SOCIOLOGY

### Faculty as of January 15, 1993

#### Chair

A.A. Hunter

#### Professors Emeriti

Howard M. Brotz/B.A., M.A. (Chicago), Ph.D. (London)

Frank E. Jones/B.A., M.A. (McGill), Ph.D. (Harvard)

Peter C. Pineo/B.A. (University of British Columbia), M.A. (McGill), Ph.D. (Chicago)

#### Professors

Carl J. Cuneo/B.A., M.A., Ph.D. (Waterloo)

Jack W. Haas/B.S. (SUNY, Brockport), Ph.D. (Syracuse)

Rhoda E. Howard/B.A., M.A., Ph.D. (McGill)

Alfred Hunter/B.A. (University of British Columbia), M.A., Ph.D. (Wisconsin)

Cyril H. Levitt/B.A., M.A. (Waterloo), Ph.D. (Freie Universitat, Berlin)

D. Ralph L. Matthews/B.A. (Memorial), M.A., Ph.D. (Minnesota)

William B. Shaffir/B.A., M.A., Ph.D. (McGill)

#### Associate Professors

W. Peter Archibald/B.A. (Mt. Allison), M.A. (University of British Columbia), Ph.D. (University of Michigan)

Robert E. Blumstock/B.A., M.A. (City College, N.Y.), Ph.D. (Oregon)

Richard A. Brymer/B.A., M.A. (Texas), Ph.D. (Michigan State)

Franklin W. Henry/Ph.B. (Marquette), M.A., Ph.D. (Catholic University of America)

Roy W. Hornosty/B.S.P., M.A. (University of British Columbia), Ph.D. (SUNY, Buffalo)

Graham K. Knight/B.A. (Kent), M.A., Ph.D. (Carleton)

Charlene Miall/B.A. (Ottawa), M.A. (Calgary), Ph.D. (York)

Jack Richardson/B.A., M.A., Ph.D. (Toronto)

Gerald Rosenblum/A.B. (California, Berkeley), M.S. (Oregon), A.M., Ph.D. (Princeton)

Jane Syngé/M.A. (Aberdeen), Ph.D. (London)

Vivienne Walters/B.A., M.A. (Sheffield), Ph.D. (McGill)

#### Assistant Professors

Gregory Brown/B.A., M.A. (Guelph), Ph.D. (Waterloo)

Margaret Denton/B.A., M.A., Ph.D. (McMaster)

Rhonda Lenton/B.A. (Winnipeg) M.A. (Manitoba), Ph.D. (Toronto)

Julia O'Connor/B.A., M.Soc.Sc. (Ireland), Ph.D. (Toronto)

Dorothy Pawluch/B.A. (Laurentian), M.A., Ph.D. (McGill)

R.H. Storey/B.A. (Toronto), M.A. (Dalhousie), Ph.D. (Toronto)

Pamela Sugiman/B.A., M.A., Ph.D., (Toronto)

#### Associate Members

Roy Cain (Social Work)/B.S.W., M.S.W., Ph.D. (McGill)

C. Charles (Clinical Epidemiology and Biostatistics)/B.A., M.A. (Toronto), M.Phil, Ph.D. (Columbia)

P. Donnelly (Physical Education)/B.A. (N.Y.), M.A., Ph.D. (Massachusetts)

John Eyles (Geography)/M.A., M.Sc. (L.S.E.), Ph.D. (London)

L. Greenspan (Religious Studies)/M.A. (Dalhousie), Ph.D. (Brandeis)

C. Jones (Sociology, Toronto)/B.A. (Cambridge), Ph.D. (Edinburgh)

P. White (Physical Education)/B.Sc. (London), M.Sc., Ph.D. (Waterloo)

**Department Notes:**

1. Students should consult the Department's *Handbook for Undergraduates, 1993-94*, which will be available prior to registration, for fuller course descriptions and any changes in the list of courses offered in 1993-94. Students should check the *Handbook* in order to find the term in which 'one term' courses are offered.
2. SOCIOL 1A06 and several other courses are divided into independent sections. For more information, see the Sociology Department's *Handbook for Undergraduates, 1993-94*. This booklet gives course descriptions for the various SOCIOL 1A06 sections.
3. Prerequisite/Limited Enrolment: Academically exceptional students wish to take a course for which they do not have the prerequisite may seek permission of the instructor to register. However, priority is given in all Level III limited-enrolment courses to Sociology students, and in all Level IV courses to Honours Sociology students.

**Courses****SOCIOL 1A06 AN INTRODUCTION TO SOCIOLOGY**

A survey of the areas of research which interest the sociologist. Interpretation of human action from the standpoint of the group.

Two lectures, one tutorial, two terms

**SOCIOL 2C06 DEVIANT BEHAVIOUR**

An analysis of deviant behaviour and conformity in relation to social structure and processes, and a discussion of problems of control within the social system.

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

*Enrolment is limited.*

**SOCIOL 2D06 THE HUMAN GROUP**

An examination of the individual in social interaction, with emphasis upon relationships between this and social structure.

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

**SOCIOL 2E06 RACIAL AND ETHNIC GROUP RELATIONS**

The course deals with the study of racial and ethnic group relations in Canada and the United States.

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

**SOCIOL 2H06 A SOCIOLOGICAL ANALYSIS OF CANADIAN SOCIETY**

The application of sociological concepts to the character and social structure of Canada, with particular emphasis on its major social class, regional, and ethnic divisions.

Three hours (lectures and discussion); two terms

**SOCIOL 2I03 THE SOCIOLOGY OF ORGANIZATIONS I**

A theoretical and empirical analysis of formal and informal organizational structures and processes in the major sectors of modern industrial society.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

Cross-list: LABR ST 3I03

**SOCIOL 2J03 CURRENT PROBLEMS IN SOCIOLOGICAL ANALYSIS**

Selected problems in contemporary sociology. Topics will vary and the Department should be consulted for details for any particular year.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

**SOCIOL 2K03 CURRENT PROBLEMS IN SOCIOLOGICAL ANALYSIS**

Cross-list: SOCIOL 2J03

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

**SOCIOL 2M06 SOCIAL CHANGE**

Taking both a historical and comparative perspective, this course focuses on macrosocial changes such as industrialization, urbanism, and the rise of individualism.

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

**SOCIOL 2O06 SOCIAL STRATIFICATION**

A broad comparative study of social class and social mobility.

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

**SOCIOL 2P06 THE SOCIOLOGY OF EDUCATION**

A comprehensive analysis of educational institutions in modern society.

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

*Enrolment is limited.*

**SOCIOL 2Q06 SOCIOLOGY OF WOMEN**

An analysis of the status and objective condition of women in Canada (including theories of socialization and of stratification).

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

*Enrolment is limited.*

**SOCIOL 2S06 INTRODUCTION TO SOCIOLOGICAL THEORY**

An introduction to the foundations, rise and development of sociological theory.

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

Antirequisite: SOCIOL 2S03 or 3A06

**SOCIOL 2U06 SOCIOLOGY OF THE FAMILY**

An analysis of kinship and family units in comparative, historical, and contemporary perspective.

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

*Enrolment is limited.*

**SOCIOL 2V06 OCCUPATIONS AND PROFESSIONS**

An examination of the occupational structure of industrial society, the changing nature of work, and problems associated with such change.

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

**SOCIOL 2X03 PSYCHOANALYTIC APPROACHES TO LITERARY TEXTS**

The basic assumptions and methods of psychoanalytic criticism will be studied with reference to selected texts in drama, fiction and poetry from Shakespeare to the present.

One term

Prerequisite: Registration in Level II and above

Antirequisite: If topic taken as ENGLISH 3KK3

*Same as English 3B03.*

*Enrolment is limited.*

**SOCIOL 2Y03 INTRODUCTION TO QUANTITATIVE STUDIES**

The course is designed to develop those skills necessary to understand and evaluate research studies in sociology using quantitative methods. Descriptive statistics and basic inferential techniques will be examined.

Three hours (lectures and discussion); one term

Prerequisite: Registration in: any programme in Sociology; or Honours Anthropology; or Labour Studies; or Social Work

Antirequisite: Registration or credit in a statistics course

*Enrolment is limited.*

**SOCIOL 2Z03 INTRODUCTION TO SOCIOLOGICAL RESEARCH**

This course is designed to develop those skills necessary to pursue and understand research. Several general methods of sociological research will be examined.

Three hours (lectures and discussion); one term

Prerequisite: Registration in any programme in Sociology

*Enrolment is limited.*

Cross-list: ANTHROP 2Z03

**SOCIOL 3A03 EUROPEAN SOCIOLOGICAL THEORY**

An advanced examination of classical and contemporary European sociological theory.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 2S06

Antirequisite: SOCIOL 3A06

**SOCIOL 3AA3 THE SOCIOLOGY OF MASS MEDIA**

The development of the mass media (the press, magazines, radio, television), with particular attention to their social organization, how information and news are produced, and effects upon social attitudes and behaviour.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06, and registration in any Social Sciences programme

*Enrolment is limited.*

**SOCIOL 3B03 SELECTED TOPICS IN THE SOCIOLOGY OF EDUCATION**

An examination of selected topics in the sociology of education.

Three hours (lectures and discussion); one term

Prerequisite: At least 18 units of Sociology  
*Enrolment is limited.*

**SOCIOL 3BB3 MAJOR DENOMINATIONS IN CANADA**

A study of the major denominations in Canada, their history and their relation to national, regional and class identity.

Two lectures, one tutorial; one term

Prerequisite: Any Level I course in Anthropology, Philosophy, Religious Studies, Sociology

Cross-list: RELIG ST 3BB3

**SOCIOL 3C06 SOCIO-ECONOMIC DEVELOPMENT**

Selected topics in the sociology of underdeveloped countries, including social stratification, revolution, the place of women, and processes of social change.

Three hours (lectures and seminars); two terms

Prerequisite: At least 18 units of Sociology, or any Level II course in Political Science

Cross-list: POL SCI 3B06

**SOCIOL 3CC3 SPECIAL TOPICS IN THE SOCIOLOGY OF THE FAMILY AND THE LIFE CYCLE**

An advanced course allowing detailed study of the family and the life cycle. Special attention will be paid to the mid and later years.

Three hours (lecture and discussion); one term

Prerequisite: SOCIOL 2U06 or registration in a Combined Honours in Sociology and Gerontology

*Offered alternately with SOCIOL 3D03.*

*Not offered in 1993-94.*

*Enrolment is limited.*

**SOCIOL 3D03 SPECIAL TOPICS IN THE SOCIOLOGY OF THE FAMILY**

An advanced course allowing detailed study of selected topics in the sociology of the family.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

*Offered alternately with 3CC3.*

*Offered in 1993-94.*

*Enrolment is limited.*

**SOCIOL 3DD3 SPORT AND SOCIAL DEVELOPMENT**

Macro-analysis of sport and culture, considering the place of sport and leisure in cultural transmission and change.

Three hours (lectures and discussion); one term

Cross-list: PHYS ED 3P03

*With permission of the instructor, this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.*

**SOCIOL 3E03 SELECTED TOPICS IN THE SOCIOLOGY OF WOMEN**

An advanced course allowing detailed study of selected topics in the sociology of women.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06 and SOCIOL 2Q06

*Enrolment is limited.*

**SOCIOL 3EE3 SPORT AND SMALL GROUP DYNAMICS**

Micro-analysis of sport in small social systems: investigation of the dynamics of involvement in sport encounters, the team as a small group, and sport sub-cultures.

Three hours (lectures and discussion); one term

Cross-list: PHYS ED 3Q03

*With permission of the instructor, this course may be taken as an elective for B.A. credit by undergraduates not in Physical Education.*

**SOCIOL 3F06 POLITICAL SOCIOLOGY**

A survey of social and state institutions, focusing on current debates in the field.

Three hours (lectures and discussion); two terms

Prerequisite: SOCIOL 1A06

**SOCIOL 3G03 SOCIOLOGY OF HEALTH CARE**

Selected issues concerning forms of providing health care.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

*May be repeated once by students who took the course in 1986/87 or 1987/88.*

*Enrolment is limited.*

**SOCIOL 3GG3 SPECIAL TOPICS IN THE SOCIOLOGY OF DEVIANCE**

An advanced course allowing detailed study of selected topics in the Sociology of Deviance. Topics will vary from year to year.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 2C06

**SOCIOL 3H06 RESEARCH TECHNIQUES AND DATA ANALYSIS**

A comprehensive introduction to the principles of research methods and data analysis in the social sciences.

Three hours (lectures and labs); two terms

Prerequisite: Registration in any programme in Sociology. Students in Honours Anthropology, Gerontology and Labour Studies will have second priority.

Antirequisite: Credit or registration in any six units of the following: CHEM ENG 4C03; COMMERCE 2QA3; ECON 2B03, 3O06; GEOG 2L03, 2L06, 3L03; GERONTOL 3C03; POL SCI 2F06; PSYCH 2G03, 2R06; SOCIOL 2Y03; all Statistics courses *except* 2D03, 3S03, 3U03, 4H03, 4K03, 4Z03

**SOCIOL 3HH3 SOCIOLOGY OF HEALTH**

Sociological approaches to the study of health and illness.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

Antirequisite: SOCIOL 3G03, 1986/87 or 1987/88

*Enrolment is limited.*

**SOCIOL 3J03 SPECIAL TOPICS IN SOCIOLOGICAL ANALYSIS I**

An examination of selected topics of contemporary interest to sociologists. Students should consult the Department concerning the topics to be examined.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

**SOCIOL 3K03 SPECIAL TOPICS IN SOCIOLOGICAL ANALYSIS II**

Same as SOCIOL 3J03.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

**SOCIOL 3L03 SELECTED TOPICS IN OCCUPATIONAL SOCIOLOGY**

An advanced course allowing detailed study of one or more topics of special interest.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

**SOCIOL 3LL3 SOCIOLOGY OF WORK AND LABOUR MARKETS**

A consideration of the manner in which labour markets are structured and how they influence the access that people have to employment.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

**SOCIOL 3M06 RELIGION AND MODERN SOCIETY**

An introduction to the thoughts and theories of scholars who have studied the relation between religion and society. In the first term, the emphasis will be on pre-World War II writings. In the second term, the empirical materials of the sociology of religion since World War II will be surveyed.

Three hours (lecture and discussion); two terms

Prerequisite: Any course in Anthropology, Philosophy, Religious Studies or Sociology

Cross-list: RELIG ST 3J06

**SOCIOL 3N03 THE SOCIOLOGY OF KNOWLEDGE AND CULTURE**

An analysis of the origins, development and functions of ideas, images, and other cultural representations through which knowledge about society, its institutions and practices is formed, distributed and used.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

**SOCIOL 3O03 ADVANCED SOCIOLOGICAL RESEARCH**

This course will provide a detailed study of selected qualitative methods in Sociology.

Three hours (lectures and discussion); one term

Prerequisite: Registration is restricted to Honours Sociology

*Enrolment is limited. However, the Department of Sociology guarantees that all Third- and Fourth-year Honours Sociology students will have access to either this course or SOCIOL 3W03.*

**SOCIOL 3P03 AMERICAN SOCIOLOGICAL THEORY**

An advanced examination of classical and contemporary American sociological theory.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 2S06

Antirequisite: SOCIOL 3A06

*Offered alternately with SOCIOL 3PP3.*

*Not offered in 1994-95.*

**SOCIOL 3PP3 CANADIAN SOCIOLOGICAL THEORY**

An examination of the more or less unique contributions of English Canadians to sociological theory. Emphasis is on the Toronto school, and its left-nationalist progeny and critics.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 2S06

*Offered alternately with SOCIOL 3P03.*

*Not offered in 1993-94.*

**SOCIOL 3Q03 NATIVE AND ETHNIC RELIGIONS IN CANADA**

A study of the effect of religion on native and ethnic identity, frontier religion and the new sects and cults.

Two lectures, one tutorial; one term

Prerequisite: Any course in Anthropology, Philosophy, Religious Studies, Sociology

Cross-list: RELIG ST 3B03

**SOCIOL 3S03 CREATIVITY AND HUMAN INTERACTION**

A study of the motivations of some representative writers, and of the psychological processes in literary creativity. Psychoanalytic and psychiatric contributions to understanding the subject will be considered.

Three lectures; one term

Antirequisite: This topic if taken as ENGLISH 3KK3

Cross-list: ENGLISH 3F03

*Enrolment is limited.*

**SOCIOL 3T03 THE SOCIOLOGY OF URBAN AREAS**

Sociological analysis of urban structure and development, and the social consequences of urbanization.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06 or GEOG 2B03 and 2Y03

**SOCIOL 3V03 SELECTED TOPICS IN****COMPARATIVE INDUSTRIAL SOCIETIES**

The similarities and differences of various modern industrial societies will be examined through discussion of various postulated determinants of the structure and processes of such societies.

Three hours (lectures and discussion); one term

Prerequisite: At least 18 units of Sociology, including SOCIOL 1A06

**SOCIOL 3W03 HISTORICAL METHODS IN SOCIOLOGY**

An examination of methods for incorporating historical data and archival sources into sociological argument.

Three hours (seminar and discussions); one term

Prerequisite: Registration is restricted to Honours Sociology

*Enrolment is limited. However, the Department of Sociology guarantees that all Third- and Fourth-year Honours Sociology students will have access to either this course or SOCIOL 3O03.*

**SOCIOL 3X03 SOCIOLOGY OF AGING**

This course deals with changing population structure, economic support of the aged, family of later life, the sociology of retirement, widowhood, death, bereavement, and institutionalization.

Three hours (lectures and discussion); one term

*Enrolment is limited.*

Prerequisite: SOCIOL 1A06

**SOCIOL 3Y03 THE SOCIOLOGY OF ORGANIZATIONS II**

An advanced course which allows detailed examination of relevant theories and research, including those to which the student was introduced in SOCIOL 2I03.

Three hours (lecture and discussion); one term

Prerequisite: SOCIOL 1A06. SOCIOL 2I03 is strongly recommended.

**SOCIOL 3Z03 ETHNIC RELATIONS**

An analysis of political, social and economic change in selected locales.

Three hours (lectures and discussion); one term

Prerequisite: SOCIOL 1A06

**SOCIOL 4A03 ETHNIC/RACIAL TENSIONS**

The course will investigate the processes by which racial and/or ethnic tensions develop in various societies.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology

*Enrolment is limited.*

**SOCIOL 4B06 FIELD STUDY METHODOLOGY**

This course provides students an opportunity to engage in first hand sociological research using field study methods, particularly participant observation.

Three hours (seminar); two terms

Prerequisite: Registration in Level IV Honours Sociology

*Enrolment is limited.*

**SOCIOL 4C06 SELECTED PROBLEMS IN SOCIOLOGICAL RESEARCH**

Students will undertake a class project which involves quantitative materials.

Three hours (seminar); two terms

Prerequisite: SOCIOL 3H06

*Enrolment is limited.*

**SOCIOL 4D03 CRITIQUES OF SOCIOLOGICAL THEORY**

A discussion of various sociological and non-sociological critiques of sociological theory.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology and SOCIOL 2S06

*Enrolment is limited.*

**SOCIOL 4E03 SELF AND IDENTITY**

A consideration of theoretical and empirical questions relating to self and identity viewed from historical, cross-cultural and cross-disciplinary perspectives.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology

*Enrolment is limited.*

**SOCIOL 4F03 SPECIAL TOPICS IN COMPARATIVE SOCIOLOGICAL RESEARCH**

The focus of this course will be the comparative analysis of industrialized societies. Students will have an opportunity to engage in comparative sociological research using a range of data sources.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology

*Enrolment is limited.*

**SOCIOL 4G03 THE SOCIAL PRODUCTION OF ILLNESS**

An examination of the social bases of illness. In different years consideration may be given to topics such as gender, social class and occupational and environmental health issues.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology

*Enrolment is limited.*

**SOCIOL 4GG3 SPECIAL TOPICS IN THE SOCIOLOGY OF DEVIANCE**

An advanced course allowing detailed study of selected topics in the Sociology of Deviance. Topics will vary from year to year.

Three hours (seminar); one term

Prerequisite: SOCIOL 2C06; registration in Level IV Sociology

*Enrolment is limited.*

**SOCIOL 4H03 SELECTED TOPICS IN THE SOCIOLOGY OF ORGANIZATIONS**

An advanced course allowing detailed study of aspects of organizational analysis of special interest.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology and SOCIOL 2I03

*Enrolment is limited.*

**SOCIOL 4I03 SPECIAL TOPICS IN SOCIOLOGICAL THEORY**

An advanced critical analysis of special topics/issues in sociological literature. The content of this course will vary from year to year; please consult the departmental handbook.

Three hours (seminar); one term

Prerequisite: SOCIOL 2S06, and registration in Level IV Honours Sociology

*Enrolment is limited.*

**SOCIOL 4J03 SELECTED TOPICS IN SOCIOLOGY I**

Topics of contemporary interest to sociologists, with emphasis upon current theory and research. Students should consult the Department concerning the topics to be examined.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology

*Enrolment is limited.*

**SOCIOL 4K03 SELECTED TOPICS IN SOCIOLOGY II**

Topics of contemporary interest to sociologists, with emphasis upon current theory and research. Students should consult the Department concerning the topics to be examined.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology

*Enrolment is limited.*

**SOCIOL 4L03 SPECIAL TOPICS  
IN THE SOCIOLOGY OF RELIGION**

This course will focus on the central concerns of the sociology of religion; secularization, sectarianism, new religions and secular ideologies among others; which are central to an understanding of the fragmentation of modern societies. However, specific emphases may vary from year to year.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology  
*Enrolment is limited.*

**SOCIOL 4M03\*\* DIRECTED RESEARCH I  
FOR HONOURS STUDENTS**

Directed study of a research problem through published materials and/or field inquiry and/or data analysis. Students will be required to write up the results of their inquiry in scholarly form.

One term

Prerequisite: Registration in Level IV Honours Sociology

**SOCIOL 4MM6 DIRECTED RESEARCH  
FOR HONOURS STUDENTS**

Directed study of a research problem through published material and/or field inquiry and/or data analysis. Students will be required to write up the results of their inquiry in scholarly form.

Two terms

Prerequisite: Registration in Level IV Honours Sociology

**SOCIOL 4N03\*\* DIRECTED RESEARCH II  
FOR HONOURS STUDENTS**

Same as SOCIOL 4M03.

One term

Prerequisite: Registration in Level IV Honours Sociology

**SOCIOL 4P03 ISSUES IN THE SOCIOLOGY OF AGING**

A study of selected sub-areas in the sociology of aging, such as demographic change, changing family and social relationships, social and health services, retirement, political economy, and theoretical approaches in social gerontology.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology  
*Enrolment is limited.*

**SOCIOL 4Q03 INDIVIDUAL AND SOCIETY I**

An intensive examination of selected problems involving the relationship of individuals to social structures.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology  
*Enrolment is limited.*

**SOCIOL 4R03 INDIVIDUAL AND SOCIETY II**

An intensive examination of selected problems involving the relationship of individuals to social structures.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology  
*Enrolment is limited.*

**SOCIOL 4S03 SPECIAL TOPICS IN CANADIAN SOCIETY I**

An examination of questions which have sociological relevance for Canadian society. The specific questions may vary in different years.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology  
*Enrolment is limited.*

**SOCIOL 4T03 SPECIAL TOPICS IN CANADIAN SOCIETY II**

An examination of questions which have sociological relevance for Canadian society. The specific questions may vary in different years.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology  
*Enrolment is limited.*

**SOCIOL 4U03 SPECIAL TOPICS IN THE  
SOCIOLOGY OF WOMEN**

An intensive examination of selected problems concerning women. Depending upon the instructor, topics may include: stratification, inequality, political participation, sexuality, health and work.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology  
*Enrolment is limited.*

**SOCIOL 4V03 ISSUES IN THE SOCIOLOGY  
OF OCCUPATIONS AND THE PROFESSIONS**

An advanced course allowing detailed study of one or more topics of special

interest.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Sociology  
*Enrolment is limited.*

**SOCIOL 4W03 SOCIAL PROBLEMS**

The focus of the course will be theories concerning social problems or an empirical examination of specific issues that have become the object of public debate and discussion.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology  
*Enrolment is limited.*

**SOCIOL 4X03 LABOUR AND SOCIETY**

The course will focus on the emergence of labour organizations during the course of modernization and the factors determining the political outlook of labour.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology  
*Enrolment is limited.*

**SOCIOL 4Y03 THE SOCIOLOGY OF CORPORATIONS**

This course will analyze the modern corporation as a vehicle through which economic, social and political power is wielded.

Three hours (seminar); one term

Prerequisite: Registration in Level IV Honours Sociology  
*Enrolment is limited.*

For Graduate Courses see Calendar, School of Graduate Studies.

---

**SPANISH**

---

(SEE HISPANIC STUDIES)

---

**STATISTICS**

---

(SEE MATHEMATICS AND STATISTICS)

---

**THEME SCHOOL ON INTERNATIONAL  
JUSTICE AND HUMAN RIGHTS**

---

**Faculty as of January 15, 1993****Co-Directors**

Rhodá E. Howard

Gary Warner

---

**Courses****TSIJHR 2A06 INTRODUCTORY SEMINAR**

Introduction to the concepts of human rights and international justice, focusing on philosophical, legal and policy aspects. Empirical examples from both Canadian and international contexts.

Prerequisite: Permission of the Theme School

**TSIJHR 2B03 FIRST CASE STUDY**

Group and individual reports on a major case from the theme school, organized around an instructional simulation exercise. Examples: development and non-discrimination rights.

Prerequisite: Permission of the Theme School

**TSIJHR 3A06 RESEARCH PRACTICUM I**

Individual research study under supervision of faculty and tutors. Presentation of student research in class, plus periodic lectures, speakers and events.

Prerequisite: Permission of the Theme School

**TSIJHR 3B03 RESEARCH PRACTICUM II**

Independent group projects, including practicum or field work. Periodic formal classes, plus consultation with supervisor.

Prerequisite: Permission of the Theme School

**TSIJHR 4A06 THEME SCHOOL PROJECT**

A major thesis under the supervision of one faculty member from the theme school and one outside member from a different Faculty. Periodic group meetings.

Prerequisite: Permission of the Theme School

## THEME SCHOOL ON NEW MATERIALS AND THEIR IMPACT ON SOCIETY

Faculty as of January 15, 1993

### Director

A. John Berlinsky (*Institute for Materials Research*)

John L. Brash (*Chemical Engineering and Pathology*)

Malcolm Collins (*Physics*)

Stephen A. Drew (*Faculty of Business*)

J. David Embury (*Materials Science and Engineering*)

Richard M. Epand (*Biochemistry*)

John E. Greedan (*Chemistry*)

Andrew N. Hrymak (*Chemical Engineering*)

Catherine Kallin (*Physics*)

John S. Preston (*Engineering Physics*)

Harald D.H. Stover (*Chemistry*)

George C. Weatherly (*Materials Science and Engineering*)

Daniel S.C. Yang (*Biochemistry*)

### Courses

#### TSNM 2A02 THEME SCHOOL SEMINAR

Introduction to self-directed learning, survey of materials research at McMaster, planning research projects, special events.

Prerequisite: Permission of the Theme School

#### TSNM 2B03 HISTORY OF NEW MATERIALS AND THEIR IMPACT ON SOCIETY

An examination of the hypothesis that new materials and new ways of making materials influence much broader technological, economic and social changes.

Prerequisite: Permission of the Theme School

#### TSNM 2R06 RESEARCH INTERNSHIP

Research on a materials-related subject under the supervision of a faculty member. Includes one hour per week seminar. See programme description regarding summer research internships.

Three months, May-July

Prerequisite: Permission of the Theme School

#### TSNM 3A02 THEME SCHOOL SEMINAR

Reporting on and planning research projects, special events.

One hour, both terms

Prerequisite: TSNM 2A02 and permission of the Theme School

#### TSNM 3B03 MATERIALS OF THE FUTURE

A survey of the frontiers of materials research, considering new types of materials, the ultimate limits of materials, the limitations of present materials and desirable properties which might be sought.

Three hours, first term

Prerequisite: Permission of the Theme School

#### TSNM 3C03 STRATEGIES FOR THE LIFE CYCLES OF MATERIALS

The strategies and trade-offs which influence choices of materials and processes will be studied from the point of view of technical, economic, environmental and social factors.

Three hours, second term

Prerequisite: Permission of the Theme School

#### TSNM 3R06 RESEARCH INTERNSHIP

Research on a materials-related subject under the supervision of a faculty member. Includes one hour per week seminar. See programme description regarding summer research internships.

Three months, May-July

Prerequisite: TSNM 2R06 and permission of the Theme School

#### TSNM 4A02 THEME SCHOOL SEMINAR

Reporting on and planning research projects, special events.

One hour, both terms

Prerequisite: TSNM 3A02 and permission of the Theme School

#### TSNM 4B03 ENTREPRENEURSHIP AND INNOVATION: TRANSFERRING NEW MATERIALS TO THE MARKETPLACE

The problem of introducing new materials, products and processes to the marketplace is examined both from the point of view of new start-up companies and in the context of existing companies.

Prerequisite: Permission of the Theme School.

## WOMEN'S STUDIES

The Honours B.A. Women's Studies and Another Subject Programme is coordinated by an interdisciplinary Committee of Instruction.

### Faculty Advisors

#### Director of Women's Studies

Joan Coldwell (*English*)/B.A., M.A. (*London*), Ph.D. (*Harvard*)

Maroussia Ahmed (*French*)/L. ès L., M. ès L., D. de l'U (*Paris-Sorbonne*)

Jane Aronson (*Social Work*)/B.Sc. (*New University of Ulster*), B.S.W., M.S.W. (*McGill*), Ph.D. (*Toronto*)

Sylvia Bowerbank (*Arts & Science & English*)/B.A. (*McMaster*), B.Educ. (*Toronto*), M.A. (*Simon Fraser*), Ph.D. (*McMaster*)

Vera Chouinard (*Geography*)/B.A. (*Western*), M.A. (*Toronto*), Ph.D. (*McMaster*)

Joanne Fox (*Nursing*)/B.N. (*New Brunswick*), M.Sc., Ph.D. (*Queen's*), R.N.

Ruth Frager (*History*)/B.A. (*Rochester*), M.A., Ph.D. (*Toronto*)

Donald Goellnicht (*English*)/B.A. (*Queen's*), M.A., Ph.D. (*McMaster*)

Elizabeth Inman (*Drama*)/B.A. (*London*)

Rhonda Lenton (*Sociology*)/B.A. (*Winnipeg*), M.A. (*Manitoba*), Ph.D. (*Toronto*)

Julia O'Connor (*Sociology*)/B.A., M.Soc.Sc. (*Ireland*), Ph.D. (*Toronto*)

Mary O'Connor (*English*)/B.A. (*McGill*), M.A., Ph.D. (*Toronto*)

Kari Smedstad (*Anaesthesia*)/M.B., F.R.C.P.C.

Vivienne Walters (*Sociology*)/B.A., M.A. (*Sheffield*), Ph.D. (*McGill*)

Lorraine York (*English*)/B.A., M.A., Ph.D. (*McMaster*)

Isik Zeytinoglu (*Business*)/B.A., M.A., (*Bogazici*), M.S., Ph.D. (*Pennsylvania*)

### Sessional Instructors

Nicolette DiFrancesco/B.A. (*Carleton*), M.A. (*McMaster*)

Naim Galvin/B.A., M.A. (*McMaster*)

Kathy Garay/B.A. (*East Anglia*), M.A. (*McMaster*), Ph.D. (*Toronto*)

Connie Guberman/M.E.S. (*York*)

Rose Janson/B.A. (*Waterloo Lutheran*), M.A. (*Toronto*)

Geraldine Voros/B.A. (*Guelph*), M.A. (*McMaster*)

### Courses

#### WOMEN ST 1A06 WOMEN IN CANADIAN SOCIETY

An introduction to Women's Studies of an interdisciplinary nature, designed to illustrate and account for the position of women in Canadian society. Possible areas of enquiry include health, law, politics, history, women and work, representation of women in literature, Canadian women artists and musicians. Three hours (two lectures and tutorials); two terms

#### WOMEN ST 2A06 WOMEN'S ACTION FOR SOCIAL CHANGE

The course explores the collective efforts of women, past and present, to improve social conditions. It examines the issues and controversies at the heart of historical and contemporary movements and studies utopias as envisioned by women writers. Subjects might include anti-slavery, temperance and suffrage movements, prison and labour reform, women's peace movements, health collectives and ecofeminism.

Three hours (Seminar and discussion); two terms

Prerequisite: Registration in the Women's Studies Programme, or permission of the Director of Women's Studies.

#### WOMEN ST 2B06 WOMEN'S ROLE IN WESTERN EUROPEAN SOCIETY

The course examines the contribution of women to western European society from the late classical era to the early twentieth century. Whether examined from a historical, sociological or cultural perspective, the female role will be seen in relation to the major political changes taking place during this period.

Three hours; two terms

Prerequisite: WOMEN'S ST 1A06

*Enrolment is limited.*

*(Preference will be given to programme students.)*

#### WOMEN ST 2C06 PERSPECTIVES ON GENDER

This course is an overview of debates and research on the shaping of gender identity. Whether taking the approach of social psychology, literature or cultural studies, it includes such topics as sex typing and socialization experiences, daughter/parent relationships and moral development.

Three hours; two terms

Prerequisite: WOMEN'S ST 1A06



*Enrolment is limited.*

*(Preference will be given to programme students.)*

### **WOMEN ST 2H03 REPRODUCTIVE BIOLOGY**

This course presents a medical study of human reproductive anatomy and physiology, with particular emphasis on intrinsic control mechanisms and extrinsic methods of regulation of reproduction. It also explores feminist approaches to this subject.

Three hours; lectures, tutorials and guided reading; one term

Prerequisite: Registration in the Women's Studies Programme

*Enrolment is limited.*

### **WOMEN ST 3A06 FEMINIST THEORY**

This seminar explores one or more theoretical feminist perspectives such as the classical Marxist, liberal, radical, biological determinist and poststructuralist. Possible themes to be studied from these perspectives are psychotherapy, sexuality and language. Students will read primary theoretical texts such as those by Wollstonecraft, de Beauvoir, Woolf, Daly, Gilligan, Chodorow, and Kristeva.

Three hours (Seminar and discussion); two terms

Prerequisite: Registration in the Women's Studies Programme, or permission of the Director of Women's Studies

### **WOMEN ST 3B03 TOPICS IN WOMEN AND THE ARTS I: THEATRE AND FILM**

1993-94: Women and Drama

An exploration of women's role in either theatre or film, whether as subjects or creators of these art forms. Approaches may be practical, historical and/or theoretical, but there will be particular emphasis on the contemporary scene.

Three hours; one term

Prerequisite: Registration in the Women's Studies Programme or in Level III or IV of a programme in Drama

*Enrolment is limited.*

*(Preference will be given to students in the Women's Studies programme.)*

*WOMEN ST 3B03 may be repeated, if on a different topic, to a total of six units.*

### **WOMEN ST 3BB3 TOPICS IN WOMEN AND THE ARTS II**

1993-94: Women and the Visual Arts

This course explores women's achievements in any one of the following fields: literature, music, visual arts. Interrelationships between these fields will also be examined where appropriate.

Three hours; one term

Prerequisite: Registration in the Women's Studies Programme, or permission of the Director of Women's Studies

*Enrolment is limited.*

*WOMEN ST 3BB3 may be repeated, if on a different topic, to a total of six units.*

### **WOMEN ST 3C06 WOMEN AND ENVIRONMENTS**

This course examines selected topics in women and environments, an interdisciplinary area of inquiry concerned with how women's lives are shaped by the environments in which they live, and how women act to change those

environments. A range of important issues regarding women's experiences of environments will be raised through examining such topics such as: women's responses to industrial change, women and urban planning, women and housing problems, and women's struggles for ecologically and socially safer environments.

Three hours; two terms

Prerequisite: Registration in Level III or IV of the Women's Studies Programme, or permission of the Director of Women's Studies

*Enrolment is limited.*

### **WOMEN ST 3D06 WOMEN IN CROSS-CULTURAL PERSPECTIVE**

The course explores the experience of women in different cultures through examination of social and historical conditions, symbolic systems and women's own narratives. Topics such as: the family and household, the sexual division of labour, the social construction of gender, and social change will be explored through cross-cultural comparison.

Three hours; two terms

Prerequisite: Registration in Level III or IV of the Women's Studies Programme, or permission of the Director of Women's Studies

*Enrolment is limited.*

### **WOMEN ST 4A06 INDEPENDENT RESEARCH**

Students develop and execute their own research projects, in regular consultation with a faculty supervisor. In March, students present the results of their work at a one-day forum in which all students and faculty of Women's Studies are encouraged to participate. A formal written report is submitted to the supervisor shortly afterwards.

Prerequisite: Registration in Level IV of the Women's Studies Programme

### **WOMEN ST 4B06 TOPICS IN WOMEN, THE ECONOMY AND THE STATE**

1993-94: Women and Social Welfare

The purpose of this course is to increase understanding of the experiences of women as both recipients and providers of social welfare services and of the relationship between women and the welfare state.

Three hours; two terms

Prerequisite: Registration in Level III or IV of the Women's Studies Programme, or permission of the Director of Women's Studies

*Enrolment is limited.*

*WOMEN ST 4B06 may be repeated, if on a different topic, to a total of 12 units.*

### **WOMEN ST 4C06 TOPICS IN FEMINIST SCHOLARSHIP**

This course offers intensive study in a specific field as defined by the instructor's own special research interests. It allows the students to benefit from up-to-date scholarship and provides insight into research methods that might be different from or complimentary to those being used in WOMEN'S ST 4A06.

Three hours; two terms

Prerequisite: Registration in Level III or IV of the Women's Studies Programme, or permission of the Director of Women's Studies

*Enrolment is limited.*

# STUDENT SERVICES AND ORGANIZATIONS

## DEAN OF STUDENT AFFAIRS

### Dean

Rudy Heinzl

The Dean of Student Affairs heads a variety of specialized student service offices. These offices include the Counselling and Career Services, International Students' Advisor, Student Health Services and Student Financial Aid and Scholarships.

The Dean is happy to meet with individuals and representatives of student organizations with problems, concerns, questions or suggestions on any matter relating to student life and services on campus. The Dean's Office is located in Hamilton Hall, Room 312, ext. 4649.

## COUNSELLING AND CAREER SERVICES

### Director

Dr. W. Wilkinson

### Counselling Service

L. Barlow Cash/Career Counsellor

R. Hedelius/Career Counsellor

D. Lawson/Career Counsellor

Dr. D. Nifakis/Counselling Psychologist

Dr. D. Palmer/Academic Skills Counsellor

The Counselling Service is a resource provided by the University to promote the personal, academic and career development of McMaster students.

The department offers many counselling, assessment and information services to help students deal with personal and social problems, succeed in their studies, clarify educational and career goals, obtain employment, and gain the most from their university experience.

Personal problems which students discuss with counsellors often concern family and peer relationships, or such unwanted feelings as anxiety, stress, loneliness, depression, low self-confidence or loss of motivation - all of which can interfere with concentration and academic performance.

Many students seek help in defining their interests, personalities and abilities in order to make decisions about academic choices and career goals. The lack of such goals can be a barrier to sustained academic effort.

Students also ask for help in writing resumes and in preparing to look for employment after graduation. Together with the Placement Service, the department provides assistance designed to prepare graduates and recent alumni to find jobs.

For students who are dissatisfied with their academic performance, their effectiveness in studying or in managing their time, the department provides counselling oriented toward effective learning and study skills.

In addition to individual counselling, the department provides group programmes, workshops and presentations about such topics as educational and career planning, the employment search process, applying to professional and graduate programmes, assertive communication skills, writing skills, stress management, building self-confidence, speaking in public, procrastination, writing tests and exams, and preparing for university.

The department maintains a Resource Centre of career, educational and work-abroad information for use by all members of the University community and general public.

It is an administrative centre for Graduate Record Examinations, the Law School Admission Test, the Medical College Admission Test, and the Miller Analogies Test.

All discussions between students and counsellors are voluntary,

private and confidential. Whenever required, students are given assistance in locating other specialized help sources both on and off campus.

Students are invited to visit the office in Hamilton Hall, Room 302, Monday through Friday, 9 a.m. to 5 p.m. to arrange to talk with a counsellor, to inquire about current programmes, or to use the Resource Centre. The telephone number is 525-9140, ext. 4711.

### Placement Service

The Placement Service assists undergraduate and graduate students, and recent alumni of all faculties in finding permanent, temporary and part-time employment.

### On-Campus Recruitment Programme

Major national employers visit McMaster to present information about their companies and to conduct employment interviews in order to hire permanent and summer employees. The Placement Service:

- posts announcements on a computerized Student Placement System Network, on the Job Boards located outside the Placement Service Office, and on bulletin boards in appropriate departments
- provides standardized employment application forms to students
- forwards completed application forms to employers for consideration
- maintains related job and employer reference materials to allow students to research potential employers
- schedules employment interviews for students from all faculties

Students who wish to participate in the on-campus recruitment programme should visit the Placement Service in early September.

### Job Postings

Immediate vacancies for permanent, summer and part-time positions are advertised year round by employers who do not visit the campus. Job notices for these positions are posted on the Job Boards outside the Placement Service and at other appropriate locations on campus.

### Presentations and Workshops

In conjunction with career counsellors, placement staff provide workshops and presentations on resume development, preparing standardized application forms for on-campus recruitment, conducting an effective job search, and preparing for employment interviews.

The Placement Service maintains a collection of reference material on a large number of private and public sector employers.

The Placement Service, located in Hamilton Hall, Room 409, is open Monday to Friday, from 8:30 a.m. to 4:30 p.m.; telephone (416) 525-9140, ext. 4253, or fax (416) 529-8972.

## INTERNATIONAL STUDENTS' ADVISOR

### Advisor

Patrick J. Fernando

The office is available to all foreign students for consultation, advice and direction in numerous areas of concern, providing information regarding immigration matters, accommodation, orientation, etc. The office is located in Divinity College, Room 146, telephone ext. 4748.

## HUMAN RIGHTS CONSULTANT

The Human Rights Consultant is the resident expert and advisor on human rights legislation to all members of the University community for advice on the legislation itself, and how it should be applied. Enquiries should be directed to Patrick J. Fernando, Divinity College, Room 145, (416) 525-9140 or 529-7070, ext. 4748.

## STUDENT HEALTH SERVICE

### Director

Dr. M. Skinnarland

Health care is available to all university students year-round at the

Student Health Service, located on the ground floor of McKay Hall Residence. The health service is open Monday through Wednesday from 9 a.m. to 8 p.m.; and Thursday and Friday from 9 a.m. to 4:30 p.m. Appointments can be made by calling 529-7070, ext. 7700.

Staffed by family physicians and nurses, the Student Health Service provides comprehensive primary medical care. Services include medical assessment and treatment; annual health examinations (physicals); birth-control counselling; assessment and treatment of depression, eating disorders, insomnia and other emotional problems; allergy injections; immunization; wart treatment; on-site laboratory; pregnancy tests; and information or counselling for any personal health concerns.

Birth-control pills are dispensed at a reduced cost of \$9.00 per package to Student Health Service patients who have a current prescription for oral contraceptives from a SHS staff physician.

Computerized health status/risk assessment programmes can be viewed by students at several PCs located in carrels in the reception area and waiting room. These programmes estimate a person's current level of health and their chances of developing serious health problems in the future. An individual health summary with recommendations is printed at the end of these computer programmes.

A full-time health promotion co-ordinator is employed to organize and run both clinic-based and university-wide health education programmes. The health promotion co-ordinator, as well as staff physicians and nurses, are available for lectures, seminars, or small group discussions on health-related issues, on request by students. As well, an education and support group for students with eating disorders is conducted for six weeks during both the fall and winter terms. Further information can be obtained by calling the Student Health Service office at (416) 529-7070, ext. 4441.

## OFFICE FOR ABILITY AND ACCESS

### Manager

William A. Hoch

### Co-ordinator, Student Accommodations

Tim Nolan

### Administrative Assistant

Donna Plonski

### Office for Ability and Access

Kenneth Taylor Hall Room 118

Voice: (416) 529-7070 ext. 4028

(416) 525-9140 ext. 4028

TDD/TTY: (416) 521-8709

The Office for Ability and Access provides support services, educational testing which is disability related, community resource referral and advice to applicants and students on process and policy issues related to disabilities and the university.

The office consists of professional staff, support staff, and volunteers who can assist the student in meeting their educational objectives.

Initiatives and services undertaken by the Office for Ability and Access include:

- campus accessibility issues
- provision of technical equipment services
- alternate media formats based on the individual needs of students
- on-campus professional services or referral to external community resources
- direct service to students in providing skill/process workshops on a variety of issues
- direct involvement with student and/or programme/faculty as required
- promotion of the ability of all qualified applicants

The University encourages persons with disabilities to apply for admission to its programmes. Students must meet the University's academic criteria for admission to a programme.

All students are expected to satisfy the normal requirements for courses and programmes (including final examinations) although accommodations concerning an educational programme may be authorized to assist students in the completion of assignments, tests and examinations and other course requirements. Associate Deans (Studies) may authorize accommodations based on the need of the individual and the programme of study.

### **NOTIFICATION OF STATUS TO**

#### **THE OFFICE FOR ABILITY AND ACCESS**

To ensure continuity of assistance with University programming within departments, faculties, and programmes, students are strongly encouraged to self identify through the Office for Ability and Access.

#### **SELF IDENTIFICATION FOR STUDENTS WITH DISABILITIES**

The Office for Ability and Access works with all self-identified students in providing the necessary support services and network which will lead to a positive educational experience.

Self identification, supported by proper documentation, and the subsequent assistance which can be provided to students in obtaining their university education can be best described as a working partnership.

Students are encouraged to self identify early (two to three months prior to enrolment) in order to ensure sufficient time to co-ordinate their special needs requests within the University.

Students are expected to deal with most day-to-day issues relating to their personal course work. However, students seeking assistance with educational concerns, must work closely with the office while they are on campus in order to be assisted. Students not wishing accommodation assistance are encouraged to keep in contact with the office should a need for assistance arise during the term.

#### **STUDENTS WITH A TEMPORARY DISABILITY**

Students with disabilities, which are temporary in nature, are also encouraged to identify themselves to the Office for Ability and Access. Accommodations and assistance can be given as may be required.

#### **CONFIDENTIALITY**

All academic, personal information and health- or disability-related information is confidential. It will be treated in accordance with the University policy on freedom of information.

#### **DISABILITY AND YOUR EDUCATION**

Admission to McMaster is based on a number of criteria, including demonstrated academic ability and space available in the programme. Disability is not grounds for exclusion from McMaster University. Students who have a disability will be accommodated in order to assist in a way which removes barriers to equity of opportunity.

## STUDENT FINANCIAL AID AND SCHOLARSHIPS

### Director

J. Edwards

### Co-ordinator

D. Ellis

The office administers a variety of programmes which are accessed by nearly half of all full-time students as well as a large number of part-time students attending University. These programmes include the Ontario Student Loan and Grant Programmes, Canada Student Loan Programmes, Undergraduate Scholarships Programme, Ontario Work Study Programme, Ontario Special Bursary Programme, University Bursary and Emergency Loan Programmes, and Canada Scholarships Programme. In addition, the office provides administrative support to outside agencies providing scholarships and bursaries to students attending McMaster.

The office offers financial and budget counselling, assessment and information service to current and potential students designed to help identify and address post-secondary education expenses. All discussions with students are voluntary, private and confidential.

## 232 STUDENT SERVICES AND ORGANIZATIONS

Appointments and drop-in style counselling is available. The office is located in Hamilton Hall, Room 403, telephone ext. 4319.

For more detailed profiles of programme offerings, please refer to sections Undergraduate Academic Awards and Student Financial Aid.

### **HOUSING AND FOOD SERVICES**

#### **Director, Housing and Food Services**

Ron Coyne

#### **Business Manager**

Kim MacDonald

#### **General Manager, Food Services**

Albert Y. Ng

#### **Manager, Admissions and Conferences**

Leanne Piper

#### **Facilities Manager**

David J. Speagle

#### **Manager, Residence Life**

Andrea Thyret

### **RESIDENCES**

The University owns and operates 10 on-campus residences, accommodating a total of 2,765 students. The nine traditional-style residences consist of two women's residences (242), one men's residence (102), five co-educational residences (1,673), and Matthews Hall, consisting of a co-educational International House (107) and a co-educational Quiet House (141).

#### **Residence Admission**

Sixty percent of the traditional spaces are reserved for incoming first-year students and admission is based on admission average. All students in these nine residences are required to take the minimum small meal plan, with a choice of breakfasts, lunches and dinners during the academic year (Christmas holidays excluded). Optional regular and large meal plans are also available for use at all Food Services locations on campus. Students purchase a meal card which is debited only for food purchased.

In addition, an apartment-style residence (Bates Residence) accommodates 500 male and female students. The apartments are unfurnished (except for a stove, refrigerator, carpeting and drapes) and are set aside for students above Level I, including a limited number of graduate and transfer students and special cases. The food plan is optional.

The University is unable to provide any on-campus facilities for married students at present. Students in this category may wish to use the services of the Off-Campus Housing Office, located in Room 118, Wentworth House.

The responsibility for the overall administration of the University residence system lies with the Director of Housing and Food Services. The Director determines policies, budgets, and, on the recommendation of the Manager, Residence Life, appoints a Hallmaster from the University community to serve as a mentor and leadership figure in each residence. The Director, along with the Manager, Residence Life, works with the residence government and Hallmasters to fashion a mature residence community in which self-discipline is maximized. The Hallmasters work with the student government and students on collective projects and individual personal concerns. The office of the Director of Housing and Food Services is located in Commons Building, Room 101, ext. 2909.

The Manager, Residence Admissions is responsible for admission systems, withdrawals, medical and grade appeals and waiting lists. The Manager reports to the Director of Housing and Food Services. Enquiries for residence information should be directed to the Manager, Residence Admissions, Department of Housing and Food Services, Room 101, Commons Building, telephone ext. 4223.

Students will receive a residence application and a letter of instruction regarding application procedures with their letter of

acceptance from the university. Guaranteed offers of residence will be confirmed upon receipt of a Residence Application form and a deposit before a specified deadline which will be applied to the student's residence fees. Students who do not receive an offer of residence, but wish to be placed on a waiting list, must return the completed Residence Application form before the specified deadline date. If a residence space has been assigned, but is not required, the student must cancel, in writing, to the Department of Housing and Food Services by the specified deadline date. Failure to do so will result in forfeiture of the full amount of the deposit.

### **CONFERENCE SERVICES**

#### **Conference Co-ordinator**

Wendy Read

During the summer months, accommodation, food services and meeting facilities are available on campus for conferences, conventions and touring groups in addition to residence for summer students and casual visitors. For conference information, contact the co-ordinator at ext. 4783.

The Front Desk, located in the Commons Building, is open for housing registration from 7 a.m. to midnight daily, from early May to mid-August. Telephone ext. 7222.

### **FOOD SERVICES**

The University provides many dining areas on campus offering a wide variety of nutritious food at reasonable prices.

Students living in residence (except the Bates apartment-style building) are required to purchase a meal plan. Off-campus students and other members of the University community may purchase an off-campus meal plan for any amount over \$100 at the Food Services Express Desk, located in the Commons Building, Room B101B.

McMaster has a self-operated food service that includes five full-service cafeterias with dining rooms located strategically around campus in Togo Salmon Hall, Kenneth Taylor Hall, A.N. Bourns Building, Commons Building, and The Refectory. All dining facilities accept meal cards and cash. Students can obtain meals anytime from 7 a.m. to midnight.

Coffee shops are located in the Chester New Hall basement, the John Hodgins Engineering Building foyer, and the Burke Science Building. Vending machines at many locations around campus supplement these facilities. Inquiries are welcome by Food Services at ext. 4410.

### **OFF-CAMPUS HOUSING**

The Off-campus Housing office is a free listing service provided jointly by the University and the McMaster Students Union. This office maintains updated lists of available accommodation in Hamilton and the surrounding area. Also, it provides area maps, transit maps, free telephones for local calling and personal assistance to help in the housing search. The Off-Campus Housing office is operated on a year-round basis and is located in Wentworth House, Room 118.

This office operates in conjunction with the McMaster Students Union and together they make an attempt to handle all possible problems and needs that a student renter may encounter.

The Off-Campus Housing office is a unique part of the Housing and Food Services office and can be contacted at ext. 4086.

### **SERVICES TO STUDENTS**

#### **OMBUD'S OFFICE**

The McMaster Students Union, in co-operation with the McMaster University Staff Association, McMaster Association of Part-Time Students, and the McMaster University Faculty Association, employs the Ombudsperson. The Ombudsperson provides information and advice relating to complaints, disputes and appeals involving members of the McMaster community, including academic and admission inquiries, financial aid, academic and non-academic disciplinary matters, disputes involving the provision of services such as financial, retail, parking and security services, as well as

employment-related matters and human rights concerns, including sexual harassment. The office is in Hamilton Hall, Room 212, ext. 2003, or (416) 528-9887.

## UNIVERSITY CHAPLAINS

Catholic and Protestant chaplains on campus provide a wide range of student services in worship, discussion groups, pastoral counseling, and social action. At least one of the chaplains is available during the day in the office, and students can always call the chaplains' residences for appointments at other times. The chaplains support many student activities, as well as caring for personal, family and religious needs. Their office is in Wentworth House, Room 108, ext. 4207.

### Chapel Services

The Chaplaincy Centre sponsors a variety of chapel services on campus, including mid-day ecumenical services and Roman Catholic masses during the week, and a Sunday mass. Times for these services are posted on the sign board outside the chapel across from Mills Library. In addition, there are special services of celebration or remembrance at different times of the year.

## PARKING

*Campus parking facilities are limited and the availability of spaces cannot be assured*

Travel to and from the University on foot, by public transportation and in car pools is encouraged.

Parking regulations are in effect at all times and University parking permits are required for all private motor vehicles. These permits are valid only when purchased at an entrance kiosk (daily permit), or from the Parking Office in the E. T. Clarke Centre upon presentation of a current University Identification Card, vehicle registration and payment of the prevailing parking fee. Special arrangements may be made for disabled parking privileges.

Drivers operating motor vehicles on campus are responsible for becoming familiar with the McMaster University Traffic and Parking Regulations. Violations are subject to fines and/or tow-away. Disregarding violation charges may result in suspension of parking privileges, tow-away at the owner's expense, sanction of transcripts and/or prosecution under the Trespass to Property Act and the City of Hamilton's Private Parking Bylaw No. 89-75.

## BOOKSTORE

The University Bookstore is owned and operated by the University. Second-year textbooks, as well as M.B.A., Commerce, C.I.M., C.C.E. and CERT. texts are located in the auxiliary store located in Togo Salmon Hall, Room B203. First-, third- and fourth-year, and grad textbooks are located in the lower level of Gilmour Hall. A Microcomputer Centre and a Post Office are located within the Bookstore. A Health Sciences Branch is located in the McMaster University Medical Centre. In addition to course books, the Bookstore maintains a wide range of supplementary reading materials, both academic and general. Stationery and computer supplies and other items are also stocked. Charge accounts may be opened after registration. The Bookstore also operates a sports shop in the Phys. Ed. complex and a tuck shop in the Commons Building.

## POST OFFICE

The McMaster University Sub-Post Office is located in the Bookstore. The Post Office offers full postal service, Monday to Friday, from 8:30 a.m. to 4:30 p.m. Post Office boxes may be rented by faculty, staff, and students for the duration of their stay at McMaster.

## McMASTER UNIVERSITY ALUMNI ASSOCIATION

The mission of the Association is to support the University, to have a committed and active association membership, and to have an efficient and effective organization.

Alumni support the University in a variety of ways and the Association strives to serve its members. This relationship benefits the University and is more important in these days of limited resources.

Alumni continue their relationship with McMaster by becoming involved with branches, travel programmes, special events and

committee work. Alumni branches have traditionally been geographic, but have recently grown to include academic disciplines such as engineering, nursing, business, geography, and social work and affinity-based branches, such as the Choir Alumni, the Lettermen's Association, the Women's Athletic Alumnae, and the Student Alumni Association to name a few.

The affairs of the Association are managed by the Alumni Board, which comprises elected officers, members with portfolio, and the alumni representatives to the University Board of Governors and Senate. The Board meets quarterly with its Executive members, who are responsible for carrying out alumni business between Board meetings.

The link between the Alumni Association and the University is through the Director and staff of the Office of Alumni Advancement. This office is located in Chester New Hall. It maintains address information on all graduates, provides the Association, branches and committees with support services and organizes a variety of alumni programming.

Together, the Association and the Office of Alumni Advancement are responsive to the diverse interests of alumni. Events such as Alumni Weekend and Homecoming, and services such as travel programmes, continuing education courses, and group life insurance are only a few of the many ways the Association serves its alumni.

A very important aspect of the Association's mission will always be to benefit McMaster. Alumni who maintain a relationship with the University provide valuable energy, skills, resources, and expertise which contribute to the welfare of the University. These graduates of McMaster, through a life-long link with the University, contribute to and benefit from the existence of a fine university.

## ATHLETICS

### Director of Athletics and Recreation

Thérèse Quigley

The Department of Athletics and Recreation provides a wide variety of opportunities for both the serious athlete and the more casual competitor.

A diverse programme of recreational activities is available for those who wish to keep fit, compete in active pursuits at their own level, and enjoy sports of their choosing. Access to the various facilities on campus is open to all McMaster students. Many different club activities are available, along with instructional assistance.

A highly developed intramural programme is a very popular outlet for student activity. Intramurals run from early fall until late spring and provide students with a competitive environment that still fosters social interaction.

The varsity programme offers inter-university competition in 31 sports for men and women. Highly skilled coaches help McMaster athletes achieve their potential while competing against other universities in Ontario and across Canada. The outstanding efforts of McMaster's student-athletes and the social involvement of student supporters are focal points of student life on campus. Varsity events are a major source of school spirit for competitors and spectators alike.

## STUDENT GOVERNMENT AND ACTIVITIES

The McMaster Students Union's purpose is to represent the concerns and service the needs of over 11,000 full-time students. Every undergraduate student who is registered in 18 units or more is a member of the McMaster Students Union (MSU), and as such is entitled to all its benefits and services.

The MSU is governed by the Student Representative Assembly (SRA), a council of up to 35 of its full-time members. All but two are elected in March by their fellow students in various faculties; each has a proportionate number of seats relating directly to the size of the faculty. The President and Treasurer are the remaining two members of the SRA. The President is elected in February by the entire student body and the Treasurer is elected in April by the SRA from the general student body. Students who have questions about student government, or wish to bring a matter before the SRA,

## 234 STUDENT SERVICES AND ORGANIZATIONS

should contact their representative, the President, or visit Hamilton Hall, Room 217.

The duties of the SRA are: to set policy for the MSU; to approve annual budgets; and to make decisions on capital purchases.

Under the direction of the SRA, committees have been established in the areas of academics, teaching awards, student services, finances, external affairs, special events and alcohol awareness. The committees are composed of assembly members and interested MSU members-at-large. Undergraduate student involvement is encouraged at the committee level. Vacancies are announced in the student newspaper, *The Silhouette*.

The McMaster Students Union Inc. operates a variety of services for students including a grocery store, Day-Care Centre, Games Room, two full-time pubs, Emergency First Response Team, Off-campus Housing Office and Sexual Education Centre. The MSU staffs an Ombuds Office to help students with problems, either internal or external to the University. The Programming Department organizes Orientation, Homecoming, Winter Carnival and major concerts. *The Silhouette* and the campus radio station CFMU 93.3, are owned and operated by the McMaster Students Union Inc. The MSU funds more than 110 clubs and societies which encompass a kaleidoscope of areas/topics, including academic, political, religious, cultural and general interest.

Information about the MSU and its services can be found in the student handbook (the *Mac Almanac*), the MSU InfoOffice, Hamilton Hall, Room 226, and at the MSU General Offices, Hamilton Hall, Room 217, ext. 2003.

Full-time undergraduates are urged to visit Hamilton Hall and to participate in the many student organizations and services.

(Through their membership in the MSU, full-time undergraduate students are also affiliated with the Canadian Federation of Students, and the Ontario Federation of Students [CFS/OFS]. For information about both of these organizations, contact the MSU)

***Fraternities and Sororities are not recognized by McMaster***

***University and are not permitted to associate with the University in any way. The University is not responsible for any acts by these groups.***

### **McMASTER ASSOCIATION OF PART-TIME STUDENTS (MAPS)**

MAPS exists to look after the special interests of part-time degree or certificate students, who have a different educational experience than full-time students. University fees for these students include an assessment to support the Association.

The Association's lounge and office are open all year, Monday to Thursday, from 10 a.m. to 8:55 p.m., and Friday, from 10 a.m. to 2 p.m., when classes are in session.

MAPS Executive Director Bruce Misch is available to help students. If you have a question pertaining to university procedure or a problem of any kind, Bruce or the MAPS staff, can either supply the answer or put you in touch with someone who can.

The part-time student newsletter, *The LINK*, is published on a regular basis, and will be sent to your professor or class representative for distribution to you. If you do not receive a copy, call or drop by the office.

MAPS provides the opportunities and methods for part-time students to communicate their needs and ideas to university officials, by ensuring representation on university governing bodies and committees, and by the Association's direct contact with university administrators on matters such as course availability, evening services and tuition fees.

MAPS is also pleased to offer two awards, the Centennial Award and the Martin W. Johns Award. MAPS has also established a bursary to assist students who have demonstrated financial need.

If you are a part-time student, MAPS is for you. It is a way to bridge the gap between you and the University, by helping you feel a part of McMaster's student body. We urge you to participate as often as possible in the academic and social events which will be available to you at McMaster.

The MAPS lounge and office are located in Kenneth Taylor Hall, Room 102, ext 2021.



# ACADEMIC SERVICES AND RESEARCH FACILITIES

## ACADEMIC SERVICES

### THE UNIVERSITY LIBRARY

#### University Librarian

G.R. Hill, B.A. (*Newcastle*), M.A. (*Lancaster*), M.L.S. (*Western*)

The University Library System consists of Mills Memorial Library (Humanities and Social Sciences), the Innis Room in Kenneth Taylor Hall, which contains a collection of Business materials, the H.G. Thode Library of Science and Engineering, the Lloyd Reeds Map Library/Urban Documentation Centre in the Burke Science Building, and the Health Sciences Library in the Health Sciences Centre. Union catalogues covering all libraries are available and stacks are open to all library users.

The collection in 1991 contained more than 1,617,839 volumes, 1,284,911 microform items, 164,713 non-print items and 11,093 linear feet of archival material. Current periodical titles number about 15,334.

To help readers, service is maintained at key points, such as Reference and Periodicals, in the various libraries. Introductory library tours and subject-related seminars are conducted and pamphlets describing the hours and services of the different areas are available.

Mills Library has several collections — Reference, Periodicals, Government Documents and Music, which contain materials of significance for both Undergraduates and Researchers; and Reserve, which is used mainly by Undergraduates.

The William Ready Division of Archives and Research Collections in Mills Library contains rare books, manuscripts and special book and archival collections, which afford many opportunities for original research. Of outstanding interest are the Bertrand Russell Archives, a massive collection of correspondence and manuscripts supported by books, journal articles, secondary literature, tapes, films and personal memorabilia. The Eighteenth-Century Collection of British material numbers over 30,000 volumes and is the major Canadian collection in the field. Library fellowships in Eighteenth-Century Studies are being offered annually. Among more modern materials are the papers of Vera Brittain, Marian Engel, Robert Fulford, Pierre Berton, Farley Mowat, Peter Newman, Matt Cohen and many others. Business interests are reflected in such files as the General Steel Wares Archives, the Macmillan of Canada Archives, the Clarke Irwin Archives, and the McClelland and Stewart Archives. Canadian social and political interests are documented in papers from the Canadian Union of Students, the Canadian Youth Congress, the SUPA/CUCND papers and other related collections. There are holdings of the records of a number of labour unions, including USWA Local 1005, USWA, District 6, United Glass and Ceramic Workers (Canada), and the Hamilton and District Labour Council.

#### PUBLICATIONS

- McMaster University Library Research News
- Russell, the Journal of the Bertrand Russell Archives
- Monographs with the imprint of the McMaster University Library Press

#### STAFF

Kathryn Ball, B.A. (*Laurentian*), M.L.S. (*Western*)/Business Librarian  
 Elizabeth Grace Bayley, B.A. (*McMaster*), M.L.S. (*Western*)/Cataloguing Librarian, Health Sciences Library  
 Regina Bendig, B.A. (*Toronto*), M.L.S. (*Toronto*)/Librarian, Processing Services  
 Kenneth Milton Blackwell, B.A. (*Victoria*), M.L.S. (*Western*), M.A.

(*McMaster*), Ph.D. (*Guelph*)/Russell Archivist  
 Ruby M.C. Chan, B.S.S. (*Ottawa*), B.L.S. (*Toronto*)/Catalogue Services Co-ordinator, Processing Services  
 David E. Cook, B.A., M.L.S. (*Toronto*)/Documents Librarian  
 Marju Drynan, B.A. (*McMaster*), M.S. (*Columbia*)/Associate University Librarian For Systems Development  
 Peggy Eleanor Findlay, B.A. (*York*), M.L.S. (*Dalhousie*)/Information Services Librarian, Science & Engineering  
 Dorothy A. Fitzgerald, B.A. (*Mt. St. Vincent*), M.L.S. (*Dalhousie*)/Director, Health Sciences Library  
 Thomas Leslie Flemming, B.A. (*St. Mary's*), M.A., M.L.S. (*Dalhousie*)/Head of Public Services, Health Sciences  
 Nora M. Gaskin, B.A. (*McGill*), M.L.I.S. (*Western*)/Librarian Processing Services  
 Mark Haslett, B.A. (*Toronto*), M.L.S. (*Western*)/Acquisitions Librarian, Collections  
 Elizabeth Elise Hayton, B.Sc. (*McGill*), M.L.S. (*Toronto*)/Co-ordinator, Circulation Services  
 Graham Roderick Hill, B.A. (*Newcastle*), M.A. (*Lancaster*), M.L.S. (*Western*)/University Librarian  
 Vivian M. Lewis, M.L.S. (*Toronto*)  
 Mary Ruth Linkert/Head of Administrative Services  
 Margaret Liddell Maggs, B.A. (*McMaster*), M.A. (*Glasgow*), A.L.A./Associate University Librarian, Reader Services  
 Carol Mary Mazur, B.A. (*McMaster*), B.L.S. (*Toronto*)/Librarian, Reference Services  
 Anne McKeage, B.A. (*McMaster*), M.L.S. (*Western*)/Archivist and History of Medicine Librarian, Health Sciences  
 Linda Rose Michtics, B.A. (*McMaster*), M.L.S. (*Western*)/Librarian, Reference Services  
 Donna M. Millard, B.A., M.L.S. (*Western*)/Librarian, Reference Services  
 Judith Morley, B.A. (*McMaster*), B.L.S. (*Toronto*)/Librarian, Processing Services  
 Cathy Moulder, B.A. (*McMaster*), M.L.S. (*Toronto*)/Documentalist, Lloyd Reeds Map Library/Urban Documentation Centre  
 Victor Nunn, B.A. (*York*), M.L.S. (*Western*)/Assistant University Librarian for Collections Management and Development  
 Michael J. Ouellette, Library Personnel Officer  
 Linda W. Panton, B.A. (*Mount Allison*), M.L.S. (*Western*)/Co-ordinator of Hospital Libraries  
 Valerie Jeanette Parke, B.A., M.L.S. (*Western*)/Librarian, Reference Services  
 Narendar Nath Passi, M.A. (*Punjab*), M.L.S. (*Delhi and Toronto*)/Head of Reference Services  
 Sheila Letitia Pepper, B.A., M.A. (*McMaster*), B.L.S. (*Toronto*)/Applied Systems & Instructional Services Librarian  
 Olga Perkovic, B.A. (*McMaster*), M.L.S. (*Toronto*)/Librarian, Processing Services  
 Anne Pottier, B.A. (*Principia College*), M.L.S. (*Toronto*)/Interlibrary Loan Librarian  
 Carol Racheter, B.A., B.L.S., M.L.S. (*Toronto*)/Director of Processing Services  
 Carl Spadoni, B.A. (*Wilfrid Laurier*), M.A. (*McMaster*), Ph.D. (*Waterloo*), M.L.S. (*Toronto*)/Librarian, Research Collections  
 Tafila A. Spence, M.A. (*Glasgow*), B.L.S. (*Toronto*)/Serials Librarian  
 Charlotte A. Stewart-Murphy, B.A. (*Toronto*), M.A. (*McMaster*), M.L.S. (*Western*)/Director of Archives and Research Collections  
 Donna K. Thomson, B.A. (*York*), M.L.S. (*Toronto*)/Database Development Librarian Services  
 Elaine M. Tooke, B.A., M.L.S. (*Western*), M.Sc. (*Dalhousie*)/Reference Librarian, Science & Engineering  
 Mary Ann Trainor, B.A. (*McMaster*), M.L.S. (*Toronto*)/Acquisitions and Serials Librarian, Health Sciences  
 John Winch/Library Preservation Specialist



## **COMPUTING AND INFORMATION SERVICES (CIS)**

### **Assistant Vice-President, IST**

John Drake, M.A., M.Sc., Ph.D.

### **Director, Computing and Information Services**

Doug Gowland, C.A., C.M.C.

### **Operations and Communications**

Pat O'Day, B.A./Associate Director

### **Client Services-Research**

Robin Griffin, B.Sc., Ph.D./Assistant Director

### **Data Services**

John Masterson, B.Sc., M.B.A./Assistant Director

### **Client Services**

Heather Grigg, Manager

### **Administration**

Barb Carnpbell, B.A./Manager, Department

CIS provides computing services in support of both academic (instruction and research) and administrative activities. The facilities available for academic use include several microcomputer and workstation laboratories. CIS manages a campus-wide Ethernet and ROLM data service as well as a number of associated communication services such as Datapac access. The campus Ethernet is linked to ONET, allowing access to resources across North America. Administrative computing is run on an IBM MVS system and a VAX 4000.

Student computer laboratories are located in the Burke Sciences Building, Rooms 240-245, the John Hodgins Engineering Building, Room 234, the Arthur Bourns Building, Room 166, and Kenneth Taylor Hall, Rooms B110, B111, B120 and B123. Student consultants are available to assist customers in each of these terminal areas. Assistance is also available in the main CIS office located in Arthur Bourns Building, Room 132. Each Faculty has a Service Coordinator, who is familiar with that Faculty's particular requirements, to assist faculty and student members and to undertake projects of interest to the Faculty. CIS provides seminars and short non-credit courses. Other courses relating to computers and computing are offered by the Department of Computer Science and Systems, the Science Resource and Training Centre and through the Centre for Continuing Education.

CIS services for the University community include a computer conference service, an electronic mail system and access to InterNet, a worldwide network.

CIS also administers a number of University site licences for software such as SAS, SPSS, and some Borland programmes.

In addition to the facilities operated by CIS, there is computer equipment located in Departments to support academic programmes.

## **UNIVERSITY ART GALLERY**

➤ Togo Salmon Hall, Room 114, EXT. 3081

### **Director and Curator**

K.G. Ness, B.A., M.Litt., MMST

### **Registrar**

G. Loveys, B.A.

### **Installations Officer/Preparator**

J. Petteplace, B.A.

With one gallery of over 2,000 square feet, it has all the professional facilities for a year-round programme of exhibitions, either organized by McMaster or loaned to the University by such organizations as the National Gallery of Canada and the Art Gallery of Ontario.

The Permanent Collection consists of more than 4,600 Canadian,

American, oriental and European art works with a specialized collection of over 230 German Expressionist prints.

The Gallery is open daily except Saturdays.

## **THE INSTRUCTIONAL DEVELOPMENT CENTRE**

➤ General Sciences, Room 217, ext. 4540

### **Director**

A.C. Blizzard, B.Sc., M.Sc., Ph.D.

### **Educational Consultant**

D.E. Roy, B.A., M.A.

### **Educational Consultant**

P.A. Lockhart, B.A.

### **Secretary**

S. Riselay

The Instructional Development Centre (IDC) is a resource centre for people who teach at McMaster: individual faculty members and teaching assistants (tutors, demonstrators, markers) as well as departments and other groups.

The Centre works closely with the University Committee on Teaching and Learning. This group, which includes a representative of the McMaster Students Union Teaching Awards Committee, two graduate students and faculty members from all six Faculties, provides policy guidance for the Centre, makes recommendations to the University on issues affecting teaching and learning conditions and provides grants for teaching and learning development projects. The Centre's activities include:

**Teaching and Learning Grants:** The IDC consults with applicants on their proposals and assists them with projects. It also provides administrative services for the Grants program.

**Programmes for Teaching Assistants:** The Centre plans and organizes TA-Day, a campus-wide orientation programme for teaching assistants. It also offers a series of short courses on teaching for senior Ph.D. students.

**Workshops, Seminars and Conferences:** A wide variety of events is offered, conducted by McMaster faculty, visiting resource people and IDC staff. Generally, the topics are ones requested by instructors or departments or are reports by people who have completed Teaching and Learning Grant projects. Subjects typically include research on learning and teaching methods, lecturing, small group discussion, simulations and the use of microcomputers in education.

**Consultation:** A major part of the Centre's work is discussing current courses with instructors. The instructor or department provides the expertise in the course content. The Centre provides information on ways for instructors to evaluate and refine courses. It also arranges contacts with other experienced people and assistance in trying new approaches.

The Centre has a long history of collaboration with student efforts to support excellence in teaching. For example, the IDC provided consultation on refinements to the MSU Teaching Awards programme and the MSU Handbook The Disabled Student as well as on grants the MSU has received for its own teaching and learning projects.

**Resources:** The IDC has a library of books on university teaching and learning, example audio-visual materials and microcomputer programmes. It also has video-tape equipment (for use in workshops and for taping classes at the request of instructors) and some microcomputer equipment for familiarization seminars and for faculty to use in evaluating educational software.

Students, especially those working as teaching assistants, are invited to visit the Centre.

## **AUDIO VISUAL SERVICES**

➤ Health Sciences Complex, Room 1G1, ext. 2301, or Burke Sciences Building, Room B231, ext. 2761

McMaster Audio Visual Services provides a complete media service to faculty, staff and students at McMaster. These services include: television production, editing and tape duplication; audio recording, tape and cassette editing, and high-speed tape duplica-

tion; A/V equipment distribution (all kinds of projectors, audio and video tape recorders, etc.); film reservations; A/V equipment repair; graphic art — for design, charts and graphs for publication, display or poster presentations, and computer graphics; black-and-white laser prints and high-resolution 35mm colour slides; full line of desktop publishing services offered; photographic services, including location and studio photography, black-and-white and colour photofinishing, 35mm slides, film processing and slide duplication, and a wide range of film and supply sales.

## RESEARCH FACILITIES

### ONTARIO CENTRES OF EXCELLENCE

In June 1987, seven Centres of Excellence were designated by the Ontario provincial government. Each Centre acts as a network to promote a co-operative research environment between the Ontario university community and the business/labour community. McMaster is participating in three of these Centres, based on existing research strengths.

#### ONTARIO CENTRE FOR MATERIALS RESEARCH (OCMR)

The research programme of this Centre will focus on biomaterials, microstructures, polymers and composites, optoelectronics, and the microscopic study of the interface between materials surfaces.

#### MANUFACTURING RESEARCH

##### CORPORATION OF ONTARIO (MRCO)

The MRCO will provide a basic research centre for the development of pre-competitive generic manufacturing technology, with special emphasis on Computer Integrated Manufacturing.

#### TELECOMMUNICATIONS RESEARCH

##### INSTITUTE OF ONTARIO (TRIO)

In response to the growth in demand for transmission of voice, data and pictorial information, the work of this Centre will concentrate on multi-service digital networks, radar systems, mobile and satellite systems, photonic networks and systems, and electromagnetic compatibility.

#### CENTRE FOR ELECTROPHOTONIC MATERIALS AND DEVICES (CEMD)

➤ John Hodgins Engineering Building, Room A318, ext. 7129

##### Director

Dr. D.A. Thompson, B.Sc., Ph.D.

The CEMD was established to promote research in the area of devices, materials and processing technologies applicable to the development of optoelectronic integrated circuits; with the main emphasis on optical communications. The centre is establishing comprehensive facilities necessary to meet its goals - these include molecular beam epitaxy, ion implantation, reactive ion etching, plasma deposition, metallization, photolithography and masking, an extensive array of analytical equipment for electrical, optical and structural characterization and extensive clean room facilities. Faculty involvement includes members of the Departments of Engineering Physics, Physics, Chemistry, Electrical and Computer Engineering and Materials Science and Engineering.

#### CENTRE FOR FLEXIBLE MANUFACTURING RESEARCH AND DEVELOPMENT

- John Hodgins Engineering Building, Room 307, ext. 4992
- Laboratory: John Hodgins Engineering Building, Room A104, ext. 2902.

##### Director

Dr. Hoda A. ElMaraghy, B.Eng., M.Eng., Ph.D., P.Eng.

The Flexible Manufacturing Research and Development (FMRD) Centre is a multidisciplinary group dealing with various aspect of flexible automation, focusing on Manufacturing Systems, Robotics,

Expert Manufacturing and Task Planning, and Design Automation. It was established in 1984 with an initial grant provided by the Canadian Federal Government's Centres of Specialization programme. The aim is to conduct fundamental research and develop technological solution for manufacturing problems, enhance graduate education and collaborate with industry on projects of mutual benefits.

The FMRD Centre is a node in the National Network of Research Excellence on Robotics and Intelligent Systems (IRIS) and in the Ontario Manufacturing Centre of Excellence (MRCO). A three-year international collaborative research project with the Fraunhofer Institute of Technology for Production Automation, Stuttgart, West Germany began in 1990. It is funded by the Ontario Premier's Technology Fund and is concerned with the integration of manufacturing process planning and production scheduling to achieve a dynamic and responsive manufacturing system. A major contract has been established with General Motors Canada, Oshawa which deals with the application of expert systems and design tolerancing techniques to product design and manufacture. The aim is to increase products design, robustness and decrease their sensitivity to variations on the shop floor. A three year research programme with Electrohome Limited, Motor Division, Cambridge, on the design and automated assembly of electric motors, has also been completed and led to the design and implementation of a new and better family of motors.

The Centre contains a flexible assembly cell with two robotic workstations, a palletized computerized conveyor, a grey-scale vision system, force and tactile sensors, and a network of SUN computer workstations. Current research focuses on feature-based modelling of products, sensor-based robotics and automated assembly, expert systems and artificial intelligence, control and off-line programming of robots, manufacturing systems design and simulations, production planning, automated inspection and design automation.

#### CENTRE FOR HEALTH ECONOMICS AND POLICY ANALYSIS (CHEPA)

➤ Health Sciences Centre, Room 3H1D, ext. 2122

##### Director

Professor Jonathan Lomas

CHEPA is a multidisciplinary university research centre established in 1988 from a nucleus of researchers in the Department of Clinical Epidemiology and Biostatistics. Research activities include: 1) development and application of methods to evaluate the costs, risks, benefit and utility of specific health and health-care services; 2) design and evaluation of systems of organization and financing of health services; and 3) study of the behaviour of consumers, providers and other decision-makers in health and health-care systems. Other goals of the Centre include the expansion of training opportunities in these fields and the improvement of research transfer and interaction between academic researchers and policy-makers. The Centre maintains a collaborative research programme with the Ontario Ministry of Health, sponsors national and international conferences and workshops, publishes a research working paper series, provides infrastructure and some support services for associated faculty, and participates in numerous local, provincial, national and international research networks.

#### CENTRE FOR INTERNATIONAL HEALTH (CIH)

➤ Health Sciences Centre, Room 3N44, ext. 2033

##### Director

Dr. Victor R. Neufeld

The goal of the Centre for International Health (CIH) is to facilitate the incorporation of an international perspective in the academic programmes/activities of the Faculty of Health Sciences, with a priority focus on less-developed countries (LDC, "Third World").

- The main activities of the CIH has been:
  - to include an international component in the Faculty's strategic planning process;

- to initiate the planning of a training programme in "health for development";
- to develop collaborative projects with selected developing country universities, with a focus on institutional capacity-building;
- to serve as a co-ordinating centre for international academic networks;
- to serve as an information dissemination and learning resource centre on international electives and programmes for the students.

### **CENTRE FOR PEACE STUDIES**

➤ University Hall, Room B104

#### **Director**

Graeme MacQueen, B.A., M.A. (McMaster), Ph.D. (Harvard)

#### **Co-ordinator**

Leszek Gluchowski, B.A., M.A. (McMaster), Ph.D. (Cambridge)

The Centre for Peace Studies was established by the Board of Governors of McMaster University in 1989. The Centre has an office, a Director who reports to the Provost and Vice-President (Academic), a Co-ordinator, a part-time Secretary, and a Co-ordinating Council appointed from among the faculty, students and staff of McMaster. The Centre's operating budget is drawn from University funds, although external resources are also solicited for special projects.

The Centre supports multidisciplinary research and teaching in the area of peace and conflict studies. Centre research and teaching focus on four areas: social movements, warfare and security arrangements, religious and philosophical approaches to peace and war, and human rights.

The Centre annually sponsors the independently endowed Bertrand Russell Peace Lectures, has organized several international conferences, initiated a number of scholarly publications, and has a wide range of international contacts, especially in Central America, Central East Europe, India and the Middle East.

The Centre's office is open during regular office hours. It offers a small holding of books, periodicals, audio and video tapes that are available on loan. The Centre is linked by computer to Peace Studies institutions and conferences around the world.

### **BERTRAND RUSSELL EDITORIAL PROJECT**

➤ Togo Salmon Hall, Room 7190, ext. 4896

#### **Director**

Dr. L. Greenspan

The Bertrand Russell Editorial Project was established in 1980 to publish a critical, reliable, annotated version of Russell's technical and humanistic shorter writings -- some 2,500 items, many hitherto unpublished. The Project consists of a research staff that prepares the texts, annotations, headnotes and introduction for each volume and a technical staff that prepares camera-ready copy for the publisher Unwin Hyman. Seven of the 30 projected volumes have been published, and four are nearing completion. The Project staff expected to have had completed 12 volumes of text and two volumes of bibliography before the end of the Project's grant in 1992.

### **BRAIN & BEHAVIOUR RESEARCH PROGRAMME**

➤ Health Sciences Centre, Room 3G17, ext. 84-6180.

#### **Director**

Dr. J. Cleghorn

The Brain and Behaviour Research Programme, founded in 1980, was established to set a high priority on neuroscience and psychiatry. The membership includes neuroscientists, psychologists, neurologists, psychiatrists and pharmacologists.

It has evolved into these distinct subprogrammes:

1. Neurochemistry of schizophrenia and related psychotic disorders. (J.M. Cleghorn, G.M. Brown, R. Mishra, H. Szechtman, R. Kaplan, M. Mazurek, M. Pisa)  
Brain imaging and in vivo neurochemistry with positron emission tomography (E.S. Garnett, C. Nahmias, G. Firnau). Application

of these methods to brain mechanisms of schizophrenia with implications for the course and treatment of disorder.

2. Cognitive science and neuroanatomy: The relations between differences in sex and cognitive skills and the anatomical organization of the brain. (S.F. Witelson)
3. The role of biological rhythms in health and disease. (G.M. Brown, M. Steiner, J. Seggie).
4. Developmental neurobiology: The growth of central nervous system tissues and factors promoting repair following damage. (J. Diamond, A. Foerster) This programme is part of a network of Centres of Excellence.

### **THE COMMUNICATIONS RESEARCH LABORATORY (CRL)**

➤ Building 43, Room 101, ext. 4291

#### **Director**

Simon Haykin, B.Sc., Ph.D., D.Sc., F.R.S.C., F.I.E.E.E.

The Communications Research Laboratory (CRL) is a research organization within the Faculty of Engineering. The CRL was founded in 1971 under an NRC Negotiated Development Grant.

The aims and objectives of the CRL are:

1. to develop new devices, circuits, signals, and systems found in communications, including radar and sonar, with emphasis on digital signal processing techniques;
2. to produce communications experts to meet the needs of Canadian industry and government research laboratories;
3. to work with these laboratories on projects of mutual interest under contractual arrangements; and
4. to organize seminars and workshops on topical subjects in communications.

The CRL interacts extensively with industry, and has two Chairs and one Fellowship sponsored by NSERC and industrial partners.

The CRL is a founding member of the Telecommunications Research Institute of Ontario (TRIO), an Ontario Centre of Excellence, and is also a participant in the Canadian Institute of Telecommunications Research (CITR), an initiative under the Federal Network of Centres of Excellence programme.

### **EIGHTEENTH-CENTURY FICTION (ECF)**

➤ Chester New Hall, Room 421, ext. 7123

#### **Director**

Dr. D. Blewett

ECF is an international bilingual quarterly devoted to the historical and literary analysis of fiction written between 1660 and 1830. It publishes an average of four articles and 10 book reviews in each issue. The Editorial Advisory Board is international; its editors are faculty members of the English and French Departments at McMaster and of the French Department at the University of Toronto. Published by the University of Toronto Press.

### **GERONTOLOGICAL STUDIES**

There are four Gerontology components at McMaster: the Office of Gerontological Studies; the Educational Centre for Aging and Health; The R. Samuel McLaughlin Centre for Gerontological Health Research; and Undergraduate Degree Studies in Gerontology.

#### **OFFICE OF GERONTOLOGICAL STUDIES**

##### **Director**

Dr. Ellen B. Ryan, B.A, M.A., Ph.D

The Office of Gerontological Studies (OGS) is involved in the promotion and development of multidisciplinary research and educational programmes within the University and the local community. OGS also provides a forum for collaboration on education, research, and service projects with other community organizations.

The Office's activities are supported by University funding, while specific projects are funded by public agencies, private foundations, or user fees. The Undergraduate Degree Studies in Gerontology

programme is administered by this Office. The various degree options are described in this Calendar in the Faculty of Social Sciences section, Gerontological Studies.

The Office mandate is as follows:

1. to serve as the communication centre regarding gerontological education and research activities at McMaster University. Regular information about gerontological activities is provided through the newsletter *Gerontology Update*, the annual *Inventory of Gerontological Research*, and the *Annual Report*;
2. to co-ordinate and plan multidisciplinary initiatives in gerontology education and research across all Faculties of the University. (Social Sciences, Health Sciences, Humanities, Science, Business, Engineering);
3. to organize multidisciplinary educational events in gerontology for professionals and the general public, e.g. the McMaster Summer Institute On Gerontology;
4. to actively participate in provincial and national gerontological organizations and initiatives;
5. to initiate and support the development of new gerontological projects with older adults, community agencies, students, staff and faculty;
6. to promote educational opportunities for older adults at McMaster University and the Hamilton-Wentworth region.

### EDUCATIONAL CENTRE FOR AGING AND HEALTH

#### Director

Dr. A. (Sandy) Macpherson, M.D., M.Sc.

#### Associate Director

Dr. J.K. (Ken) Le Clair, M.D.

The Educational Centre for Aging and Health was established in the Faculty of Health Sciences at McMaster University in April 1987, with funding from the Ontario Ministry of Colleges and Universities. It has five components:

- Educational Programmes
- The Geriatric Educational Development Unit
- The Clinical Teaching Units
- The Health Priorities Analysis Unit
- The Provincial Network which encompasses: The Ontario University Coalition for Health Care of the Elderly and The annual Conference on Education in Aging and Health.

#### The Mission Statement

The Educational Centre for Aging and Health seeks, through professional education, to enhance the quality of life, self-determination and well-being of older persons living in the community and in institutional settings in Ontario by:

- increasing the number and proportion of skilled health professionals who are committed to promoting health and providing excellent care for aging individuals;
- developing collaborative interdisciplinary and interprofessional educational approaches and models concerning aging and health and evaluating their effectiveness.

### R. SAMUEL MCLAUGHLIN CENTRE FOR GERONTOLOGICAL HEALTH RESEARCH

Chedoke Campus, Building 74 at (416) 521-2100, ext. 4015

#### Director

Dr. L. Chambers, Ph.D.

The objectives of the R. Samuel McLaughlin Centre for Gerontological Health Research are as follows:

- to support research training of people skilled in caring for seniors and recruit research faculty for the Faculty of Health Sciences;
- to encourage research that will improve health care and preventive care for seniors;
- to sponsor education conferences which integrate proprietary and non-proprietary health care. We invite university faculty, health-care managers, service providers and government officials to participate;
- to publish reports on the Centre's current activities. Distribute these to supports of the Centre, health-care agencies and

government divisions which have a gerontological health-care interest;

- to disseminate new knowledge about gerontological health care through publications, professional conferences, workshops and other forms of continuing education.

The R. Samuel McLaughlin Centre for Gerontological Health Research consists of an Executive Committee that oversees the activities of the Centre, a Fellowship Committee that selects research fellows, and a Career Scholar Committee that makes recommendations to the Faculty of Health Sciences for the appointment of new faculty researchers.

### HAMILTON CIVICS RESEARCH CENTRE

➤ Henderson Hospital; phone (416) 575-2601

#### Director

Dr. J. Hirsh

#### RESEARCH

1. To develop basic and clinical research programmes in thrombosis and vascular disease, including venous thrombosis, pulmonary embolism and atherosclerosis (including coronary heart disease, cerebrovascular disease and peripheral vascular disease).
2. To act as a resource and methods centre for the design, execution and analysis for local, national and international clinical trials.
3. To develop joint research programmes with scientists and clinicians at the Ontario Cancer Treatment and Research Foundation, Hamilton Regional Cancer Centre (Henderson General Hospital).
4. To support the development of a Lipid and Atherosclerosis Research Programme at the Hamilton Civic Hospitals (Hamilton General Division).
5. To encourage and facilitate clinical research among members of the medical and allied health professional staff at the Hamilton Civic Hospitals.

#### EDUCATION

1. To train research fellows and other health professionals in basic and applied research in hemostasis, thrombosis and atherosclerosis, as well as general methodology of clinical research.
2. To provide a resource in clinical research methodology and laboratory research for members of the Hamilton Civic Hospitals and other hospitals affiliated with McMaster University.
3. To organize public education seminars on important health issues related to the interests of the Research Centre. These educational activities are performed under the guidance of the Public Education Committee, chaired by Ronald K. Fraser.
4. To make presentations to lay groups in the community on health topics of current interest.

### INSTITUTE OF ENVIRONMENT AND HEALTH

➤ The Institute can be reached at ext. 7344.

#### Director

Dr. S.M. Taylor

The McMaster Institute of Environment and Health's major activities include:

- interdisciplinary research on linking ecosystem observations to human health;
- long-term, in-depth health surveys, including cross-sectional health assessments;
- identification and evaluation of hazards, including risk assessment;
- social, psychological and political considerations in environment and health;
- development of preventive policies and strategies;
- development of innovative educational programmes;
- Participation in community-based environment and health initiatives.
- Fostering of effective collaborative linkages.
- Conducting regular workshops and seminars.

**INTESTINAL DISEASES RESEARCH PROGRAMME**

➤ Health Sciences Centre, Room 3N5C, ext. 2585

**Director**

Dr. Stephen M. Collins

The programme adopts a fully integrated and interdisciplinary approach to study the responses of the bowel to injury in general, and to inflammatory processes in particular. The Programme contains both clinicians and basic scientists from different backgrounds, and work is conducted on patients, on human tissue in-vitro as well as on animal tissues. Research activities evolve around three main foci: immune regulation in the gut, immuno-physiological interactions in the gut, and brain-gut and gut-brain interactions. There is also focus on research into the ionic basis for the excitability of nerve, muscle and interstitial cells in the gut. The work is targeted to disease processes and impacts on our understanding of two common categories of gastrointestinal disease, namely Inflammatory Bowel Disease and stress-related or "functional" bowel disorders.

**McMASTER INSTITUTE FOR ENERGY STUDIES**

➤ Kenneth Taylor Hall, Room 330

**Director**

Dr. M.L. Kliman

MIES was established in 1980 in recognition of the interdisciplinary nature of problems associated with producing and using energy. It aids in the organization and finance of research projects, puts on seminars and conferences and publishes the Energy Studies Review three times yearly.

In addition to various small projects, two major research programmes have been carried out by Institute teams: a study of the properties of tritium in a series of projects financed by the Canadian Fusion Fuels Technology Project and, for the Ontario Ministry of Transportation, the development of a computer model that calculates the economic and energy impacts of capital projects. In 1991, in co-operation with the Ontario Ministry of Energy, MIES inaugurated the energy Policy Research Programme, which supports academic research on energy policy problems and promotes interaction between policy analysts and academics who have a common interest in energy issues. Between January and October 1992 MIES is presenting an ambitious workshop/conference series entitled Energy Technology Options for the Twenty-First Century--Environment, Economy, Society.

The Institute has members from departments in all Faculties. Its staff consists of a Director, a Director, a secretarial assistant and an executive assistant. It reports to the Vice-President (Research).

**McMASTER INSTITUTE FOR MATERIALS RESEARCH (IMR)**

➤ Arthur Bournes Building, ext. 4683

**Director**

A.J. Berlinsky, M.Sc., Ph.D.

The Institute for Materials Research (IMR) is an interdisciplinary research organization which has, for the past quarter century, held the mandate to develop, support and co-ordinate all materials-research-related activities at McMaster. Its membership of 51 faculty members is drawn nearly equally from the Faculties of Science and Engineering, with one recent addition from Health Science. Founded by Howard Petch in the 1960s, the IMR is the foundation on which McMaster's internationally recognized, comprehensive programme in Materials Research has been built. In 1987, the IMR played a pivotal role in creating the Ontario Centre for Materials Research (OCMR), the largest of the Ontario Centres of Excellence, which is led by McMaster and Toronto. The OCMR has a five-year budget of over \$45 million, about one-third of which flows through McMaster.

The IMR maintains central facilities for Materials Research: high temperature crystal growth laboratories which are unique in Canada,

a suite of electron microscopes, metallography facilities, the helium liquefier and the Science and Engineering Electronics Shop. The IMR's main thrust areas of research are: High Temperature Superconductivity; Optoelectronics; Metals, Ceramics and Composites; and Polymer Science and Engineering. There are also smaller but nevertheless very strong efforts in Surface Science and Corrosion. The IMR is also heavily involved in the renewal of two of McMaster's most important major facilities -- the McMaster Accelerator Laboratory and the McMaster Nuclear Reactor.

**McMASTER INSTITUTE FOR MOLECULAR BIOLOGY AND BIOTECHNOLOGY**

➤ Life Sciences Building, Room 428, ext. 7003

**Director**

Dr. J.A. Hassell, B.Sc., Ph.D.

The Institute for Molecular Biology and Biotechnology serves as the principal focus of molecular biological research and teaching at McMaster University. The Institute is supported by the Faculties of Science and Health Sciences and draws its academic staff from departments within these faculties. Research programmes are supported by external funding and include genetic and protein engineering, vaccine biotechnology, and studies of the molecular biology of cancer and development. The Institute oversees an undergraduate honours programme in molecular biology and biotechnology, and seeks to develop a graduate programme in this area. To maintain competitive research programmes, the Institute operates a Central Facility which provides services and equipment to University researchers. The Institute's director reports to the Vice-President (Research).

**McMASTER INSTITUTE FOR POLYMER PRODUCTION TECHNOLOGY (MIPPT)**

John Hodgins Engineering Building, Room 136, ext. 7118

**Director**

Dr. A.E. Hamielec

The Polymer Institute is a research establishment whose primary goal has been to provide McMaster faculty with fully maintained laboratories and equipment for polymer-related graduate research free-of-charge. The monies required to run the Institute come from membership fees paid by member companies, contract research and projects for Ontario Centre for Materials Research (OCMR).

In 1982 when the Polymer Institute was founded there was very little polymer-related research at McMaster University and it was exclusively in the Department of Chemical Engineering. This research was in two areas -- polymerization reactor engineering and polymer rheology. We felt that our graduates at the Master's and PhD levels were not getting an adequate breadth of knowledge because we did not have professors in polymer chemistry and polymer-related material science to provide suitable courses. In addition the students were not experiencing true interdisciplinary research.

The resources of the Polymer Institute have been used to encourage the Departments of Chemistry and Materials Science and Engineering to hire faculty with interest in polymer research. I am most happy to report that the Chemistry Department hired a polymer chemist (Dr. Harald Stöver) in 1989 and that the Department of Materials Science and Engineering hired an assistant professor, interested in polymer research, Dr. Gu Xu.

**McMASTER INTERNATIONAL**

John Hodgins Engineering Building, Room A415, ext. 4700

**Director**

Dr. Gary Warner

**Project Officer**

Bill Radford

**Administrative Assistant**

Laurine Mollinga

McMaster University has become increasingly involved around the world in exchange agreements, institutional linkages and externally funded international programmes concerned with collaborative research, with the training of professional people and with improving the delivery of services in such sectors as business, environmental protection, community health and engineering. At the same time, the University has been receiving a growing number of requests for collaboration from post-secondary institutions and governments in many countries. McMaster International was created in 1988 in response to the need for a co-ordinated approach to the international activities of the university. The vision of McMaster International is to promote global social equity and to be guided by the principles of partnership, human rights and environmental protection.

The specific functions of McMaster International are as follows:

1. Encourage and co-ordinate multidisciplinary initiatives in international education and scholarship across all academic units of the University;
2. Facilitate the involvement and support of faculty, staff and students from all parts of the University in international activities;
3. Foster partnerships between the University and external groups, including industry and non-governmental organizations, in undertaking international activities;
4. Serve as the communication centre concerning international activities at McMaster;
5. Maintain and disseminate information within the University about international programmes and opportunities.

**McMASTER NUCLEAR REACTOR (MNR)****Director, MNR, and Professor of Physics**

Malcolm F. Collins, M.A., Ph.D.

**Chief Reactor Supervisor**

Michael Paul Butler, B.Eng., M.Eng., P.Eng.

**Reactor Manager**

Peter C. Ernst, B.Eng., M.Sc.

**Senior Health Physicist**

John W. Harvey, B.Sc., Ph.D.

**Manager, Centre for Neutron Activation Analysis**

Alice E. Pidruczny, B.Sc.

The McMaster Nuclear Reactor (MNR), which has been operating on the McMaster campus since 1959, is the sole medium power research reactor in Canada. MNR is also the only reactor at a Canadian university with adequate power to enable scientists and engineers to explore many types of research requiring neutron or gamma radiation: nuclear science, applications of nuclear methods, neutron scattering, neutron radiography, high flux activation analysis, isotope production, applications of radioisotopes, and many other areas.

MNR is an MTR open pool-type research reactor producing neutron fluxes up to  $1 \times 10^{14}$  neutrons/cm<sup>2</sup>/second when operating at a power output of five megawatts (thermal). It utilizes plate-type enriched uranium fuel elements and is moderated and cooled with light water. The open pool concept provides easy access to the reactor core and its experimental facilities, making it a very flexible research reactor. Special facilities are continually being developed to accommodate new research requirements.

The reactor building is located on the main campus and is available

to all departments for both educational and research activities, and in the establishment of new fields of investigation. The reactor is also used in commercial, industrial and health applications and by researchers from other universities and from industry and government laboratories.

**McMASTER RHEUMATIC DISEASES UNIT**

➤ Health Sciences Centre, Room 2F9 and 4N55N, ext. 84-6410

**Director**

Dr. W.W. Buchanan

Determination of the mode of action of anti-arthritis drugs in (a) arthritic patients and laboratory animal models, (b) in vitro in various cell and organ culture systems.

Studies on the mechanism of action of anti-rheumatic drugs and anti-ulcer drugs on the gastro-intestinal tract of human subjects and in animal models so as to (a) determine the mode of action of the anti-rheumatic drugs in causing gastro-intestinal side effects (ulceration, haemorrhage), (b) defining the actions and utility of currently established anti-ulcer therapies for their ability to prevent these side-effects, and (c) determining the rational basis for preventing these side-effects.

Cartilage destruction and bone changes in osteoarthritis and the actions of drugs.

Mechanisms of dermatotoxic side-effects of anti-rheumatic drugs. Studies on the significance of pain in rheumatic therapy.

**McMASTER ACCELERATOR LABORATORY****Director**

Dr. H.K. Haugen, Ph.D.

The McMaster Accelerator Laboratory is a large facility used for research in materials research, atomic and molecular spectroscopy, and solid state physics. There are two principal accelerators: an 11 million volt Tandem Van de Graaff accelerator and a smaller single-ended 3-million-volt Van de Graaff.

In the Tandem accelerator, singly charged negative ions are accelerated to the positive terminal of the machine. In passing through the terminal, those ions are stripped in flight of two or more electrons and are then repelled from the same terminal. In this manner, energetic beams of most elements can be produced with energies up to 20-100 MeV. These beams are directed to one of many experimental target locations. The experimental facilities of the Tandem accelerator include two beam lines for ion implantation studies, a hydrogen-profiling location, a large heavy-particle spectrograph, a cryogenic target for molecular spectroscopy studies, a gamma-ray spectrometer and a molecular beam epitaxy unit. In addition, both accelerators have general purpose materials science chambers which are equipped for ion beam analysis such as Rutherford backscattering and channelling. Although the laboratory is used primarily by research scientists and graduate students, several undergraduate students assist with some of the experiments.

**MOLECULAR VIROLOGY AND IMMUNOLOGY RESEARCH PROGRAMME**

➤ Health Sciences Centre, Room 4H17, ext. 2471

**Director**

Dr. K.L. Rosenthal

This programme's mission is to gain understanding through basic research about fundamental biological processes that impact on health. This is accomplished by: 1) encouraging the performance of outstanding curiosity-driven fundamental research, 2) by providing an atmosphere to encourage interactions between basic scientist and clinical investigators, and 3) by providing a scholarly atmosphere to educate and train students and clinical investigators in fundamental medical sciences.

The programme has evolved from its inception in 1971 to include research expertise in a number of areas related to microbiology and



immunology. Special strengths representing multi-investigator activities exist. This includes research into the processes of acute and chronic inflammation and their application to understanding chronic immune/inflammatory diseases, studies in reproductive and tumour immunology, investigations of the interactions between the nervous and immune systems, molecular virology and immune responses to viruses and, finally in the study of viral oncology.

### **OCCUPATIONAL HEALTH RESEARCH PROGRAMME**

➤ Health Sciences Centre, Room 3H55, (416) 525-9140, ext. 2333

#### **Director**

Dr. D.C.F. Muir

The Occupational Health programme offers post-professional teaching. In addition, there are regular clinics where patients with a wide range of occupational illnesses are seen. The Industrial Hygiene Laboratory is fully equipped for research and survey purposes.

Undergraduate students with interests in these areas are invited to contact the programme.

### **ONTARIO WORKERS' COMPENSATION INSTITUTE (OWCI)**

➤ Chedoke Campus, Building 74 at (416) 521-2100, ext. 4032

#### **Hamilton Site Director of Clinical Epidemiology Research**

Dr. P. Tugwell

The Ontario Workers' Compensation Institute (OWCI) is part of the Workers' Compensation Board's three-tiered Medical Rehabilitation Strategy. It is affiliated with McMaster University, Chedoke-McMaster Hospitals, the University of Toronto, Sunnybrook Medical Centre and the Workers' Compensation Board but is a distinct entity with its own Board of Directors.

The OWCI conducts research on work-related injuries and acts as a consultative and educational resource in the development of curricula for training health-care professionals involved with the rehabilitation of injured workers.

The Institute also conducts programme evaluation and accreditation of the Community Clinics (Tier 1) and the Regional Evaluation Centres (Tier 2) as part of the provincial rehabilitation strategy. It will also be involved in promoting further development of programmes in these Clinics and Evaluation Centres.

### **PROGRAMME FOR QUANTITATIVE STUDIES IN ECONOMICS AND POPULATION (QSEP)**

#### **Director**

Frank T. Denton, B.A., M.A., F.R.S.C.

The Programme for Quantitative Studies in Economics and Population is an interdisciplinary programme based in the Faculty of Social Sciences. Its purpose is to encourage and facilitate faculty research in economics and other areas of the social sciences, with special emphasis on the analysis of population and the relationships between population change and changes in the economy and the society. The programme's Research Associates number about 40 faculty members from various departments of the University and interdisciplinary co-operation is encouraged. The programme issues a series of reports known as QSEP Research Reports and authored by individual Research Associates; these reports, or abstracts of them, are distributed widely in North America and in other parts of the world. The programme is also responsible for a continuing series of seminars with invited speakers from other

universities or non-university research centres, as well as from within McMaster.

### **SMOOTH MUSCLE RESEARCH PROGRAMME**

➤ Health Sciences Centre, Room 4V34, ext. 84-5178

#### **Director**

Dr. R.M.K.W. Lee

This is a multidisciplinary programme where there is a close collaboration between clinicians and basic scientists. The common theme is the study of the structure and function of the smooth muscle in health and disease. The types of studies range from whole animal studies in relation to response to specific drug treatment, to molecular biology approach for the isolation of the genes for specific receptors or ion pumps. The functional systems and related diseases currently under investigation are:

**Cardiovascular:** in relation to stroke, coronary diseases and hypertension

**Respiratory:** hyperactive airways as in asthma

**Reproductive:** uterine smooth muscle in relation to parturition

**Digestive:** motility disorders of the alimentary canal.

Techniques employed include morphology and morphometry; histochemistry and cytochemistry; in vitro and in situ reactivity and sensitivity studies; cell fractionation and membrane isolation for receptors and membrane transport studies; electrophysiology (including patch-clamping); cell and organ cultures; and cellular signal processing (e.g. microfluorimetry).

All the investigators hold at least one grant from major funding agencies, and there are one MRC programme grant and one Centre of Excellence grant. Collaboration exists both within (e.g. Intestinal Disease Research Unit and various city hospitals) and outside the University (nationally with several universities in Ontario, Newfoundland, Alberta; and internationally with the universities and institutes in the U.S., Europe and Asia.

### **Campus Names**

The University's Board of Governors has made provision for naming buildings, facilities, spaces and streets after individuals who have some connection with the University. Recommendations made according to the criteria outlined below are considered by the Advisory Committee on Campus Names.

#### **POLICY OF THE BOARD OF GOVERNORS ON CAMPUS NAMES**

1. The names of distinguished members of the McMaster University community (Faculty, Alumni, Board of Governors and Senate) who are no longer actively involved in the affairs of the University should be given first consideration for such recognition.
2. Subsequently, the names of others should be considered in the order indicated below:
  - a) Outstanding scholars outside the University who have had a close relationship with McMaster and whose academic disciplines relate to the structure or area being named.
  - b) Major benefactors of the University, including corporations. We assume that the case for considering a particular person would be strengthened if he or she were also eligible under 1).
  - c) Names that bear a relationship to the history or geography of Hamilton and district.

We believe that the University should continue to name buildings, special facilities, spaces and streets after persons in any of the categories listed above and should also consider the possibility of naming wings or sections of buildings.

(Board of Governors, February 27, 1973)

Information concerning the nomination can be obtained from A.L. Darling, Chair, Advisory Committee on Campus Names, Gilmour Hall, Room 202.



# GOVERNING BODIES

## BOARD OF GOVERNORS (1992-93)

### EX OFFICIO

#### CHANCELLOR

J.H. Taylor, B.A., M.A., LL.D.

#### PRESIDENT AND VICE-CHANCELLOR

G.A. Kenney-Wallace, L.R.I.C., M.Sc., Ph.D., A.R.I.C.,  
D.Sc. (Hon.), LL.D. (Hon.), F.R.S.C.

#### PROVOST AND VICE-PRESIDENT (ACADEMIC)

A.C. Heidebrecht, Ph.D., P.Eng.

### ELECTED BY THE BOARD

G. Bullock, *Hamilton*

T.G. Chambers, ('50), B.A., *Ancaster*

D.A.S. Ivison, B.A., M.B.A., N.D.C., *Toronto*

F.H. Logan, *Toronto*

G.M. Luxton, B.A., Q.C., *Hamilton*

A. Murray, *Hamilton*

M. Paikin, B.A., LL.D., *Burlington*

E.B. Priestner, B.A., *Burlington*

F.H. Telmer, B.A., M.A., *Burlington*

J.L. Thibault, B.A., M.A., *Ottawa*

L.V. Walsh, B.Sc., M.B.A., *Burlington*

### APPOINTED BY THE BOARD OF TRUSTEES OF MCMASTER DIVINITY COLLEGE

A.G. Halliwell, *Burlington*

### APPOINTED BY THE ALUMNI

T.R.W. Crawford ('54), B.A., *Toronto*

L. Matthews ('69), B.A., *Toronto*

L.C. McLean ('65), B.Eng., M.Eng., Ph.D., *Burlington*

L.G. Tapp, B.A., *Oakville*

E.A. Taylor ('54), B.A., M.B.A., *Burlington*

### APPOINTED BY THE SENATE

L.G. Allan, B.A., M.A., Ph.D., *Hamilton*

J.A. Johnson, B.A., M.A., Ph.D., *Ancaster*

G.R. Purdy, B.Sc., M.Sc., Ph.D., *Hamilton*

### ELECTED BY THE TEACHING STAFF

D.A. Dawson, B.A., A.M., Ph.D., N.D.C., *Greenville*

A.P. Hitchcock, B.Sc., Ph.D., F.C.I.C., *Hamilton*

G.K. Smith, B.Sc., Ph.D., *Dundas*

S.F. Witelson, B.Sc., M.Sc., Ph.D., *Hamilton*

### ELECTED BY THE UNDERGRADUATE STUDENTS

B. Herspiegel, *St. Catharines*

### ELECTED BY THE GRADUATE STUDENTS

J.J. Ojha, *Oakville*

### ELECTED BY THE NON-TEACHING STAFF

B. Diacon, *Hamilton*

E.K. Moore, *Dundas*

### APPOINTED BY THE LIEUTENANT GOVERNOR IN COUNCIL

H.L. Bell ('51), B.A., *Binbrook*

S.M. Cornett, B.S., *Dundas*

B.D. Nicol, F.C.A., *Waterdown*

P.R. Phoenix, B.A., *Burlington*

Chief J.E. Thomas, *Wilsonville*

### HONORARY GOVERNORS

C.J.S. Apps ('36), B.A., LL.D., *Kingston*

R.W. Cooper, LL.D., *Burlington*

H.C. Dixon, B.Com., F.C.A., LL.D., *Hamilton*

J.P. Gordon, B.Sc., P.Eng., LL.D., O.C., *Mississauga*

H.A. Leal ('40), B.A., LL.M., Q.C., LL.D., D.C.L., O.C.,  
*Tweed*

D.C. Marrs, LL.D., *Burlington*

Justice L.T. Pennell ('38), B.A., P.C., LL.D., *Brantford*

J.G. Sheppard, C.M., LL.D., *Hamilton*

F.H. Sherman, B.Sc., P.Eng., LL.D., *Hamilton*

### OFFICERS OF THE BOARD

#### CHAIR

E.B. Priestner

#### VICE-CHAIR

B.D. Nicol

#### SECRETARY

W.B. Frank

## SENATE (1992-93)

### EX OFFICIO

#### CHANCELLOR

J.H. Taylor, B.A., M.A., LL.D.

#### PRESIDENT AND VICE-CHANCELLOR

G.A. Kenney-Wallace, L.R.I.C., M.Sc., Ph.D., A.R.I.C.,  
D.Sc. (Hon.), LL.D. (Hon.), F.R.S.C.

#### PROVOST AND VICE-PRESIDENT (ACADEMIC)

A.C. Heidebrecht, B.Sc., M.S., Ph.D.

#### VICE-PRESIDENT (RESEARCH)

R.F. Childs, B.Sc., Ph.D., D.Sc.

#### VICE-PRESIDENT (ADMINISTRATION)

A.L. Darling, B.Sc., M.Ed., F.K.C.

#### DEAN AND VICE-PRESIDENT (HEALTH SCIENCES)

J. Bienenstock, M.B., B.S., M.R.C.P., F.R.C.P.(C),  
F.R.C.P.

### PRINCIPAL OF MCMASTER DIVINITY COLLEGE

W.H. Brackney, B.A., M.A., Ph.D.

### DEAN, FACULTY OF SOCIAL SCIENCES

J.A. Johnson, M.A., Ph.D.

### DEAN, FACULTY OF ENGINEERING

G.R. Purdy, B.Sc. (Eng.), M.Sc., Ph.D.

### DEAN, FACULTY OF SCIENCE

R.H. McNutt, B.Sc., Ph.D.

### DEAN, FACULTY OF HUMANITIES

E. Simpson, A.B., Ph.D.

### DEAN, SCHOOL OF BUSINESS

W.G. Truscott, B.S.E., M.B.A., D.B.A.

### DEAN OF GRADUATE STUDIES

C.D. Wood, A.B., M.A., Ph.D.

### UNDERGRADUATE COUNCIL CHAIR

G. Breckenridge, M.A., Ph.D.

Continued on next page

**SENATE ... continued****REPRESENTING THE SCHOOL OF BUSINESS**

N.P. Archer, Ph.D., M.S.  
C.S. Cheung, B.S., M.S., Ph.D.  
H. Jain, B.Com., M.B.A., Ph.D.

**REPRESENTING THE FACULTY OF ENGINEERING**

M.B. Ives, B.Sc., Ph.D.  
A.A. Harms, B.Sc., M.S.E., Ph.D.  
D. Stolle, B.Eng., M.Eng., Ph.D., P.Eng.

**REPRESENTING THE FACULTY OF HEALTH SCIENCES**

A. Baumann, R.N., B.Sc.N., M.Sc.N., Ph.D.  
R.D. Hollenberg, B.A., M.D.  
E.L. Regoeczi, B.M., M.D.  
P. Salvatori, Dip. P&OT, M.H.Sc.  
P.H. Tanser, M.D., F.R.C.P.(C), F.A.C.C., F.A.C.P.,  
C.S.P.Q. (Cardiol.), F.I.C.A.  
A.G.G. Turpie, M.B.Ch.B., F.R.C.P., F.A.C.P., F.R.C.P.(C)

**REPRESENTING THE FACULTY OF HUMANITIES**

M. Ahmed, L. ès L., M. ès L., D. de l'U.  
V. Aksan, B.A., M.L.S., M.A., Ph.D.  
D. Clark, B.A., M.A., Ph.D.  
J. Coldwell, B.A., M.A., Ph.D.  
N. Kolesnkioff, M.A., Ph.D.  
W. Thorpe, B.A., B.A., M.A., Ph.D.

**REPRESENTING THE FACULTY OF SCIENCE**

L.G. Allan, B.A., M.A., Ph.D.  
A.J. Berlinsky, M.S., Ph.D.  
G.L. Keech, B.A.Sc., M.Sc., Ph.D.  
S.B. McCann, B.Sc., Ph.D.  
S. Siegel, A.B., M.S., Ph.D.  
J. Warkentin, B.Sc., M.Sc., Ph.D., F.C.I.C.

**REPRESENTING THE FACULTY OF SOCIAL SCIENCES**

S. Ahmad, M.A., LL.B., M.Sc.  
M.M. Atkinson, B.A., M.A., Ph.D.  
L. Finsten, B.A., M.A., Ph.D.  
N. Gold, B.S.W., M.S.W., Ph.D.  
R.E. Howard, B.A., M.A., Ph.D.

J.C. Robertson, B.A., B.D., S.T.M., M.A., Ph.D.

**REPRESENTING THE FACULTY OF THEOLOGY**

P.R. Dekar, A.B., M.Div., A.M., Ph.D.

**REPRESENTING THE TEACHING STAFF OF THE DIVINITY COLLEGE**

M.J.A. Horsnell, B.A., B.D., Th.M., Ph.D.

**REPRESENTING THE UNDERGRADUATE STUDENTS OF THE UNIVERSITY**

A.H. Bryden  
B.R. Harrington  
S.E. Juhasz  
M.D. Smitiuch  
J.C. Stevens

**REPRESENTING THE GRADUATE STUDENTS OF THE UNIVERSITY**

M.J. Anderson, B.A., M.A.  
D.T. Fogal, B.A.Sc., M.A.Sc.  
B.G. Marfleef, B.A.  
M.J. Perz, B.Sc.  
D.J. Pitman, B.Sc.

**REPRESENTING THE GRADUATES OF THE UNIVERSITY**

B. Ellis ('61), B.A.  
M.J.S. Ford ('48), B.A., B.D., M.A., D.Rel.  
C. Johnson ('78), B.A., M.A.  
R. Philip ('59), B.A., M.Sc.Ed.

**REPRESENTING THE BOARD OF GOVERNORS**

H.L. Bell, B.A.  
B. Diacon  
M. Luxton, B.A., Q.C.

**OFFICERS OF THE SENATE****CHANCELLOR**

J.H. Taylor

**CHAIR**

G.A. Kenney-Wallace

**VICE-CHAIR**

A.C. Heidebrecht

**SECRETARY**

J.E. Morris

**OFFICERS OF THE UNIVERSITY****CHANCELLOR**

J.H. Taylor, B.A., M.A., LL.D.

**PRESIDENT AND VICE-CHANCELLOR**

Geraldine A. Kenney-Wallace, L.R.I.C., M.Sc., Ph.D.,  
A.R.I.C., D.Sc. (Hon.), LL.D. (Hon), F.R.S.C.,

**PROVOST AND VICE-PRESIDENT (ACADEMIC)**

Arthur C. Heidebrecht, B.Sc., M.S., Ph.D.

**VICE-PRESIDENT (RESEARCH)**

Ronald F. Childs, B.Sc., Ph.D., D.Sc.

**DEAN AND VICE-PRESIDENT (HEALTH SCIENCES)**

John Bienenstock, M.B., B.S., M.R.C.P., F.R.C.P.(C),  
F.R.C.P.,

**VICE-PRESIDENT (ADMINISTRATION)**

Alexander L. Darling, B.Sc., M.Ed., F.K.C.

**ASSISTANT PROVOST (STUDENT AFFAIRS)**

Mary E. Keyes, B.A., M.A., Ph.D.

**REGISTRAR**

Susan Porter, B.A.

**ASSISTANT VICE-PRESIDENT (FINANCE)**

Lynne Hopkinson, C.M.A.

**ASSISTANT VICE-PRESIDENT (INFORMATION SERVICES & TECHNOLOGY)**

John J. Drake, M.A., M.Sc., Ph.D.

**DEAN OF STUDENT AFFAIRS**

Rudy Heinzl, B.A., M.A.

**UNIVERSITY LIBRARIAN**

Graham R. Hill, B.A., M.A., M.L.S.

**PRINCIPAL OF MCMASTER DIVINITY COLLEGE**

William H. Brackney, B.A., M.A., Ph.D.

**SECRETARY TO THE BOARD OF GOVERNORS**

W. Bruce Frank, B.A., M.A., Ph.D.,

**SECRETARY OF THE SENATE**

Joan E. Morris, B.A.

# STUDENT FINANCIAL AID

## Director

John Edwards

## Co-ordinator

Denise Ellis

For information on any of the programmes which follow contact:

**Student Financial Aid and Scholarships Office**  
**Hamilton Hall, Room 403**  
**McMaster University**  
**Hamilton, Ontario, L8S 4K1**  
**Telephone: (416) 525-9140, ext. 4789**

## ONTARIO STUDENT ASSISTANCE PROGRAMME

Financial aid to help students meet the costs of post-secondary education is available from the federal and provincial governments through the Ontario Student Assistance Programme (OSAP) which consists of four plans:

- Canada Student Loans Plan
- Ontario Student Loans Plan
- Ontario Special Bursary Plan
- Ontario Work-Study Plan

To be eligible for assistance under each of these plans, a student must be a Canadian citizen or permanent resident of Canada and fulfill certain requirements for residency in Ontario. The amount of financial aid awarded is determined by a need-testing procedure.

It is strongly recommended that students apply by June 30 to ensure that their applications are processed by September. Currently, it takes eight to 10 weeks to process a regular OSAP application.

All of the government programmes described in this text are modified and restructured annually to reflect the changing needs of students from the Province of Ontario. It is, therefore, recommended that you discuss your specific financial requirements with a counsellor in the Student Financial Aid and Scholarships Office as early as possible.

### Canada Student Loans Plan

This is a federal government plan, administered by the provincial government, which provides loans to needy students for completion of any level of study. Maximum assistance under this plan is about 40% of standard costs at an Ontario institution.

Loans are available to full-time students enrolled at recognized post-secondary institutions anywhere in the world.

The federal government also provides Canada Student Loans for needy part-time students. These loans cover a student's costs for tuition, books, transportation, day care and incidentals and are interest bearing after 30 days.

### Ontario Student Loans Plan

This plan provides loans to full-time students whose financial needs are not fully covered by the Canada Student Loans Plan. This plan also helps part-time students or students enrolled in programmes not eligible for the Canada Student Loans Plan.

### Ontario Special Bursary Plan

This plan helps exceptionally needy students who are unable to attend school full-time but need post-secondary training to improve their job prospects.

Bursaries are available to such part-time students enrolled at recognized post-secondary institutions in Ontario only.

### Work-Study Programme

The Work-Study Programme complements the original plans in the OSAP package. It offers part-time jobs to needy students during the school year to help them meet exceptional costs, often unexpected, not recognized under OSAP. It also helps students who lack the

resources expected under OSAP criteria or, whose assessed need under OSAP is not met because of loan maxima or, who do not wish to borrow further due to high debt load.

Costs of this plan are shared by the provincial government and a local sponsoring agency which must be a non-profit organization, such as the University.

## BURSARIES

Most bursaries are awarded by the University Bursary Selection Committee on the basis of a general bursary application. Application forms are available from the Student Financial Aid and Scholarships Office, Hamilton Hall, Room 403, from November 1 to the last Friday in November of each academic year. Bursary awards will be disbursed in January. Any person who is registered and in good standing as a student of McMaster University is eligible to apply.

### THE GARY ALLEN MEMORIAL BURSARY

Established in 1987 by friends and family of the late Gary Allen ('84) to assist a needy Commerce student in Year III or IV whose major area of study is accounting. Preference will be given to a mature student. 90501276

### TOM ANDERSON MEMORIAL BURSARY

Established in 1988, a bursary to be awarded to a student attending his or her first year at McMaster in Business I. The student must have graduated from a secondary school in the Regional Municipality of Hamilton-Wentworth or the City of Burlington. 90502281

### THE A.H. ATKINSON BURSARIES

Established in 1989 by the A.H. Atkinson Education Fund Inc. of Hamilton. A variable number of bursaries to be awarded to undergraduate students in a full-time programme in Engineering who demonstrate financial need. 90500282

**Value:** \$700

### THE ATKINSON CHARITABLE FOUNDATION BURSARIES

A fund has been made available for the assistance of students who are residents in the Province of Ontario. A number of awards will be made on the basis of financial need and other considerations, according to regulations suggested by the Foundation. 90503283

### THE AVESTEL CREDIT UNION LIMITED BURSARIES

Established in 1989 by members in celebration of 50 years of service in the Hamilton area. Two or three bursaries to be awarded to students in any programme who, are from the Regional Municipality of Hamilton-Wentworth, City of Burlington or Town of Haldimand-Norfolk, who have demonstrated financial need. 90504199

**Value:** \$700

### THE J.P. BICKELL BURSARIES

The J.P. Bickell Foundation provides a sum of money to assist students specializing in Geology. Recommendations are made by the Department of Geology. 90505285

### THE SIDNEY L. BLUM BURSARY

Established in 1989 by friends and associates in memory of Sidney L. Blum. To be awarded on the recommendation of the Director of the School of Social Work to any student in good standing in Levels III or IV of the Bachelors of Arts/Social Work programme or Level II of the Bachelors of Social Work programme. 90506286

### THE ROBERTA BONDAR BURSARY

Established in 1992 by the Zonta Club of Hamilton in recognition of Canada's first female astronaut. To be awarded to a female student enrolled in Engineering I or Natural Sciences I. 90558020

### THE CITY OF HAMILTON BURSARIES

Established in 1959 by the City of Hamilton to commemorate the visit of Her Majesty Queen Elizabeth II and His Royal Highness Prince Philip to Hamilton in July 1959. To assist Hamilton students. 90515

### THE CLASS OF '35 BURSARIES

Established by the Year '35 in honour of their 50th class reunion. To be awarded to a student in good academic standing who is a Canadian citizen or permanent resident. 90507180

**THE CLASS OF '46 BURSARIES**

Established by the Year '46 in honour of their 40th class reunion. To be awarded to a student in a programme in Gerontology.

**THE DORIS PARTRIDGE COLE BURSARY**

Established in 1981, this bursary is to be awarded to a worthy student in memory of Doris Partridge Cole ('45). 90508002

**THE EDITH GRACE COOMBS MEMORIAL BURSARY**

Established in 1989 by Lois Taylor Brown in memory of Edith Grace Coombs who, for many years, taught at the Ontario College of Art. To be awarded to a student enrolled in an Art or Art History Programme who demonstrates financial need. Preference will be given to a full-time student enrolled in the second year of the programme. 90554294

**THE ARCHIBALD R. CROZIER BURSARIES**

Established in 1992 in memory of Archibald (Archie) Crozier ('35), former professional football player and Chair of the Ontario Energy Board for 17 years. To be awarded to a needy student who has demonstrated a sense of social awareness and shown interest in, and concern for, others. It is hoped that recipients, after graduation, will reimburse the fund to the extent of their award so that increasing numbers of students may be assisted.

**THE AUBREY DALGLEISH BURSARY**

Established in 1985. To be awarded to a student in any programme with special preference given to handicapped students and/or students in the Faculty of Business. 90509

**PATRICIA ANNE DICICCO MEMORIAL BURSARY**

Established in 1988 this bursary is to be awarded to a student or students enrolled in a programme which includes Gerontology as a major, who is a Canadian citizen or permanent resident and who exhibits financial need. 90510204

**THE EDITH E. FERRIE BURSARIES**

Established in 1965 by the late Edith E. Ferrie. To be awarded to students in any programme. 90511289

**THE EMMA FOX BURSARIES**

Established in 1961 by the Wallingford Hall Committee of which Emma Fox was treasurer from 1918 to 1958. To assist female students in any programme. 90512

**THE JAMES EDWARD GRADER MEMORIAL BURSARY**

Established in 1964 by his sister. To be awarded to a student specializing in Geology. Application should be made to the Department of Geology. 90513

**THE JAMES R. (JAMIE) GREILICH MEMORIAL BURSARY**

Established in 1991 in memory of Jamie Greilich ('88) by the Operating Committee on the Disabled through its Awareness Week Activities. To be awarded to a disabled student in any programme who demonstrates financial need. Students should have registered with the Office of the Co-ordinator for the Disabled. 90553287

**THE HAMILTON CITIZENS' MEMORIAL BURSARIES**

Established in 1947 by the Hamilton Citizens' Committee for War Services. Proceeds to be used to assist undergraduate students who are residents of the Hamilton-Wentworth Region. 90516207

**THE HARWOOD BURSARIES**

Established in 1990 by bequest of Dr. William Harwood of Hamilton in memory of his beloved wife Grace and devoted daughter Willa Ruth Laurie ('50). A variable number of bursaries to be awarded to students studying Music who demonstrate financial need.

**Value:** Not to exceed \$1,000 90517058

**THE M.A. (JACK) HASSAL BURSARY**

Established by the Hamilton and District Chartered Accountants' Discussion Group in 1982 in memory of M.A. (Jack) Hassal. To assist a student in Commerce who is a Canadian citizen or permanent resident of Canada. It is hoped that recipients, after graduation, will reimburse the fund to the extent of their award so that the fund may assist increasing numbers of students. 90518297

**THE HAWKRIGG FOUNDATION BURSARIES**

Established in 1988. To be awarded to an outstanding student in Business I or Physical Education I. 90514288

**THE JACK AND THELMA HEATH MEMORIAL BURSARIES**

Established in 1985 by Norton Canada Inc. in memory of Jack and Thelma Heath, former employees of the Company, who were tragically killed in a boating accident. The fund provides up to four awards to assist students, with demonstrated financial need, in Level III or IV of the B.Sc.N. Programme (basic and/or post-diploma stream). 90519

**THE KARL W. HEINZ MEMORIAL AWARD**

Established in 1992 by his wife in memory of Karl Walter Heinz, remembered for his compassion and love for people. To be awarded to a student in a programme in Modern Languages who is a Canadian citizen or permanent resident of Canada.

**Value:** \$500 90557113

**THE EDWIN W. HILBORN BURSARY**

Established in 1965 by bequest of Edwin W. Hilborn. To be awarded to a student in any programme. 90520

**THE MARY A. HILL BURSARY**

Established in 1976 by bequest of Mary A. Hill. To be awarded to a female student in any programme, preference to be given to one who has graduated from a secondary school in Hamilton. 90521

**THE JULIA HURTIG BURSARY**

Established by family and friends of the late Julia Hurtig in 1985. This bursary will be awarded to a student entering Level II of the Faculty of Humanities, in good standing, who has made a special contribution to the McMaster community through involvement in University affairs. Preference will be given to a female student. 90522211

**THE KHAKI UNIVERSITY AND YOUNG MEN'S CHRISTIAN ASSOCIATION MEMORIAL BURSARIES**

Established in 1921 by the Khaki University of Canada and the Young Men's Christian Association. To assist students in any programme, preference to be given to children of war veterans. 90523284

**THE RAYMOND C. LABARGE MEMORIAL BURSARIES**

Established in 1973 by friends and associates in memory of Raymond C. Labarge ('36) of Ottawa. Four bursaries are available for senior undergraduate students. Applicants should have a record of academic performance that has normally been at the upper second-class level or higher. They should also have demonstrated a sense of social awareness, shown interest in and concern for others and been an active participant in University or general community affairs. Students should describe their qualifications for this bursary in the covering letter. 90524212

**3M CANADA INC. BURSARY**

Established in 1980, two bursaries to be awarded annually; one to an M.B.A. student and one to a student in Business or Science. 90525220

**THE ANDREW MCFARLANE BURSARIES**

Established in 1988 by bequest of Andrew McFarlane of Hamilton. To be awarded to a student or students who are in good standing and have demonstrated financial need. 90526

**THE MCMASTER 1980 BURSARIES**

Established in 1980 by the University to assist undergraduate students in any programme. 90527

**THE MCMASTER ALUMNAE CENTENNIAL BURSARY**

Established in 1988 by the McMaster Women's Alumni, Hamilton Branch, to be awarded to a mature student in his or her graduating year, who is a Canadian citizen or permanent resident and who exhibits financial need. Preference will be given to a single parent. 90528214

**THE MCMASTER ASSOCIATION OF PART-TIME STUDENTS BURSARIES**

Established in 1988 in celebration of McMaster's Centennial celebration to assist students currently enrolled in a degree or certificate programme who, without such assistance, would be unable to continue their studies. Consideration may also be given to students who would not otherwise enrol without such assistance. Applications will be reviewed by the MAPS Centennial Bursary Selection Committee. 90529290

**THE MCMASTER STUDENTS' UNION BURSARIES**

Established in 1982 by the McMaster Students' Union. To assist those undergraduate MSU members who demonstrate financial need. 9053 292

**THE MCMASTER WOMEN'S CLUB BURSARY**

Established in 1983 by the McMaster Women's Club to assist a student beyond Level I in the University's B.Sc.N. programme. 90531 291

**THE A.J. MELLONI MEMORIAL FUND**

To be awarded to a student in any programme. 90532

**THE JAMES C. MOORE MEMORIAL BURSARY**

Established in 1989 by family and friends in memory of James C. Moore. To be awarded to a student in Humanities or Social Sciences who demonstrates involvement in student government.

**MOUNT HAMILTON ROTARY CLUB BURSARY**

Established in 1987, this bursary is to be awarded to a student or students who demonstrate financial need. 90533217

**THE JOHN DOUGLAS MOYER BURSARY**

Established in 1986 by bequest of John Douglas Moyer to assist needy students. 90534

**THE O'SHAUGHNESSY BURSARY**

Established in 1986 by the family and friends of the late Margaret O'Shaughnessy, RN, this bursary is to be used to alleviate financial need for students pursuing an education in Nursing (basic or post-diploma stream) in Level II, III, or IV. 90535218

**THE MARION PEARCE BURSARIES**

Established in 1990 by Dr. Sally Palmer in memory of her aunt Marion Pearce ('20). Miss Pearce worked with New Canadians at the Beverly Street Baptist Church in Toronto. A variable number of bursaries to be awarded to students enrolled in the Social Work programme who have demonstrated financial need. 90536228

**THE PROFESSIONAL ENGINEERS' WIVES ASSOCIATION BURSARY**

Originally established in 1983 by the Professional Engineers' Wives Association to be awarded to a needy female Engineering undergraduate student who, because of extenuating circumstances, would be unable to continue her studies without such assistance. 90537061

**THE JAMES AND ELIZABETH ROBERTS BURSARIES**

Established in 1957 by R.H. Roberts in memory of his parents to assist any male student of good academic standing. 90538

**THE ERIC SCHLICHTING MEMORIAL BURSARY**

Established in 1966 by his family, classmates and friends. To assist a student in a programme in Geochemistry, Geology, or other field of Science, in that order of preference. Application should be made to the Department of Geology. 90539219

**THE MYKOLA SEMENIUK BURSARIES**

Established in 1991 by bequest of Mykola Semeniuk to assist needy students. 90551 295

**THE SERTOMA CLUB BURSARY**

Established in 1989 by the Sertoma Club of Hamilton. To be awarded to a hearing disabled student in any programme who demonstrates financial need. In a year that a suitable candidate is not found, the bursary will be awarded to a student with another disability provided they demonstrate financial need. Students must have registered with the Office for Disabled Students. 90540221

**THE SAM SMURLICK BURSARY**

Established in 1978 by the Smurlick family in memory of Sam Smurlick ('35). To be awarded to a student in any programme. 90541

**THE SOCIAL SCIENCES SOCIETY BURSARIES**

Established in 1990 by the Social Sciences Society in recognition of the outstanding efforts of Dr. Peter George in establishing the Social Sciences Society. A variable number of bursaries to be awarded to full-time students enrolled in the Faculty of Social Sciences who demonstrate financial need. 90542 229

**THE LILLIAN R. STEGNE MEMORIAL BURSARIES**

Established in 1990 in memory of Lillian Rose Stegne ('62) by family, friends and colleagues. Two or three bursaries to be awarded to

handicapped students in any programme who demonstrate financial need. 90543137

**SUNCOR INC. 1988 BURSARIES**

Established in 1988, this bursary is awarded to a student who is a member of the federally designated groups for employment equity (women, native students, handicapped and the visible minorities) who is registered in a Chemical, Mechanical, Manufacturing or Materials Engineering programme. 90544222

**THE TRESSILA TRUBY MEMORIAL BURSARY**

Established in 1992 from the bequest of Tressila Truby (M.C.S.P.) and Past-President of the Zonta Club of Hamilton II. To be awarded to a female student who has completed Level II of a programme in Music. 90556200

**UNIVERSITY WOMEN'S CLUB OF BURLINGTON MATURE WOMEN'S BURSARY**

Established in 1988, a bursary to be awarded to a mature female student who demonstrates financial need, and who is a resident of Hamilton-Wentworth or Halton Region, preferably from the Burlington area. 90545223

**THE UNIVERSITY WOMEN'S CLUB OF HAMILTON BURSARIES**

Established in 1960 by the University Women's Club of Hamilton. To be awarded to female students in any programme. 90546

**BURSARIES FOR IN-COURSE VISA STUDENTS**

Established in 1982 by the University to assist visa students in any programme. 90547

**THE WALLINGFORD HALL BURSARIES**

Established through anonymous donations to assist needy students in any programme. 90548

**THE YATES BURSARIES**

Established in 1963 by bequest of William Henry Yates of Hamilton. To assist students in any programme. 90549

**THE ZONTA CLUB OF HAMILTON I BURSARIES**

Established in 1988 by the Zonta Club of Hamilton I to financially assist female students. Two bursaries to be awarded to students in good academic standing: a) one to a student specializing in Commerce; and b) one to a student specializing in Gerontology. 90550097

**SHORT-TERM EMERGENCY LOANS**

Assistance in the form of short-term loans is sometimes available to graduate or undergraduate students. Such loans cannot be given to pay tuition, bookstore, residence or other university expenses. Repayment of any loan is expected within 90 days or before the end of the academic year.

Any student interested in obtaining a short-term loan must complete an application which is available in the Student Financial Aid and Scholarships Office. Once completed, the student will meet with a representative from this office to discuss the possibility of receiving a loan.

**THE A.H. ATKINSON LOAN FUND**

Established in 1967 by A.H. Atkinson to assist Engineering students.

**THE DEAN OF WOMEN'S EMERGENCY FUND**

Established and continued by the McMaster alumni and individual benefactors to assist female students. This fund is now administered by the Director of Student Financial Aid and Scholarships.

**THE ENGINEERING INSTITUTE OF CANADA (HAMILTON SECTION) LOAN FUND**

Established by the Hamilton Section of the Engineering Institute of Canada to assist Engineering students.

**THE HAMILTON AUTOMOBILE CLUB PAST PRESIDENTS MEMORIAL LOAN FUND**

Established in 1963 by the Hamilton Automobile Club as a tribute to its deceased past presidents. To be used to assist Engineering students.

**THE LOUISE HOLMES MEMORIAL LOAN FUND**

Established in 1958 by her parents in memory of Louise Holmes, B.A. ('48). To assist female students in any programme.

### THE IODE LOAN FUNDS

Through the generosity of a number of the local Chapters, Imperial Order Daughters of the Empire, funds are provided to assist female students in any programme or as specified.

- a. **Edith M. Griffen Loan Fund**  
Established in 1957 by Paardeburg Chapter, IODE, in honour of Mrs. H.S. Griffen.
- b. **Princess Marina Chapter, IODE, Loan Fund**  
Established in 1975.
- c. **Emma Frances Pratt Chapter, IODE, Loan Fund**  
Established in 1958. To assist female students in Levels III or IV of any programme.
- d. **Muriel Clark Riddell Loan Fund**  
Established in 1964 by the Right Honourable Stanley Baldwin Chapter, IODE.
- e. **Sovereign Chapter, IODE, Loan Fund**  
Established in 1960. To assist female students in the final level of any programme.
- f. **Margaret B. Sutterby Memorial Fund**  
Established in 1955 by the 67th University Battery Chapter, IODE.
- g. **Wentworth Chapter, IODE, Loan Fund**  
Established in 1953.

### THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS LOAN FUND

Established in 1968 by the Hamilton Section of the Institute of Electrical and Electronics Engineers. To assist students in a programme in Engineering.

---

---

### THE RUSSELL E. LOVE MEMORIAL LOAN FUND

Established in 1951 by bequest through the Optimist Club of Hamilton. To assist male students in the penultimate or final level of an Arts programme.

### THE MCILROY LOAN FUND

Established in 1956 by the University Women's Club of Hamilton. To assist female students in the final level of any programme.

### THE MCMASTER ENGINEERING SOCIETY LOAN FUND

Established in 1971 by the McMaster Engineering Society for the provision of loans to Engineering students.

### THE PI BETA PHI FRATERNITY LOAN FUND

Established in 1958 by the local alumni of Pi Beta Phi. To assist female students in any Level IV Honours Arts or Science programme.

### THE PROFESSIONAL ENGINEERS' WIVES' ASSOCIATION LOAN FUND

Established in 1972 by the Professional Engineers' Wives' Association to provide loans for Engineering students.

### THE SOCIETY OF AUTOMOTIVE ENGINEERS (ONTARIO SECTION) LOAN FUND

Established in 1962 by the Ontario Section of the Society of Automotive Engineers. To assist students in a programme in Engineering.

### THE IVOR WYNNE MEMORIAL LOAN FUND

Established in 1971 in memory of Ivor Wynne, Dean of Students. To assist students in any programme.

### THE UNIVERSITY LOAN FUNDS

Small short-term emergency loans from the University funds are available to assist students in any programme.

---

---

# UNDERGRADUATE ACADEMIC AWARDS

## Director

John Edwards

## Co-ordinator

Denise Ellis

For information, please contact:

**Student Financial Aid and Scholarships Office**  
**Hamilton Hall, Room 403**  
**McMaster University**  
**Hamilton, Ontario, L8S 4K1**  
**Telephone: (416) 525-9140, ext. 4789**

The University Senate, acting on behalf of generous benefactors and donors to the University, bestows academic awards on entering, in-course and graduating students to encourage and recognize high levels of scholarship.

In recognizing such scholastic achievement, the University requires all recipients of academic awards to fulfill a set of general conditions, in addition to meeting the particular terms attached to individual academic awards. The general conditions and terms have been established to ensure equity in competition and a high academic standing. Any interpretation of the conditions attaching to academic awards is solely the prerogative of the Undergraduate Council.

## TERMINOLOGY

An explanation of the terminology used to describe Academic Awards is provided in the sections of the Calendar described below. Please refer to the *Glossary* on page 6 for definitions of **Continuing Students, Cumulative Average (CA), Level, Full-time Students, Post-Degree Students, Review and Reviewing Period.**

**Baccalaureate Degrees** are those listed under Degrees and Programmes, the abbreviations of which start with the letter B, such as B.A., B.Comm.

**Failures** are determined by reviewing period, not by session. They include failures in Extra courses.

**Full Load** is calculated for Undergraduate In-Course Academic Awards and is the number of units specified in the Calendar for an individual level of a programme (e.g. Honours Biology and Psychology, Level II: 33 units). If the Calendar does not specify the programme requirements by individual levels, divide the total units for all levels by the number of levels, discarding the remainder. A full load is not required to be eligible for graduand awards.

**Graduand Awards** are granted to eligible students on the completion of their graduating session.

**In-Course Awards** are granted to eligible students, based on academic achievement in other than their graduating session.

**Part-time Studies Awards** are referred to under Section 2, Category C. To be eligible for these awards, students must have been registered in at least 50% of all units attempted at McMaster, while fulfilling the University's definition of a part-time student as described in the *Glossary* on page 6.

**Session**, for scholarship purposes, refers to the Fall/Winter session. The Fall/Winter session is the period from September to April as defined in the *Sessional Dates* section on page 4.

**Sessional Average (SA)** is the weighted average computed for Undergraduate In-Course Academic Awards. It is based on the successful completion of a full load of course units, as defined by programme and level. It includes only those courses taken in the Fall/Winter session. Overload courses (courses over and above full load) and Extra courses taken during the Fall/Winter session are included in the Sessional Average.

## ACADEMIC REGULATIONS

The new Academic Regulations will apply to all undergraduate students admitted or readmitted from September 1993 onward, except for students who graduate in the Spring or Fall of 1994. All students who graduate in the Spring

or Fall of 1994 will be governed by the previous regulations, which can be found in the McMaster 1992-93 Calendar.

All other students will be governed by transitional arrangements, under which the CA will be calculated using: 1) "Area" courses taken before September 1993; and 2) all course taken from September 1993 onward.

## SECTION 1. GENERAL CONDITIONS FOR ACADEMIC AWARDS

- The University Academic Awards listed below are provided exclusively for students entering, registered in, or graduating from baccalaureate degree programmes at McMaster University. Continuing Students, Post-degree Students, and students registered in the McMaster Medical programme are not eligible for these awards.
- To ensure a wide distribution of the limited number of awards, there are restrictions on the number of awards that a student may receive. An eligible student may be granted:
  - travel scholarships and awards such as books and medals; and
  - awards continued from a previous year (including entrance scholarships), except as provided by the particular terms of an award; and
  - either one award greater than or equal to the value of a Senate Scholarship and one award of less than the value of a Senate Scholarship, or two awards of less than the value of a Senate Scholarship.

When a student is named the winner of an award but may not retain it because of the conditions listed above, the next eligible student will be granted the award.

- The monetary benefits of travel scholarships, awards won by part-time students and graduating students, and awards such as books and medals will be disbursed directly to the student.
- The monetary benefits of other awards will be disbursed only if the recipient is registered in a baccalaureate degree programme, or a specific programme when explicitly required by terms of award, at McMaster University in the next Fall/Winter session after the award was earned and will be allocated in the following manner:
  - the monetary benefits of award(s) will be credited to the student's academic fees account up to the value of the academic fees prescribed for a full load of work as specified in the Calendar for the level and programme in which the student is registered.
  - the monetary benefits of award(s) which exceed the value of academic fees as prescribed for a full load of work for the level and programme in which the student is registered will be credited to one or more of the student's other University accounts (eg. residence, and/or bookstore, etc.).

Amounts in excess of the student's monetary obligation to the University will be disbursed directly to the student in November or December.

- Awards credited to the student's academic fees account are not refundable in cash under any circumstances.
- Awards credited to the student's academic fees account may be used only to defray academic fees for baccalaureate degree courses taken during the Fall/Winter session in which the account is credited with the awards. Students wishing to defer the benefits of an award to a later session should apply to the Director, Student Financial Aid and Scholarships. Approval of applications is not automatic, and deferrals are not normally granted for more than one calendar year.
- Students holding four-year, full-fee scholarships who choose to accelerate their programme and to complete their degree earlier than normal by completing Spring/Summer session courses and who wish to employ the benefits of their award to defray the academic fees for such courses should apply to the Director, Student Financial Aid and Scholarships. Approval of applications is not automatic.
- The University reserves the right not to grant an award in the absence of a suitable candidate, and to limit the number of awards when there are too few suitable candidates. The University also reserves the right to withdraw, or amend the terms of, any award.
- The particular terms for University Academic Awards are listed in Section 2.

## SECTION 2. CATEGORIES OF AWARDS

### A. Awards for Entering Students (page 250)

- McMaster Scholars Programme
- Other Scholarships Open to Canadian Students
- Scholarships Open to Ontario Students



- Merit Awards Open to Ontario Students

#### B. Awards for Full-time In-Course Students (Full Load) (page 252)

- Medal
- Senate Scholarships
- Residence Scholarships
- Travel Scholarships

#### C. Awards for Part-time In-Course Students (page 261)

#### D. Single Achievement Awards for Full-time and Part-time Students (page 261)

#### E. Awards for Graduating Students (page 264)

#### F. Awards for Second Baccalaureate Degree Students (page 266)

### SECTION 3. INDEX OF ACADEMIC AWARDS

To find a specific award, use the Index for Academic Awards.

## SECTION 2. CATEGORIES OF AWARDS

### A. Awards for Entering Students

- A.1** These awards are provided exclusively for students qualifying for admission to Level I of a first baccalaureate degree programme.
- A.2** To be considered for an entrance award, students must obtain at least a first-class average in the secondary school credits required for University admission. All students who meet this requirement and who apply for early admission to the University not more than two years after completion of their secondary school studies will automatically be considered as applicants for entrance awards, unless a separate application is explicitly required by the particular terms of the award.
- A.3** Where explicitly required by the particular terms of an award, recipients must register and remain registered in the Level I programme specified. Registration in, or transfer to, another programme of study at any time will result in forfeiture of the award.
- A.4** In addition to meeting the General Conditions listed in Section 1, entrance award recipients will begin their studies in the next Fall/Winter session. Students wishing to defer the benefits of an award to a later session should apply to the Director, Student Financial Aid and Scholarships. Approval of applications is not automatic, and deferrals are not normally granted for more than one calendar year.
- A.5** Unless otherwise specified, recipients may retain an entrance award which provides for awards beyond Level I while registered in a first baccalaureate degree programme and until graduation or for four years (five years if registered in a five-level programme), whichever is less. In order to retain such awards, students must complete during each successive Fall/Winter session at the University a full load corresponding at least to:
- either the minimum number of units specified in the Calendar for their level and programme;
  - or, if the Calendar does not specify the programme work by individual levels, the average number of units per level; and must maintain a Sessional Average of at least 9.5 and obtain no failures.

### ◆ THE MCMASTER SCHOLARS PROGRAMME

Each year, up to five students who are Canadians or landed immigrants and entering from a secondary school may be awarded the title McMaster Scholar. At any time there may be no more than 16 McMaster Scholars registered in undergraduate programmes. Applications are required and must be submitted not later than March 13. Applicants will be asked to provide a resume, an essay and letters of recommendation. Details may be obtained from the Director, Student Financial Aid and Scholarships.

**Value:** \$13,000 each (\$4,000 in the first year)

The McMaster Scholars programme incorporates the following awards:

#### THE ASHBAUGH SCHOLARSHIPS

Established in 1989 by bequest of Frederick K. Ashbaugh of St. Petersburg, Florida, in memory of Mary Eliza Kingston. 20026

#### THE GEORGE AND NORA ELWIN SCHOLARSHIPS

Established in 1979 by bequest of George and Nora Elwin of Hamilton. 20029

#### THE LILLIAN AND LEROY PAGE SCHOLARSHIP

Established in 1982 by donation of the Lillian and Leroy Page Foundation for a student from the Hamilton area entering the Faculty of Science. 20030

### ◆ OTHER SCHOLARSHIPS OPEN TO CANADIAN STUDENTS

Open to Canadian students from any province or territory of Canada.

#### THE ALUMNI ASSOCIATION SCHOLARSHIPS

Established in 1961 by the McMaster University Alumni Association as a memorial to former members of the McMaster faculty in recognition of their contribution to higher learning. Two scholarships to be awarded on the basis of general proficiency in the subjects required for admission to students from any province or territory of Canada.

**Value:** Up to four years' academic fees each 20005

#### THE CANADA SCHOLARSHIPS

Established in 1988 by the federal government to reward academic excellence and encourage more male and female students to choose careers in science and engineering. A variable number of scholarships to be awarded to students entering a full-time programme of study in Arts & Science, Engineering and Natural Science. Each year, an equal number of awards is to be awarded to male and female students. (Eighty-six awards were awarded in 1991-92).

**Value:** \$10,000 (\$2,500 per year for up to four years) 20036

#### THE JOSEPHINE MAGEE SCHOLARSHIP

Established in 1959 by bequest of Josephine Magee of Hamilton. To be awarded on the basis of general proficiency in the subjects required for admission to students from any province or territory of Canada.

**Value:** Up to four years' academic fees 20012

#### THE TYNOWSKI SCHOLARSHIP

Established in 1989 by the University, friends and colleagues of Olga Tynowski, for her outstanding contributions to McMaster University during 46 years of service. To be awarded to an outstanding student entering a full-time programme of study.

**Value:** Up to four years' academic fees 20003 296

### ◆ SCHOLARSHIPS OPEN TO ONTARIO STUDENTS

The following scholarships are open to any student applying for admission from an Ontario secondary school within two years of completing the required OAC subjects. The recipients of these scholarships will be determined primarily on the basis of grades submitted for early admission in the OAC work.

#### THE ASSOCIATION OF PROFESSIONAL ENGINEERS SCHOLARSHIP

Established in 1961 by the Ontario Professional Engineers Foundation for Education. Two scholarships to be awarded, one to a male student, one to a female student entering the Faculty of Engineering.

**Value:** \$1,200 20027 232

#### THE CHANCELLORS' SCHOLARSHIPS (UNIVERSITY)

A variable number to be awarded to students entering a full-time programme of study.

#### THE CHANCELLORS' SCHOLARSHIPS (SPECIFIED LEVEL I PROGRAMMES)

A variable number to be awarded to students entering a Level I Programme in the Schools of Business and Nursing, and the Faculties of Humanities and Social Sciences.

**Value:** One year's academic fees each 20018

#### THE HELEN M. CURREY SCHOLARSHIP

Established in 1941 by bequest of Helen Maud Currey of Drumbo, Ontario. To be awarded every four years, the 13th award was made in 1992.

**Value:** Up to four years' academic fees 20009

#### THE DOFASCO SCHOLARSHIP

Established in 1955 by the Dominion Foundries and Steel Company. To be awarded to a student who is a Canadian citizen and is entering Engineering I.

**Value:** \$10,000 (\$2,500 a year for up to four years) 20000 050

#### THE DUNDAS SCHOLARSHIPS

Established in 1984 from funds donated anonymously. A variable number of scholarships to be awarded to students from Dundas and surrounding area entering a full-time programme of study.

**Value:** One year's academic fees each 20019

#### THE FORTINOS SCHOLARSHIP

Established in 1990 by John Fortino. To be awarded to an outstanding full-time student entering the School of Business.

**Value:** One year's academic fees 20034 233

#### THE H.P. FRID SCHOLARSHIP

Established in 1982 by the family of H.P. Frid in his memory. To be awarded to a promising student entering a full-time programme of study.

**Value:** One year's academic fees 20020 062

**THE MERRILL FRANCIS GAGE ENTRANCE SCHOLARSHIP**

Established in 1982 from the estate of Merrill Francis Gage of Hamilton. To be awarded to a keyboard student entering Music I who, in the judgment of the Department of Music, has attained outstanding musical proficiency.

Value: \$1,000 20031

**THE GOVERNORS' SCHOLARSHIPS**

A variable number to be awarded to students entering a full-time programme of study.

Value: Up to four years' academic fees 20007

**THE HAMILTON SPECTATOR SCHOLARSHIP**

Established in 1955 by the Hamilton Spectator. To be awarded to a student from Hamilton and district.

Value: \$10,000 (\$2,500 a year for up to four years) 20002 074

**THE JOHN HODGINS MEMORIAL SCHOLARSHIP**

Established in 1985 by his wife, Jean, in memory of Dr. John W. Hodgins in recognition of his extraordinary contributions in founding the Faculty of Engineering which he served with distinction as the first Dean. To be awarded to an outstanding student entering the Faculty of Engineering.

Value: One year's academic fees 20021

**THE NELLIE P. HOGG SCHOLARSHIPS**

Established in 1965 by bequest of Nellie P. Hogg of Hamilton. Two scholarships to be awarded to women students entering a full-time programme of study.

Value: Up to four years' academic fees each 20014

**THE DR. HARRY LYMAN HOOKER ENTRANCE SCHOLARSHIPS**

Established in 1981, and resulting from the bequest of Dr. H.L. Hooker. Sixteen scholarships to be awarded to students with the highest standing in OAC subjects entering a full-time programme of study.

Value: \$10,000 each (\$2,500 a year for up to four years) 20001

**THE AMELIA MORDEN,**

**PAARDEBURG CHAPTER, IODE, SCHOLARSHIP**

Established in 1968 by the Paardeburg Chapter, IODE. To be awarded to a student from a secondary school in Hamilton who attains an average of at least 70% in OAC subjects and who has a satisfactory record with respect to character, personality and activities. Preference to be given to children of service or ex-service personnel.

Value: \$200 20032 082

**THE JURY SCHOLARSHIP**

Established in 1941 by bequest of J.H. Jury of Bowmanville, Ontario. To be awarded to a student from a Bowmanville high school. Preference will be given to students entering the Faculty of Humanities or of Social Sciences.

Value: Up to four years' academic fees 20023

**THE LLOYD MEMORIAL SCHOLARSHIP**

Established in 1956 in memory of Henry Hoyes and Lizzie Lloyd by their children. OAC subjects to be included are: Physics, Chemistry, two credits of Mathematics, and either Biology or a third credit of Mathematics.

Value: Up to four years' academic fees 20015

**THE ALBERT MATTHEWS SCHOLARSHIP**

Established in 1920. OAC subjects to be included are Latin and a language other than English.

Value: Up to four years' academic fees 20004

**THE HAROLD MATTHEWS MEMORIAL SCHOLARSHIP**

Established in 1917. OAC subjects to be included are French and either German or Spanish.

Value: Up to four years' academic fees 20008

**THE ISABELLA CAMPBELL MCNEE SCHOLARSHIP**

Established in 1915 and augmented in 1926. OAC subjects to be included are three credits of Mathematics and Physics.

Value: Up to four years' academic fees 20010

**THE MOULTON COLLEGE ENTRANCE SCHOLARSHIP**

Established in 1980 from funds originally subscribed by the Alumnae of Moulton College during the years 1946 to 1949. To be awarded to a woman student entering a full-time programme of study.

Value: Up to four years' academic fees 20013 117

**THE ALVIN I. OGILVIE SCHOLARSHIPS**

Established in 1984 by bequest of Alvin I. Ogilvie of Hamilton. Five scholarships to be awarded to students entering a full-time programme of study.

Value: One year's academic fees each 20017

**THE A.G. REILLY SCHOLARSHIPS**

Established in 1991 by bequest of Lois E. Reilly of Toronto. A variable number

of scholarships to be awarded to students entering a full-time programme of study.

Value: One year's academic fees 20040 231

**JOHN CHARLES STRADWICK SCHOLARSHIP**

Established in 1988 by the Simcoe Erie Group to honour its founder, John Charles Stradwick. To be awarded to an outstanding student from the greater Hamilton area or southwestern Ontario who is entering Business I.

Value: Up to four years' academic fees 20011 167

**THE D.E. THOMSON SCHOLARSHIP**

Established in 1909 and augmented in 1915. OAC subjects to be included are English and either Latin or French.

Value: Up to four years' academic fees 20006

**THE FRANK THOROLFSON MEMORIAL SCHOLARSHIPS**

Established in 1978 in memory of Professor Frank Thorolfson, first Chair of the Department of Music. One or two scholarships to be awarded to students entering Music I who, in the judgment of the Department, have attained high scholastic achievement and musical proficiency.

Value: \$750 each 20028

**THE UNDERGRADUATE COUNCIL SCHOLARSHIPS**

Established in 1981 by the Undergraduate Council Awards Committee. A variable number of scholarships to be awarded to students entering a full-time programme of study in the Faculty of Humanities or Social Sciences.

Value: \$800 20033

**THE WHEELER SCHOLARSHIP**

Established in 1915. OAC subjects to be included are: History, English and a language other than English.

Value: Up to four years' academic fees 20016

● **MERIT AWARDS OPEN TO ONTARIO STUDENTS**

Unless specific conditions are described below, Merit Awards are granted on the basis of academic standing and contribution to school and community life in extracurricular activities and work. Applicants must be in Grade 13 (completing OACs) in the current school year.

**THE MURRAY BALL ENTRANCE SCHOLARSHIP IN EARTH SCIENCES**

Established in 1990 by Mae Ball in memory of her brother Murray Ball. To be awarded to the outstanding student entering the Faculty of Science who, in the judgment of the Department of Geology, has demonstrated interest in the study of Earth Sciences.

Value: \$800 20037 236

**THE DE VILLIERS-MAHAFFY MERIT AWARDS**

Established in 1991 in memory of Nina de Villiers and Leslie Mahaffy of Burlington, by contributions from the local community and the employees of several area companies including Searle Canada, Boehringer Ingelheim, Smithkline Beechan, Monsanto and the Royal Bank. Two scholarships to be awarded to outstanding students graduating from a secondary school in the Halton Region; (a) one to a student entering a full-time programme of study; and (b) one to a student entering full-time study in Natural Sciences I or Music I. Preference will be given to women students.

Value: \$800 each 20039

**THE HELEN EMERY ENTRANCE SCHOLARSHIP FOR ENVIRONMENTAL SCIENCE**

Established in 1990 by Miss Helen Emery of Barrie, Ontario. To be awarded to the outstanding student entering the Faculty of Science who, in the judgement of the Department of Geography, has demonstrated interest in addressing environmental matters.

Value: \$800 20038 237

**THE CATHRYN E. KAAKE MERIT AWARD**

Established in 1988 in memory of Cathryn E. Kaake ('78) by family and friends.

Value: \$800 20022 010

**THE RAYMOND C. LABARGE MERIT AWARDS**

Established in 1990 in memory of Raymond C. Labarge ('36) of Ottawa.

Value: \$800 20035 235

**THE MCMASTER MERIT AWARDS**

Made available from time to time by authorization of the Board of Governors of the University.

Value: Fifty awards of \$800 each 20025

**THE LESLIE A. PRINCE MERIT AWARDS**

Established in 1979 in honour of Leslie A. Prince, Dean of Students, by his

friends and colleagues upon the occasion of his retirement and in recognition of his outstanding contribution to the University community. Two to be awarded.  
Value: \$800 each 20024 139

## B. Awards for Full-time, In-Course Students (Full Load)

The following awards are based on competition across the University or within a Faculty or programme.

- B.1** These awards, which are granted in June or November, are provided exclusively for first baccalaureate degree students registered for a full load qualifying on the basis of work included at the May review (or deferred examinations resulting therefrom) in other than graduating session. Students choosing to graduate at the subsequent Fall convocation forfeit any awards that they have been named to receive.
- B.2** In addition to meeting the General Conditions listed in Section 1, a student must complete, during the Fall/Winter session immediately prior to the May review, a full load of work corresponding at least to:
- either the minimum number of units specified in the Calendar for their level and programme;
  - or, if the Calendar does not specify the programme work by individual levels, the average number of units per level; and
  - a Sessional Average of 8.0 and no failures.
- B.3** For students who complete a full load of work in the Fall/Winter session as described above a Sessional Average will be computed, which is the weighted average of the grades in all courses taken during that session. Overload courses (courses over and above a full load) and Extra courses taken during the Fall/Winter session are included in the Sessional Average. The Sessional Average will be used to determine academic standing for the awards listed below, unless otherwise stated in the terms of a particular award.
- B.4** The Sessional Average will be used to break any tie in the competition for awards which are based on another criterion.

### ◆ MEDAL

#### THE CHANCELLOR'S GOLD MEDAL

Established in 1938. To be awarded to the student who has completed Level I and 60-80 units of any four or five-level programme and who ranks highest in scholarship, leadership and influence. 30022

### ◆ GENERAL SCHOLARSHIPS AND PRIZES

#### THE AARON PRIZE

Established in 1964 by Fannie Aaron ('44). To be awarded to the student who has completed Level I and 30-45 units of the three-level English programme and who attains the highest Cumulative Average. 30004 001

Value: \$25

#### THE ACI (ONTARIO CHAPTER) SCHOLARSHIP

Established in 1992 by the American Concrete Institute (Ontario Chapter). To be awarded to a student entering Level IV of the Civil Engineering programme who, in the judgment of the Department of Civil Engineering, has demonstrated outstanding academic achievement and knowledge of concrete technology. 319

Value: \$500

#### THE AMOCO CANADA

##### UNDERGRADUATE SCHOLARSHIP IN GEOLOGY

Established in 1990 by Amoco Canada Petroleum Company Limited to recognize outstanding students pursuing a programme of courses related to petroleum geology. To be awarded to a student entering Level III or IV of a Geology programme who, in the judgment of the Department of Geology, has demonstrated the greatest aptitude in such relevant areas as stratigraphy, sedimentology, structural geology, exploration geophysics, palaeontology and geologically oriented computer applications. 30181 230

Value: \$1,500

#### THE ASM INTERNATIONAL (ONTARIO CHAPTER) SCHOLARSHIP

Established in 1971 by the local Chapter of the American Society for Metals. To be awarded to the student who has completed Level I and 30-85 units of the Ceramic Engineering, Honours Materials Science, Materials Engineering or Metallurgical Engineering programme and who attains the highest Sessional Average (at least 9.5). 30003 003

Value: \$1,400

#### THE ASSOCIATION OF PROFESSIONAL ENGINEERS UNDERGRADUATE SCHOLARSHIPS

Established in 1961 by the Ontario Professional Engineers Foundation for

Education. Four scholarships: one to be awarded to a male student and one to a female student with the highest Sessional Average after completion of Engineering I, and one to a male student and one to a female student with the highest Sessional Average in Engineering programmes after completion of Engineering I and 35-90 units. 30006 232

Value: \$600 each

#### THE A.H. ATKINSON PRIZE

Established in 1980 by Atkinson Engineering Consultants Limited. To be awarded to the student in a Civil Engineering programme who achieves the highest average in CIV ENG 3G04 and 3J04, taken in one session. 30001 009

Value: \$200

#### THE MURRAY BALL SCHOLARSHIPS IN GEOLOGY

Established in 1991 by May A. Ball in memory of her brother Murray Ball. Seven scholarships to be awarded to students entering Level II or III of a programme in Geology who, in the judgement of the Department of Geology, have attained notable standing. Ordinarily, not more than one scholarship will be awarded in any one programme. 30182 236

Value: \$800 each

#### THE J. DOUGLAS BANKIER MEMORIAL SCHOLARSHIP

Established in 1977 in memory of Professor J. Douglas Bankier by his friends, colleagues, and former students. To be awarded to the student who has completed Level I and at least 60 units of an Honours or Major programme in the Department of Mathematics and Statistics, who attains the highest Sessional Average and who in that session achieves a grade of at least B in STATS 3D06. 30076

Value: \$400

#### THE SCOTT BARTLETT MEMORIAL PRIZE

Established in 1985 in memory of Scott N. Bartlett by his family and friends. To be awarded to a student who has completed Level I and 60-75 units of the Honours Commerce Programme and who, in the judgment of the Faculty of Business, has achieved high standing in COMMERCE 3FA3 and 3FB3, taken in one session. 30134 012

Value: \$100

#### THE M. BANKER BATES SCHOLARSHIP

Established in 1975 by Dr. M. Banker Bates and augmented in 1978 in his memory by his family, friends and colleagues. To be awarded to the student who has completed Level I and 60-75 units of a programme in Commerce and who attains the highest Sessional Average. 30102 257

Value: \$350

#### THE BEAUTY COUNSELORS OF CANADA SCHOLARSHIP

Established in 1956 by Beauty Counselors of Canada Limited. To be awarded to the student who has completed Natural Sciences I with the highest Sessional Average and who is entering Level II of Honours Biochemistry, Honours Chemistry, Honours Biochemistry and Chemistry or Honours Applied Chemistry programme. 30008 014

Value: \$300

#### THE LOUISE E. BETTGER SCHOLARSHIPS IN MUSIC

Established in 1982 in memory of Louise E. Bettger of New Hamburg, Ontario, by her nieces and nephews. Three scholarships to be awarded to students in an Honours programme in Music who, in the judgment of the Department of Music, are outstanding: (a) one in the area of choral or vocal music to a student who has completed Music I or an additional 30-75 units; (b) one to a keyboard student who has completed Level I and 30-75 units; and (c) one to a student who has completed Music I and who has demonstrated overall musical excellence. 30097 015

Value: \$400 each

#### THE J.P. BICKELL SCHOLARSHIPS

Established in 1955 by the J.P. Bickell Foundation to encourage interest in the study of geology and metallurgy. Two scholarships to be awarded, normally one to the student entering Level II of Honours Geology, Honours Geology and Physics, Honours Chemistry and Geology or Honours Materials Science, and the other to the student entering Level II of Chemical Engineering, Materials Engineering or Metallurgical Engineering, who attain the highest average in at least 12 units in any two of chemistry, geology, physics in Level I and a Sessional Average of at least 9.5. A scholarship is tenable for three years provided the recipient maintains a Cumulative Average of at least 10.0. 30078 016

Value: \$3,000 each (\$1,000 each year)

#### THE BRIAN BLAKEY MEMORIAL SCHOLARSHIP

Established in 1979 in memory of Dr. Brian Blakey, Professor of French, by his friends, colleagues and former students, on behalf of his wife, Dorothy. To be

awarded to the student who attains the highest Sessional Average on completion of Level I and 60 to 75 units of an Honours programme in Classical Studies or Classics, Drama, English, French, German, Hispanic Studies, Italian, or Russian. Students in all programmes except Drama must have taken at some point LINGUIST 1A06 or ANTHROP 1B06 and achieved in it a grade of at least B-.  
**Value:** \$600 30013 018

**THE BRAMPTON BRICK LIMITED CERAMIC SCHOLARSHIP**

Established in 1980. To be awarded to the student who has completed Level I and 35 to 90 units of the Ceramic Engineering programme with the highest Sessional Average (at least 9.5).  
**Value:** \$1,000 30012 054

**THE BRIEN SCHOLARSHIP IN PHILOSOPHY**

Established in 1944 by Dr. J. W. Brien of Windsor. To be awarded to the student who has completed Level I and 30 to 45 units of an Honours programme in Philosophy and who attains the highest Sessional Average.  
**Value:** \$450 30014

**THE JOSEPHINE STAPLES BRIEN SCHOLARSHIP**

Established in 1936 by Dr. J.W. Brien of Windsor. To be awarded to a woman student who is entering her graduating session and who qualifies on the basis of academic standing and interest in undergraduate activities.  
**Value:** \$300 30091

**THE DR. AND MRS. F.R. BRITTON SCHOLARSHIP IN MATHEMATICS**

Established in 1962 by Dr. and Mrs. F. R. Britton and augmented by Mrs. Britton's bequest in 1982. To be awarded to the student who has completed Level I and 30 to 45 units of an Honours programme in Mathematical Sciences who attains the highest Sessional Average and is not the holder of an award of greater monetary value than this scholarship. Tenable in Levels III and IV provided that the recipient maintains satisfactory standing in an Honours programme in which mathematics, pure or applied, is the major subject of study.  
**Value:** \$1,500 (\$750 each year) 30051 019

**THE TEN BROEKE-BENSEN MEMORIAL SCHOLARSHIP**

Established in 1990 in memory of Dr. James Ten Broeke and Dr. Roy C. Bensen, former Heads of the Department of Philosophy and Psychology. To be awarded to a student who has completed Level I and 30 to 75 units of an Honours Programme in Philosophy who, in the judgement of the Department of Philosophy, has demonstrated outstanding academic achievement.  
**Value:** \$1,100 30195

**THE CRISPIN CALVO PRIZE**

Established in 1978 in memory of Professor C. Calvo by his family and friends. To be awarded to a student who has completed Level I and at least 60 units of an Honours programme in Chemistry and who, in the judgment of the Department of Chemistry, shows particular promise in thermodynamics.  
**Value:** \$200 30031

**THE ELLA HALSTEAD CAMPBELL PRIZE**

Established in 1978 by Mrs. Verna Caskey and Miss June Caskey in memory of Ella Halstead Campbell and augmented by Mrs. Edna M. Miller in 1987. To be awarded to a keyboard student, registered in any level of a solo performance course, who is outstanding in the judgment of the Department of Music.  
**Value:** \$200 30048 022

**THE CANADA BRICK SCHOLARSHIPS**

Established in 1988. Two scholarships to be awarded to students in the Ceramic Engineering and Management programme who, in the judgment of the Department of Materials Science and Engineering, have achieved high academic standing and have demonstrated interest in heavy clay technology: (a) one to a student entering Level III and (b) one to a student entering Level IV.  
**Value:** \$500 each 30019 238

**THE CANADIAN CERAMIC SOCIETY (WESTERN SECTION) PRIZE**

Established in 1987. To be awarded to a student entering Level IV of the Ceramic Engineering programme who, in the judgment of the Department of Materials Science and Engineering, exhibits most promise in the area of structural clay products.  
**Value:** \$200 30020 025

**THE CFUW (HAMILTON) SCHOLARSHIP**

Established in 1945 by the University Women's Club of Hamilton, now the Canadian Federation of University Women. To be awarded to the woman student who attains the highest Sessional Average in the penultimate level of any programme.  
**Value:** \$800 30150 180

**THE CANADIAN SOCIETY FOR CHEMICAL ENGINEERING PRIZE**

Established in 1947 by the Chemical Institute of Canada. To be awarded to the student who has completed Level I and 70 to 85 units of a programme in Chemical Engineering and who attains the highest Sessional Average.  
**Value:** \$50, medal and certificate 30016 027

**THE CANADIAN SOCIETY FOR CHEMISTRY PRIZES**

Established in 1947 by the Chemical Institute of Canada. Two awards to be made to students who have completed Level I and 60 to 80 units: (a) one to a student in an Honours programme in Chemistry, Honours Applied Chemistry, or Chemistry Major who attains high standing in chemistry; (b) one to a student in the Honours Biochemistry or Honours Biochemistry and Chemistry programmes who attains high standing in biochemistry and organic chemistry.  
**Value:** Medal and certificate 30017 028

**THE CANADIAN SOCIETY OF CIVIL ENGINEERS (HAMILTON SECTION) PRIZE**

Established in 1987. To be awarded to a student entering the final level of a programme in Civil Engineering who, in the judgment of the Department of Civil Engineering and Engineering Mechanics, has demonstrated participation in extracurricular activities and has attained high academic standing.  
**Value:** Plaque 30018 029

**THE NORMAN N. CASKEY MEMORIAL PRIZE**

Established in 1983 by Mrs. Verna Caskey and Miss June Caskey in memory of husband and father. To be awarded to a student who has completed Music I or Level I and 30 to 75 units of an Honours programme in Music and who, in the judgment of the Department of Music, has demonstrated musical excellence.  
**Value:** \$100 30115

**THE CERTIFIED GENERAL ACCOUNTANTS ASSOCIATION PRIZE**

Established in 1983 by the Hamilton Chapter of the Certified General Accountants Association of Ontario. To be awarded to a student who has completed Level I and 30 to 45 units of a programme in Commerce and who, in the judgment of the School of Business, has attained an outstanding Sessional Average and a high standing (a grade of at least A-) in COMMERCE 2AA3.  
**Value:** \$150 30021 034

**THE CHEMICAL INSTITUTE OF CANADA (HAMILTON SECTION) PRIZES**

Established in 1984 by the Hamilton Section. Two prizes to be awarded to students who have completed Level I and 30 to 50 units: (a) one to a student in an Honours programme in Chemistry who, in the judgment of the Department, shows particular promise in Chemistry; and (b) one to a student in a programme in Chemical Engineering who, in the judgment of the Department, shows particular promise in Chemical Engineering.  
**Value:** \$50 each 30023 035

**THE CIVITAN-BELL SCHOLARSHIP**

Established in 1986 by the Civitan Club of Burlington. To be awarded to a student who has completed Level I and 36 to 90 units of a Social Work programme with high standing and who, in the judgment of the School of Social Work, has demonstrated an interest in a career in working with the mentally handicapped.  
**Value:** \$500 30024 036

**THE HUGH CLARK SCHOLARSHIP**

Established in 1989 by Hugh Clark in celebration of McMaster's fiftieth year since moving to Hamilton, To be awarded to the student who has completed Level I and 60 to 75 units of an Honours programme in Social Sciences and attains the highest Sessional Average.  
**Value:** \$1,200 30068 239

**THE CLASS OF '37 SCHOLARSHIP**

Established in 1987 by the Graduating Class of 1937. To be awarded alternately to the student who has completed Level I and 30 to 45 units of an Honours programme in Humanities and of an Honours programme in Science, and who has attained an outstanding Sessional Average.  
**Value:** \$750 30026 037

**THE CLASS OF '50 SCHOLARSHIP IN HONOURS ECONOMICS**

Established in 1982 by the Graduating Class of 1950 in Honours Economics. To be awarded to the student who has completed Level I and 30 to 45 units of an Honours programme in Economics, and who, in the judgment of the Department of Economics, has attained a high Sessional Average and has demonstrated leadership in undergraduate extracurricular activities.  
**Value:** \$450 and book 30027 038

**THE CLASSICS PRIZE**

Established in 1978 by Professor D.M. Shepherd. To be awarded to the student

## 254 UNDERGRADUATE AWARDS — FULL LOAD

who has completed Level I and 30 to 45 units of an Honours programme in Classical Studies or Classics and who, in the judgment of the Department of Classics, shows most promise.

**Value:** \$100 30028 040

### THE CONSULTING ENGINEERS OF ONTARIO (CEO) SCHOLARSHIP

Established in 1990 by the Consulting Engineers of Ontario. To be awarded to a student entering Level IV of a programme in Engineering who, in the judgment of the Faculty of Engineering, has demonstrated outstanding academic achievement and has made notable contribution to the campus or community by participation in extracurricular activities.

**Value:** \$500 30183 252

### THE CONSUMERS GLASS SCHOLARSHIP

Established in 1988. To be awarded to a student entering Level V of the Ceramic Engineering and Management programme who, in the judgment of the Department of Materials Science and Engineering, has attained notable academic standing.

**Value:** \$1,000 30029

### THE DR. RUDOLF DE BUDA SCHOLARSHIP

Established in 1989 in memory of Professor de Buda by family, friends and colleagues. To be awarded to a student who has achieved high standing after completion of Level I and 71 to 73 units of Electrical or Computer Engineering programme and who elects to do a fourth-year thesis on a topic in the field of Information Theory.

**Value:** \$700 30041 240

### THE D. M. DAVIES PRIZE

Established in 1984 by friends, colleagues and former students in recognition of Professor Douglas Davies for his outstanding contribution to the Department of Biology during 34 years of service. To be awarded to a student who has completed Level I and at least 60 units of an Honours programme in Biology and who attains the highest average in at least 12 units of senior level courses in whole-animal biology, taken in one session.

**Value:** \$250 30032 047

### THE JOHN DEERE LTD. SCHOLARSHIP

Established in 1992 by John Deere Limited. To be awarded to the student who has completed Level I and 60 to 75 units of the Honours Commerce programme who, in the judgment of the School of Business, has demonstrated outstanding academic achievement in courses offered by the Human Resource/Labour Relations Area and has displayed leadership and self-motivation in extracurricular activities.

**Value:** \$1,500 30207 305

### THE DELOITTE & TOUCHE SCHOLARSHIP

Established in 1962. To be awarded to the student who has completed Level I and 60 to 75 units of a programme in Commerce and who attains a high Sessional Average and in that session attains an average of at least 10.0 in COMMERCE 3AA3 and 3AB3.

**Value:** \$500 30148 177

### THE DIGITAL EQUIPMENT OF CANADA LIMITED AWARD OF MERIT

Established in 1984. To be awarded to a student who has completed Level I and 35 to 50 units of a programme in Computer Engineering with a high Sessional Average.

**Value:** \$250 and certificate 30036 048

### THE ROSEMARY DOUGLAS-MERCER MEMORIAL PRIZE

Established in 1989. To be awarded to a student who has completed Level I and 30 to 45 units of an Honours programme in French and who has attained the highest average in FRENCH 2A03 and one of 2J03 or 2JJ3 and one of 2W03 or 2WW3.

**Value:** \$225 30124

### THE HORACE A. DULMAGE PRIZE IN PHILOSOPHY

Established in 1976 in honour of Professor Horace A. Dulmage by his colleagues and friends upon the occasion of his retirement from McMaster University. To be awarded to the student who has completed Level I and 60 to 75 units of an Honours programme in Philosophy and who, in the judgment of the Department of Philosophy, has attained the most notable standing.

**Value:** \$200 30066

### THE HELEN EMERY SCHOLARSHIPS IN ENVIRONMENTAL SCIENCE

Established in 1990 by Miss Helen Emery of Barrie, Ontario. Two scholarships to be awarded: (a) one to a student entering the Honours Geography and Environmental Science Programme; and (b) one to a student entering Level III of the Honours Geography and Environmental Sciences programme who, in

the judgment of the Department of Geography, demonstrates leadership and influence in addressing environmental matters. Recipients must have attained a Sessional Average of 9.5 or greater.

**Value:** \$1,400 each 30184 237

### THE ERNST & YOUNG SCHOLARSHIP

Established in 1952 by Clarkson Gordon. Renamed in 1989. To be awarded to the student who has completed Level I and 30 to 45 units of a programme in Commerce and who attains the highest Sessional Average and in the session attains a grade of at least A- in COMMERCE 2AA3.

**Value:** \$350 30050 241

### THE L.F. EULL PRIZE

Established in 1980 by Group Eight Engineering Limited. To be awarded to the student in a programme in Electrical Engineering who attains the highest average in ELEC ENG 3NA3 and 3SA3, taken in one session.

**Value:** \$200 30098 057

### THE 4 R's ENVIRONMENTAL PROGRAMME AWARDS

Established in 1992 from the proceeds of awards recognizing McMaster University as recipient of the 1990 Canadian University Productivity Award and a Regional Environmental Commitment Award. Two scholarships to be awarded: a) one to a student entering Level III of a programme in Engineering and Society; and b) one to a student entering Level III of the Honours Geography and Environmental Studies programme. In addition to notable academic standing, these awards will be granted to students who, in the judgment of the Faculty of Engineering or the Department of Geography, have demonstrated leadership and influence in addressing environmental matters.

**Value:** \$1,500 each 30209 293

### THE BARBARA FRANCIS SCHOLARSHIP

Established in 1985 by Laura Dodson ('56) in memory of her sister. To be awarded to the student who has completed Level I and at least 30 units of an Arts and Science programme and who has demonstrated outstanding achievement in both arts and science.

**Value:** \$350 30007 061

### THE HAROLD AND GERTRUDE

#### FREEMAN SCHOLARSHIP IN FRENCH

Established in 1981 by members of the Class of '43 as a grateful tribute to Professor Harold A. Freeman, long-time teacher of French at the University and honorary president of the Class in its junior year, and his wife, Gertrude. To be awarded to the student returned from completing Level III abroad as part of the Third Year Elsewhere Programme and entering the final session of an Honours programme in French who, in the judgment of the Department of French, has attained the highest level of accomplishment in knowledge of French language, literature and culture. The recipient must obtain a Cumulative Average of at least 8.0 and no failures in the review at the end of the Fall/Winter session immediately prior to entering the Third Year Elsewhere Programme.

**Value:** \$1,200 30054 059

### THE KLAUS FRITZE MEMORIAL PRIZE

Established in 1980 by friends of Professor K. Fritze. To be awarded to the student who has completed Level I and 30 to 45 units of the three-level Chemistry programme with the highest Sessional Average.

**Value:** \$150 30096 063

### THE MERRILL FRANCIS GAGE SCHOLARSHIP

Established in 1982 from the estate of Merrill Francis Gage of Hamilton. To be awarded to a student who has completed Level I and 30 to 75 units of an Honours programme in Music and who, in the judgment of the Department of Music, has demonstrated excellence in performance on a keyboard or orchestral instrument.

**Value:** \$500 30110

### THE GEOLOGY BOOK PRIZE

Established in 1955 by an anonymous graduate of Year '47 in memory of Dean C.E. Burke. To be awarded to a student who has completed Level I and 30 to 45 units of an Honours programme in Geology and who, in the judgment of the Department of Geology, attains high standing in geology.

**Value:** \$50, for books 30056 065

### THE J.L.W. GILL PRIZES

Established in 1944 by bequest of J.L.W. Gill, B.A., Principal of Hamilton Technical School. Nine scholarships to be awarded on the basis of Cumulative Averages to students who have completed Level I and 60 to 75 units of Honours B.Sc. programmes. Ordinarily, not more than one scholarship will be awarded in any one discipline.

**Value:** \$300 each 30079

**THE GEORGE P. GILMOUR MEMORIAL SCHOLARSHIP**

Established in 1987 by the Graduating Class of 1962 in honour of Dr. G.P. Gilmour ('21), Chancellor of McMaster University from 1941 to 1950 and President and Vice-Chancellor from 1950 to 1961. To be awarded to a student who has completed Level I and 60 to 75 units of an Honours programme in the Arts and Science Programme and who, in the judgment of the Arts and Science Programme Admissions, Awards, and Review Committee, has demonstrated outstanding academic achievement and has made notable contribution to the campus or community by participation in extracurricular activities.

Value: \$300 0058 067

**THE DAPHNE ETHERINGTON GRAHAM MEMORIAL SCHOLARSHIP IN ENGLISH**

Established in 1989, in memory of a former student and dedicated servant of the University, by her friends, family, and Professor Emeritus R.P. Graham. To be awarded to the student, registered for a first degree after completing Level I, who attains the highest standing in 18 units of English including ENGLISH 2A06, all taken in the same session, with an average standing of at least A-, provided that the recipient is not the holder of another scholarship of equal or greater value.

Value: \$1,000 30034 242

**THE H.B. GREENING BOOK PRIZE**

Established in 1969 by bequest of Gladys Powis Greening in memory of her husband, Herald Benjamin Greening. To be awarded to the student who has completed Level I and 30 to 45 units of an Honours programme in Music and who, in the judgment of the Department of Music, has demonstrated excellence in music.

Value: \$150, for books 30062 069

**THE RUTH AND JACK HALL PRIZE**

Established in 1983 by Jackie MacDonald in memory of her parents. To be awarded to a student who has completed Level I and 60 to 75 units of an Honours or Major programme in Computer Science, or Level I and 70 to 90 units of a programme in Computer Engineering, and who attains the highest Sessional Average.

Value: \$200 30131 071

**THE RONALD K. HAM MEMORIAL PRIZE**

Established in 1971 in memory of Professor R.K. Ham by his friends and former colleagues. Awarded to the student who has completed Level I and at least 60 units and who, in the judgment of the Department of Materials Science and Engineering, shows most promise as a materials scientist or engineer.

Value: \$100 30128

**THE HAMILTON CHEMICAL ASSOCIATION PRIZE**

Established in 1953 by the Trustees of the Hamilton Chemical Association in memory of Dean C.E. Burke. To be awarded to the student who has completed Level I and 30 to 45 units of an Honours programme in Chemistry and who attains the highest Cumulative Average.

Value: \$200 30063

**THE HAMILTON ECONOMIC DEVELOPMENT COMMISSION SCHOLARSHIPS**

Established in 1976. (a) Two scholarships to be awarded on the basis of Sessional Average to students entering Level II of a Commerce programme: (b) Four scholarships to be awarded on the basis of Sessional Average: two to students who have completed Level I and 30 to 45 units, and two to students who have completed Level I and 60 to 75 units of a programme in Commerce. Recipients must have obtained all their secondary school education in the Hamilton-Wentworth Region.

Value: \$800 each (six awards) 30064 072

**THE DONALD HART SCHOLARSHIP**

Established in 1985 by Mrs. Pamela Hart and Joel Jordan in honour of Donald Neil Hart ('70). To be awarded to a student who has completed Level I and 30 to 45 units of a programme in Commerce and who, in the judgment of the School of Business, has achieved high standing in the required Level II Commerce courses, taken in one session.

Value: \$400 30037 075

**THE ANNA MARIE HIBBARD SCHOLARSHIP**

Established in 1992 from the bequest of Anna Marie Hibbard. To be awarded to the student completing Level I who attains the highest Sessional Average. The recipient may not hold another scholarship of equal or greater value.

Value: \$1,800 30208 300

**THE ROSE HILL SCHOLARSHIP**

Established in 1985 by the alumni, faculty and staff of the School of Physical

Education and Athletics as a tribute to Professor Rose Hill, long-time teacher, coach and administrator in the School. To be awarded to a student who has completed Level I and 32 to 45 units of the Physical Education programme and who, in the judgment of the School, best demonstrates the philosophy of physical education espoused by Professor Hill throughout her career, namely, excellence in scholarship and leadership and participation in sport, dance or fitness.

Value: \$800 30130 077

**THE DR. THOMAS HOBLEY PRIZE**

Established in 1936 by bequest of Mrs. A. McNee of Windsor. To be awarded to a woman student on the basis of the Sessional Average obtained in the penultimate level of a programme in Economics or Political Science.

Value: \$200 30042

**THE DR. HARRY LYMAN HOOKER SCHOLARSHIPS**

Established in 1981, and resulting from the bequest of Dr. H.L. Hooker. Awarded for overall academic excellence (Sessional Average of at least 9.5) to students in undergraduate programmes, with the exception of those in their graduating session and those retaining scholarships of \$1,000 or greater. Each year quotas are established for each Faculty and other academic units in proportion to the number of full-time undergraduate students who obtain a Sessional Average of 9.5 or greater. Fifty-five awards were given in 1992.

Value: \$1,400 each 30043

**THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (HAMILTON SECTION) PRIZES**

Established in 1961. Two prizes to be awarded to the students who have completed Level I and 70 to 90 units of a programme in Electrical Engineering who attain the highest and second highest Sessional Averages.

Value: \$150 and plaque; and \$100 30071 083

**THE INTERMETCO LIMITED SCHOLARSHIP**

Established in 1977. To be awarded to the student who has completed Level I and 70 to 90 units of a programme in Mechanical Engineering and who, in the judgment of the Department of Mechanical Engineering, has attained notable standing.

Value: \$600 30072 084

**THE ITCA COMMUNITY INVOLVEMENT PRIZE**

Established in 1982 by Italian Canadian Community Involvement Incorporated. To be awarded to the student who has attained the highest Sessional Average on completion of Level I and 60 to 75 units of an Honours programme in Italian. The recipient must have graduated from a secondary school in the Hamilton area.

Value: \$150 30070 086

**THE IVEY SCHOLARSHIP**

Established in 1971 by Professor and Mrs. G.S. French in memory of Mr. and Mrs. I.E. Ivey, the parents of Mrs. French. To be awarded to the student who has completed Level I and 60-75 units of an Honours programme in Music and who, in the judgment of the Department of Music, has attained notable standing.

Value: \$125 30074 087

**THE A.I. JOHNSON SCHOLARSHIP**

Established in 1977 in memory of Dr. A.I. Johnson by his friends and former colleagues. To be awarded to a student who has completed Level I and 110 to 130 units of a programme in Engineering and Management. Award to be based on distinguished academic performance during the student's undergraduate career. Consideration will also be given to noteworthy contribution in extracurricular activities.

Value: \$650 and certificate 30002 259

**THE KATHLEEN MARY JOHNSTON MEMORIAL PRIZE**

Established in 1963 by Lawrence D. Johnston in memory of his wife. To be awarded to the student who has completed Level I and 30 to 45 units of an Honours programme in Religious Studies and who attains the highest Sessional Average.

Value: \$125 30094 090

**THE JURY PRIZE**

Established in 1941 by bequest of J.H. Jury of Bowmanville. To be awarded to the student who has completed Level I and 30-45 units of the Honours History programme and who attains the highest Sessional Average.

Value: \$150 30093

**THE STANFORD N. KATAMBALA GEOLOGY PRIZE**

Established in 1965 by contributions from friends and associates of Stanford N. Katambala, a Year III Honours Geology student from Tanzania, killed in a mine accident in Northern Ontario in September 1964. To be awarded to a



## 256 UNDERGRADUATE AWARDS — FULL LOAD

student who has completed Level I and 60 to 75 units of the Honours Geology programme and who attains high standing in Geology.

**Value:** \$50 30143

### THE GEORGE P. AND LEATHA M. KEYS SCHOLARSHIPS

Established in 1982 by Mrs. Leatha Keys. Three scholarships to be awarded to students who, in the judgment of the Departments of Computer Science and Systems, and of Mathematics and Statistics, have demonstrated outstanding achievement in Honours and Major programmes in those Departments: (a) one to a student who has completed Level I and 30 to 75 units of the Computer Science programme; (b) one to a student who has completed Level I and 60 to 75 units of a programme in Mathematics; and (c) one to a student who has completed Level I and 60 to 75 units of a programme in Statistics.

**Value:** \$400 each 30057 091

### THE KIT MEMORIAL SCHOLARSHIP

Established in 1936 by the Hamilton Branch of the Canadian Women's Press Club (now the Media Club of Canada, Hamilton Branch) in memory of the brilliant journalist and writer, the first president of the Canadian Women's Press Club, Kathleen Blake Coleman, widely known on this continent as Kit. To be awarded to a woman student either on completion of Level I and at least 30 units on the basis of journalistic ability or on completion of Level I and 60 to 75 units of an Honours programme in English on the basis of Sessional Average.

**Value:** \$225 30095 092

### THE GARY LAUTENS MEMORIAL SCHOLARSHIP

Established in 1992 by family, friends and colleagues in memory of Gary Lautens ('50), columnist and editor of the Toronto Star (1962-92), the Hamilton Spectator (1950-62) and the McMaster Silhouette (1948-50), remembered as a journalist with wit and insight. To be awarded to a student who has completed any Level I programme who, in the judgment of a Selection Committee, has achieved notable academic standing and has demonstrated journalistic skills in the written media. The scholarship is tenable for up to three years provided the recipient maintains a Cumulative Average of 8.0. Students who wish to be considered for this award should consult the Director, Student Financial Aid and Scholarships, before December 1.

**Value:** \$3,600 (\$1,200 each year)

### THE HOWARD O. LAWRENCE SCHOLARSHIP

Established in 1988 by Industrial Ceramics Limited. To be awarded to a student entering Level IV of the Ceramic Engineering and Management programme and who, in the judgment of the Department of Materials Science and Engineering, has achieved high standing in Level III of the programme.

**Value:** \$500 30067

### THE MEGAN LAWRENCE SCHOLARSHIP

Established in 1988 by the Zonta Club of Hamilton II in memory of Megan Lawrence, Zontian and educator in the City of Hamilton. To be awarded to a student who has completed Level I and 67 to 85 units of the Physical Education programme and who, in the judgment of the School of Physical Education and Athletics, demonstrates excellence in scholarship, leadership and participation in sport, dance and fitness.

**Value:** \$900 30109 097

### THE RAY LAWSON SCHOLARSHIPS

Established in 1975 by the Honourable Ray Lawson, O.B.E., D.C.L., D.Cn.L., LL.D., K.G.St.J., Lieutenant-Governor of Ontario from 1946 to 1952. Two scholarships to be awarded for the highest Sessional Averages in an Engineering and Management programme: (a) one to a student who has completed Level I and 70 to 90 units, and (b) one to a student who has completed Level I and at least 110 units beyond Level I.

**Value:** \$400 each 30126 099

### THE BETTY MACMILLAN PRIZE

Established in 1960 by her classmates in memory of Elizabeth Johnstone MacMillan ('50). To be awarded to the student who has completed Level I and 60 to 75 units in an Honours programme in Sociology and who, in the judgment of the Department of Sociology, is the most promising student.

**Value:** \$100 30010

### THE LIANNE MARKS SCHOLARSHIP

Established by her family, in 1980 as a bursary and in 1985 as a scholarship, in honour of Lianne Marks, a student at McMaster University (1977-80). To be awarded to a student who has completed Level I and 60 to 75 units of an Honours programme in Sociology and who, in the judgment of the Department of Sociology, has demonstrated outstanding academic achievement and has made notable contribution to the campus or community by participation in activities other than sports.

**Value:** \$700 30100 102

### THE RONALD E. MATERICK SCHOLARSHIP

Established in 1987 by Ronald E. Materick ('70). To be awarded to a student who has completed Level I and 70 to 85 units of a programme in Civil Engineering and who, in the judgment of the Department of Civil Engineering and Engineering Mechanics, has attained notable academic standing.

**Value:** \$500 30127 106

### THE MCGREGOR-SMITH-BURR MEMORIAL SCHOLARSHIP

Established in 1910 by the Class of 1912 in Arts, in memory of their classmates, Percy Neil McGregor, Lee Wilson Smith and George William Burr, and supplemented in 1944 by bequest from Professor R. Wilson Smith, father of Lee Wilson Smith. To be awarded to the student who has completed Level I and 60 to 75 units of the Honours English and History programme and who has the highest Sessional Average.

**Value:** \$450 30105

### THE ALEXANDER GORDON MCKAY SCHOLARSHIP

Established in 1990 by friends and colleagues of Professor A.G. McKay, first Dean of the Faculty of Humanities from 1968 to 1973, to mark his retirement after 33 years of service at McMaster University. To be awarded to a student who has completed Level I and 60 to 75 units of an Honours Classical Studies or Classics programme and who, in the judgment of the Department of Classics, has attained high academic standing. Preference will be given to students from the Regional Municipality of Hamilton-Wentworth.

**Value:** \$375 30180 260

### THE A.B. MCLAY SCHOLARSHIP IN PHYSICS

Established in 1991 by C. Lucy McLay in memory of her late husband, A. Boyd McLay (Ph.D., F.R.S.C.), a member of the Department of Physics from 1930 to 1967. To be awarded to a student who has completed Level I and 30 to 45 units of an Honours or Major programme in Physics and who, in the judgment of the Department of Physics and Astronomy, has attained notable standing.

**Value:** \$400 30186 254

### THE BOYD MCLAY SCHOLARSHIP IN PHYSICS

Established in 1977 to commemorate the contributions of Dr. A. Boyd McLay ('22) to teaching and research in optics and spectroscopy at McMaster University from 1930 to 1967. To be awarded to a student who has completed Level I and 60 to 75 units of an Honours or Major programme in Physics with a high Sessional Average.

**Value:** \$400 30011 109

### THE MCMASTER NURSING ALUMNI PRIZE

Established in 1984 by the Nursing Chapter of the McMaster University Alumni Association. To be awarded to a student who has completed Level I and 70 to 85 units of the Nursing programme and who, in the judgment of the School of Nursing, has demonstrated leadership while participating in undergraduate activities.

**Value:** \$150 and book 30107 111

### THE MCMASTER UNIVERSITY

#### RETIREEES' ASSOCIATION SCHOLARSHIP

Established in 1991 by the McMaster University Retirees' Association. To be awarded to the student who has completed Level I and at least 30 units of a programme in Gerontology and who attains the highest Sessional Average. The student must enrol in a programme in Gerontology in the subsequent Fall/Winter session.

**Value:** \$300 30187 271

### THE MCNABB SCHOLARSHIP

Established in 1989 in memory of Donald G. McNabb ('37) by friends, family and business associates. To be awarded to the student who has completed Level I plus 60 to 75 units of an Honours programme in Chemistry who, in the judgment of the Department of Chemistry, has achieved notable academic standing. Preference will be given to students who demonstrate leadership, self-motivation, and practical aptitude appropriate for a future in the chemical industry.

**Value:** \$1,300 30108 243

### THE SIMON MCNALLY SCHOLARSHIPS

Established in 1972 by S. McNally and Sons Limited, in honour of Simon McNally. One or two scholarships to be awarded to Canadian citizens who have completed Level I and 35 to 50 units of a programme in Civil Engineering. Awards are based on scholarship and evidence of practical engineering experience and background.

**Value:** \$650 each 30139 112

### THE PETER MCPHATER MEMORIAL SCHOLARSHIP

Established in 1988 by Peter McPhater's friends in recognition of his art, craftsmanship and humanitarianism. To be awarded to a student who has



completed Level I and 60 to 75 units of a programme in Honours Art or Honours Art History and who, in the judgment of the Department of Art and Art History, is outstanding.

**Value:** \$500 30119 114

**THE J.J. MILLER PRIZE**

Established in 1984 by friends, colleagues and former students in recognition of Professor J.J. Miller for his outstanding contribution to the Department of Biology during 37 years of service. To be awarded to a student entering Level IV of the Honours Biology programme with an outstanding Sessional Average and a grade of at least A- in BIOLOGY 3E03 in Level III.

**Value:** \$300 30077 115

**THE MOLSON SCHOLARSHIP IN ENVIRONMENTAL STUDIES**

Established in 1992 by the Molson Companies Donations Fund. To be awarded to the student entering the final level of a programme in Geography and Environmental Studies, Geography and Environmental Science, or Engineering and Society, who attains the highest Sessional Average.

**Value:** \$300 30213 181

**THE MICHAEL J. MORTON MEMORIAL BOOK PRIZE**

Established in 1979 in memory of Dr. M.J. Morton. To be awarded to a student who has completed Level I and 60 to 75 units in an Honours or Major programme in Chemistry and who, in the judgment of the Department of Chemistry, is outstanding in the field of inorganic chemistry.

**Value:** \$150, for books 30111

**THE ELIZABETH MOSGROVE SCHOLARSHIP**

Established in 1959 by bequest of John W. Mosgrove in memory of his mother. To be awarded to sons of members of Her Majesty's Canadian Armed Forces on the basis of Sessional Average.

**Value:** \$500 30047

**THE MOULTON COLLEGE SCHOLARSHIPS**

Established in 1957 from funds originally subscribed by the Alumnae of Moulton College during the years 1946 to 1949 for the expansion of Moulton College. Two scholarships to be awarded to the women students of Moulton Hall with the highest Sessional Averages: (a) one after completion of Level I and 30 to 45 units, and (b) one after completion of Level I and 60 to 75 units.

**Value:** \$900 each 30112 117

**THE ANNE MURRAY SCHOLARSHIP**

Established in 1985 in memory of Anne M. Murray ('82) by her family. To be awarded to the student who has completed Level I and 60 to 75 units of an Honours programme in German with the highest Sessional Average.

**Value:** \$300 30005 119

**THE NIEMEIER SCHOLARSHIP**

Established in 1938 and augmented in 1952 by Dr. O.W. Niemeier. To be awarded to the student who attains the highest Sessional Average at the completion of Level I and 35 to 55 units of the Nursing programme.

**Value:** \$500 30114 244

**THE ROBERT NIXON SCHOLARSHIP**

Established in 1991 by the Brant-Haldimand Liberal Association in honour of Dr. Robert Nixon ('50, LL.D, '76). To be awarded to a student who, in the judgment of the Department of History, has demonstrated academic excellence and an active involvement in community life.

**Value:** \$750 30203 144

**THE FREDRIC P. OLSEN BOOK PRIZE**

Established in 1974 in memory of Professor F.P. Olsen by his family, friends and former colleagues. To be awarded to a student who has completed Level I and 60 to 75 units of an Honours or Major programme in Chemistry and who, in the judgment of the Department of Chemistry, shows particular promise as an experimental scientist.

**Value:** \$100, for books 30053

**THE ONTARIO HYDRO SCHOLARSHIP IN ELECTRICAL ENGINEERING**

Established in 1986. To be awarded to the student who has completed Level I and 35 to 55 units of a programme in Electrical Engineering and who, in the judgment of the Department of Electrical and Computer Engineering, has achieved notable standing (Sessional Average of at least 9.5), displayed strong communication skills, and demonstrated leadership ability and involvement in extracurricular activities.

**Value:** \$1,700 30116 127

**THE PAIKIN SCHOLARSHIP**

Established in 1957 in memory of Barney David Paikin ('33), by Mrs. Barney David Paikin and Morris Paikin. To be awarded to the student who has

completed Level I and 60 to 75 units of the Honours History programme and who attains the highest Sessional Average.

**Value:** \$200 30117 131

**THE GLADYS BALLANTYNE PARKER PRIZE**

Established in 1953 in memory of Gladys Ballantyne Parker by her father, Harry Ballantyne. To be awarded to the student enrolled in a programme in Classical Studies or Classics who, in the judgment of the Department of Classics, demonstrates outstanding achievement in Greek or Latin.

**Value:** \$50 30060 133

**THE F.W. PAULIN SCHOLARSHIP**

Established in 1981 by the Canadian Engineering and Contracting Co. Limited in honour of its founder. To be awarded to a student who has completed Level I and 70 to 85 units of the Civil Engineering programme, or Level I and 110 to 130 units of the Civil Engineering and Management programme. Award is based on scholarship (Sessional Average of at least 9.5) and evidence of leadership, self-motivation, and practical aptitude appropriate for a future in the construction industry.

**Value:** \$1,100 30052 134

**THE PEAT MARWICK THORNE SCHOLARSHIP**

Established in 1956 by Pettit, Hill and Bertram, Toronto, and continued after amalgamation of firms. To be awarded to an outstanding student on the basis of qualifications and academic record after the completion of Level I and 60 to 75 units of a programme in Commerce. Preference will be given to students who plan to continue their studies after graduation with a practising firm of chartered accountants.

**Value:** \$350 30146 175

**THE PEVENSING SCHOLARSHIP**

Established in 1987 by David C. Hannaford ('64). To be awarded to a student who has completed Level I and 60 to 75 units of an Honours programme in Economics and who, in the judgment of the Department of Economics, has attained notable academic standing.

**Value:** \$500 30120 135

**THE PIONEER GROUP LIMITED SCHOLARSHIP**

Established in 1988. To be awarded to a student who has completed Level I and at least 30 units of a programme in Gerontology and who, in the judgment of the Gerontology Committee on Instruction, achieves high standing in 12 units of Gerontology courses (excluding GERONTOL 1A06) and who, demonstrates leadership in the field of Gerontology.

**Value:** \$300 30121 137

**THE PRICE WATERHOUSE AND CO. SCHOLARSHIP**

Established in 1959 by Price Waterhouse and Co. To be awarded to the outstanding student on the basis of qualifications and academic record after completion of Level I and 60 to 75 units of a programme in Commerce. Preference will be given to students who plan to continue their studies after graduation with a practising firm of chartered accountants.

**Value:** \$350 30122 138

**THE PSYCHOLOGY SOCIETY PRIZES**

Established in 1985 by the Psychology Society and the Faculty and Alumni of the Department of Psychology. Three prizes to be awarded to students who have completed Level I and 60 to 75 units with the highest Sessional Average: (a) one in the Honours Psychology B.A. programme; (b) one in the Honours Psychology B.Sc. programme; and (c) one in a combined Honours programme in Psychology.

**Value:** \$50 each 30123 141

**THE DR. JOHN A. PYLYPIUK SCHOLARSHIP**

Established in 1967 in memory of Dr. John A. Pylypiuk and in recognition of Canada's Centennial Year. To be awarded to the student who has completed Level I and 30 to 45 units of an Honours programme in History with the highest Sessional Average and who in that session achieves a grade of at least A- in HISTORY 2J06 (Canadian History).

**Value:** \$600 30039 142

**THE SHARON REEVES SCHOLARSHIP**

Established in 1987 by Kevin W. Reeves ('80) in memory of his wife, Sharon ('79). To be awarded to a student entering Level III or IV of an Honours programme in Music (Education) and who, in the judgment of the Department of Music, has attained notable standing.

**Value:** \$350 30135 143

**THE ELLA JULIA REYNOLDS SCHOLARSHIPS**

Established in 1984 by bequest of Ella Julia Reynolds of Hamilton. Two scholarships to be awarded on the basis of scholarship and character to

## 258 UNDERGRADUATE AWARDS — FULL LOAD

students who have completed Level I and 30 to 75 units of the Honours English or the Honours English and History programmes with a Sessional Average of at least 9.5. The recipients must not be holders of another scholarship.

**Value:** \$1,250 each 30044

### THE HERBERT A. RICKER SCHOLARSHIPS

Established in 1982 by bequest of Mrs. Edna Elizabeth Ross Reeves of Hamilton in memory of her husband, Herbert A. Ricker. Four scholarships to be awarded on the basis of scholarship (Sessional Average of at least 9.5) and character to: (a) two to students who have completed Engineering I, or Level I and 35 to 90 units of a programme in Engineering, and (b) two to students who have completed Natural Sciences I, or Level I and 30 to 75 units of a programme in Science. The recipients must not be holders of another scholarship.

**Value:** \$1,250 each 30065 145

### THE ROSART PROPERTIES INC. SCHOLARSHIP

Established in 1988 by John D. and Dominic J. Rosart of Burlington. To be awarded to a student who has completed Level I and 60 to 75 units of an Honours programme in Geography and who, in the judgment of the Department of Geography, has attained high academic standing.

**Value:** \$350 30129 146

### THE E. TOGO SALMON PRIZE IN HISTORY

Established in 1973 by friends and colleagues of Professor E.T. Salmon on his retirement, in recognition of his outstanding contribution to the Department of History. To be awarded to the student who has completed Level I and 60 to 75 units and who, in the judgment of the Department of History, attains notable standing in an Honours programme in History.

**Value:** \$100, for books 30045 245

### THE E.T. SALMON SCHOLARSHIP

Established in 1991 by Mrs. Edward Togo Salmon in memory of her husband, world-renowned Roman historian and member of the Faculty for 43 years. To be awarded to the student who has completed Level I and at least 30 to 45 units of any Honours Classics or Honours History programme, including at least 12 units of Ancient History and Archaeology, and who, in the judgment of a committee of the two Departments, shows outstanding achievement and promise. Part of the scholarship may be used to enable the winner to travel and study abroad during the vacation before the final Fall/Winter session.

**Value:** \$1,800 30204 304

### THE SHEILA SCOTT SCHOLARSHIP IN ENGLISH

Established in 1983 by graduates of McMaster University and friends in honour of Sheila Scott, Dean of Women from 1965 to 1982, in recognition of her outstanding contribution to the University community during 25 years of service. To be awarded to the student who has completed Level I and 60 to 75 units of the Honours English programme, and who attains the highest Sessional Average.

**Value:** \$400 30136 150

### THE GRACE SENRA-FONTES MEMORIAL PRIZE

Established in 1989 by the graduating class ('88) in association with the McMaster University Nursing Society and the McMaster Nursing Alumni Executive in memory of Grace Senra-Fontes ('88) of Toronto. To be awarded to a student who has completed Level I and 70 to 85 units of the Nursing programme and who, in the judgment of the School of Nursing, best demonstrates excellence in scholarship and leadership, and has served as a valuable role model for those qualities deemed important to success in a nursing career.

**Value:** \$250 30061 246

### THE LOUIS J. SHEIN SCHOLARSHIP

Established in 1990 by family and friends in memory of Dr. L.J. Shein, founding chair of the Russian Studies programme and faculty member from 1958 to 1980. To be awarded to a student who has completed Level I and 60 to 75 units of an Honours programme in Russian and who, in the judgment of the Department of Modern Languages, has achieved notable academic standing. Preference will be given to students in Russian programmes, but students in Comparative Literature and Linguistics who, in the judgment of the Department of Modern Languages, have achieved notable academic standing in at least 18 units of Russian courses shall also be eligible.

**Value:** \$400 30189 255

### THE SHELL CANADA SCHOLARSHIPS IN ENGINEERING AND MANAGEMENT

Established in 1983. Three scholarships to be awarded to students who have completed Level I and at least 110 units of a programme in Engineering and Management. Awards will be based on scholarship and on the quality of and

creativity shown in written and oral reports.

**Value:** \$700 each 30137 154

### THE SHELL CANADA SERIES SCHOLARSHIPS

Established in 1990 at various universities and community colleges across Canada to support and encourage post-secondary education in Engineering and Commerce and interest in a career in the Petroleum industry. Two scholarships to be awarded to students entering Level III or IV of a programme in Commerce or Engineering who have demonstrated outstanding achievement and involvement in extra-curricular activities. For one of the awards, the student must also have demonstrated interest in Women's Studies, Native Studies and/or the studies of one of Canada's other disadvantaged groups.

**Value:** \$2,000 30196 247

### THE SHENSTONE PRIZE

Established in 1903 by J.N. Shenstone of Toronto, and continued by members of his family. To be awarded to the student who has completed Natural Sciences I and who attains the highest average in any two of the Level I courses in Chemistry, Physics and Biology.

**Value:** \$125 30138

### THE GERALD AND VERA SIMPSON MEMORIAL SCHOLARSHIP

Established in 1957 by the children in memory of their parents. To be awarded to the student who has completed Level I and 30 to 45 units of the Honours Physics or the Honours Chemistry and Physics programme with highest Sessional Average.

**Value:** \$300 30059 156

### THE PATRICIA L. SMYE MEMORIAL PRIZES

Established in 1972 by the Patricia Smye Memorial Fund Committee. Two scholarships to be awarded to students who have completed Level I and 30 to 45 units and who attain the highest Sessional Average: (a) one in the three-level English programme and (b) one in the three-level Psychology B.A. programme.

**Value:** \$250 each 30118

### THE SOCIETY OF MANAGEMENT

#### ACCOUNTANTS OF ONTARIO SCHOLARSHIP

Established in 1983. To be awarded to the student who has completed Level I and 60 to 75 units of a programme in Commerce and who obtains the highest Sessional Average and in that Session attains a grade of at least A- in COMMERCE 3AA3.

**Value:** \$500 30140 158

### THE SONS OF ITALY OF ONTARIO SCHOLARSHIP

Established in 1971 by the Order Sons of Italy of Ontario. To be awarded to the student who has completed Level I and 30 to 45 units and who, in the judgment of the Department of Modern Languages, has attained notable standing in an Honours programme in Italian.

**Value:** \$500 30141 160

### THE SOUTH ONTARIO ECONOMIC

#### DEVELOPMENT COUNCIL SCHOLARSHIPS

Established in 1973 by the South Ontario (formerly Niagara) Economic Development Council. Two scholarships to be awarded, normally one in each of the B.A. and B.Sc. programmes, to the students who have completed Level I and 60 to 75 units of the Honours Geography programme and who elect GEOG 4C06 in their graduating session. Awards are based on scholarship and interest in undertaking studies relating to regional development and regional planning in the Niagara Peninsula.

**Value:** \$1,200 each 30142 161

### THE SALVATORE SPITALE MEMORIAL PRIZE

Established in 1984 by the Spitale family. To be awarded to the student who has completed Level I and 30 to 75 units of an Honours programme in Italian and who, in the judgment of the Department of Modern Languages, has demonstrated academic excellence and an active involvement in community life.

**Value:** \$100 30133 162

### THE S.L. SQUIRE SCHOLARSHIPS

Established in 1938 by bequest of S.L. Squire of Toronto. Four awards to be made to students in any Level I programme who attain the highest standing in any two of MATH 1A06, 1B03, 1H05, 1N06, and in other tests provided for this scholarship by the Department of Mathematics and Statistics.

**Value:** \$400 each 30132

### THE CLARENCE L. STARR PRIZE

Established in 1946 in memory of Dr. C.L. Starr, M.D., LL.D., F.A.S.S.,

Professor of Surgery at the University of Toronto, and an honorary alumnus of McMaster University (LL.D. 1922). To be awarded to the student who has completed Nursing I and who attains the highest Sessional Average.  
**Value:** \$150 30025

**THE MABEL STOKLEY SCHOLARSHIP**

Established in 1956 by the Young Women's Canadian Club of Toronto (now the Career Women's Canadian Club of Toronto). To be awarded to a woman student who has completed Level I and 30 to 45 units of any programme and who gives evidence of outstanding academic achievement and leadership.  
**Value:** \$400 30103 164

**THE MARIE L. STOCK SCHOLARSHIP**

Established in 1987 by the French Section of the Department of Romance Languages in honour of Marie L. Stock, Professor Emeritus of French, and Chair of the Department of Romance Languages from 1962 to 1965. To be awarded to the student who has completed Level I and 60 to 75 units of an Honours programme in French and who, in the judgment of the Department of French, has achieved notable academic standing.  
**Value:** \$400 30104 166

**THE TOBENA SWEET MEMORIAL PRIZE**

Established in 1988 by the National Council of Jewish Women of Canada, Hamilton Section, from the bequest of Tobena Sweet of Hamilton. To be awarded to the student who has completed Level I and 70 to 85 units of a Nursing programme with the highest Sessional Average.  
**Value:** \$100 30147 168

**THE JUANITA LEBARRE SYMINGTON SCHOLARSHIP**

Established in 1981 by The Women's Art Association of Hamilton in memory of Juanita LeBarre Symington. To be awarded to the student entering the graduating session of the Honours Art programme with the highest Sessional Average. The recipient must be from the Hamilton-Wentworth Region.  
**Value:** \$150 30092 169

**THE T.H.B. SYMONS SCHOLARSHIP IN CANADIAN STUDIES**

Established in 1978. To be awarded to the student who attains the highest Cumulative Average in Canadian Studies after completion of Level I and 60 to 75 units of a programme in Canadian Studies.  
**Value:** \$250 30144 170

**THE HUGH R. THOMPSON MEMORIAL PRIZE**

Established in 1960 in memory of Dr. Hugh R. Thompson. To be awarded to the student who has completed Level I and 30 to 45 units of the Honours Geography or the Honours Geography and Geology programme with the highest Sessional Average.  
**Value:** \$200 30069 174

**THE DR. R.A. THOMPSON PRIZE IN MATHEMATICS**

Established in 1954 by bequest of Dr. William Bethune, in memory of R.A. Thompson, B.A., LL.D., Principal of Central Collegiate Institute, Hamilton, from 1897-1919, in recognition of his contribution to education in Hamilton. To be awarded to the student who has completed Level I and 60 to 75 units of the Honours Computer Science, Honours Computer Science and Mathematics, Honours Computer Science and Statistics, Honours Mathematics or Honours Statistics programme, and who attains a high Sessional Average.  
**Value:** \$200 30040

**THE GRAHAM RONALD TOOP SCHOLARSHIP**

Established in 1989 in memory of Graham Toop ('89) by family and friends. To be awarded to the student entering Level IV of the Honours Philosophy programme and who, in the judgment of the Department of Philosophy, has demonstrated leadership and influence in scholarly activities related to the field of philosophy.  
**Value:** \$300 30190 256

**TRAC SCHOLARSHIPS**

Established in 1984 by The Refractories Association of Canada. Two scholarships to be awarded to students who have completed Level I and 35 to 50 units and who attain a high Sessional Average: (a) one in the Ceramic Engineering programme and (b) one in the Chemical Engineering programme.  
**Value:** \$500 each 30145 178

**THE JOHN H. TRUEMAN SCHOLARSHIP**

Established in 1989 as a tribute to Professor John H. Trueman by his many friends, colleagues and students on the occasion of his retirement from McMaster University. To be awarded to the student who has completed Level I and at least 30 units of an Honours programme in History and who, in the judgment of the Department of History, has achieved notable academic

standing in medieval history and a high Sessional Average.

**Value:** \$600

30081 179

**THE UWC PAST PRESIDENTS' PRIZE**

Established in 1976 by the Past Presidents of the University Women's Club of Hamilton on the occasion of the Club's 50th anniversary. To be awarded to the woman student who has completed Level I and 70 to 90 units of a programme in Engineering with the highest Cumulative Average.

**Value:** \$150, plus book ends

30149 020

**THE VALLEY CITY MANUFACTURING CO. LTD. SCHOLARSHIPS**

Established in 1991 by the Valley City Manufacturing Co. Ltd. of Dundas, Ontario. Two scholarships to be awarded to the students enrolled in an Honours B.Sc. programme: one to the student entering Level II and one to the student entering Level III who attain the highest Sessional Average. Recipients may not hold another scholarship of equal or greater value.

**Value:** \$1,500 each

30205 227

**THE VAREY SCHOLARSHIP**

Established in 1978 by J.C. Varey, Dundas, in memory of Albert E. Varey. To be awarded to the student who attains high standing in an Honours programme in Biology and who, in the judgment of the Department of Biology, shows an innovative approach to the study of ecology.

**Value:** \$250

30151 182

**THE F.W. WATERS SCHOLARSHIP IN PHILOSOPHY**

Established in 1990 by the former students, colleagues and friends of Dr. F.W. Waters, Professor from 1935 to 1959. To be awarded to the student entering Level IV of the Honours Programme in Philosophy who, in the judgment of the Department of Philosophy, shows the most academic promise.

**Value:** \$800

30197

**THE WEISZ FAMILY FOUNDATION SCHOLARSHIP**

Established in 1982. To be awarded to the student who has completed Level I and 60 to 75 units of the Honours Commerce programme and who attains the highest Sessional Average (at least 9.5).

**Value:** \$1,500

30152 184

**THE MARJORIE AND CHARLES WILKINSON SCHOLARSHIP**

Established in 1991 by the family in honour of Marjorie Wilkinson, author of many books and addresses on religion, and co-founder of the Hamilton Lay School of Theology at McMaster in 1966, and Charles Wilkinson, religion editor and writer for the Hamilton Spectator from 1963-1985. To be awarded to the student who has completed at least 30 units beyond Level I of an Honours programme in Religious Studies and who, in the judgment of the Department of Religious Studies, has attained notable academic standing in courses in Christian thought.

**Value:** \$375

30191 272

**THE EMANUEL WILLIAMS SCHOLARSHIP IN PHYSICS**

Established in 1948 by Arabel M. Williams of Port Colborne as a memorial to her brother. To be awarded to the student who has completed Level I and 30 to 45 units of an Honours programme in Physics with the highest Sessional Average.

**Value:** \$800

30049

**THE JANICE WILSON MEMORIAL PRIZE**

Established in 1961 in memory of Janice Mary Wilson of Stoney Creek. To be awarded to the woman student who has completed Level I and 30 to 45 units of the Honours History programme and who attains the highest Cumulative Average.

**Value:** \$100

30080 183

**THE WOMEN'S ART ASSOCIATION SCHOLARSHIPS**

Established in 1969. Two scholarships to be awarded: (a) one to a student entering Level II and (b) one to a student who has completed Level I and 30 to 45 units of a programme in Honours Art or Honours Art History with the highest Sessional Average. The recipients must be from the Hamilton-Wentworth Region.

**Value:** \$100 each

30153 185

**THE IVOR WYNNE MEMORIAL PRIZE**

Established in 1971 in memory of Ivor Wynne, Dean of Students. To be awarded to a student who has completed Level I and 60 to 75 units of the Physical Education programme and has demonstrated outstanding achievement in the programme.

**Value:** \$200

30075 189

**THE GLADYS A. YOUNG SCHOLARSHIP**

Established in 1991 by T.G. Harvey in honour of his wife, Gladys (B.Sc. '37, M.Sc. '38), one of a group of researchers who commenced radio astronomy

## 260 UNDERGRADUATE AWARDS — FULL LOAD

research with the National Research Council of Canada. To be awarded to the student who has completed Level I and 30 to 65 units of an Honours programme in Mathematics or Physics with the highest Sessional Average. The recipient must not hold another scholarship of equal or greater value.

**Value:** \$1,800 30206 303

### THE LILLIAN AND MANUEL ZACK SCHOLARSHIP

Established in 1984 by Lillian and Manuel Zack ('40) of Hamilton. To be awarded to a student who has completed Level I and 70 to 85 units of a programme in Nursing and who, in the judgment of the School of Nursing, has demonstrated achievement, initiative, and commitment to gerontological nursing through clinical practice, term papers, research interest, or community activities and who pursues these interests in Level IV.

**Value:** \$600 30101 190

### ◆ SENATE SCHOLARSHIPS

The following scholarships are awarded for general academic proficiency at the discretion of the Undergraduate Council.

Every full-time student who is eligible for review in May but is not graduating in any programme in any Faculty or other academic unit will be eligible for consideration for a Senate Scholarship, provided that he or she attains a Sessional Average of 9.5 in addition to meeting the conditions noted in Category B, above.

In 1993, the value of a Senate Scholarship is \$700.

Each year, quotas of Senate Scholarships are established for each Faculty and other academic units in proportion to the number of full-time undergraduate students enrolled. In 1992, 160 Senate Scholarships were awarded, all of which were funded by the donors listed below.

#### THE EDGAR R. ASHALL SCHOLARSHIP

Established in 1965 by bequest of his wife, Edith M. Ashall. 30162

#### THE EDWIN MARWIN DALLEY MEMORIAL SCHOLARSHIPS

Established in 1965 by bequest of Edwin Marwin Dalley of Hamilton. 30164

#### THE EDUCATION FOUNDATION OF

#### THE FEDERATION OF CHINESE CANADIAN

#### PROFESSIONALS OF ONTARIO SCHOLARSHIPS

Established in 1988 by the Foundation. Two scholarships to be awarded: (a) one to a student in a programme in Arts and Science, and (b) one, on a rotating basis, to a student in a programme in Chemistry, Mechanical Engineering, and Physics. 30163 056

#### THE HAMILTON INDUSTRIAL SCHOLARSHIPS

Established in 1958. 30165

#### THE BERTRAM OSMER HOOPER SCHOLARSHIP

Established in 1957 by bequest of Isobel F. Hooper. To be awarded in Arts. 30161

#### THE NINA LOUISE HOOPER SCHOLARSHIP

Established in 1959 by bequest of Bertram O. Hooper. 30200

#### THE CLAUDE G. LISTER SCHOLARSHIP

Established in 1990 by bequest of Pauline Detwiler Lister in memory of her husband. To be awarded to a student in a programme in the School of Business. 30199 262

#### THE TONY PICKARD MEMORIAL SCHOLARSHIP

Established in 1973 by his wife and family, in honour of Captain Antony F. Pickard, O.B.E., C.D., R.C.N. (Ret'd). 30172 136

#### ROTARY CLUB OF HAMILTON SCHOLARSHIP

Established in 1989. 30168 263

#### THE HILDA SAVAGE MEMORIAL SCHOLARSHIP

Established in 1960 by bequest of Bertha Savage. 30166

#### THE SOMERVILLE SCHOLARSHIPS

Established in 1966 by bequest of William L. Somerville, architect of the McMaster University buildings of 1930. 30169 159

#### THE STOBO SCHOLARSHIP

Established in 1957 by bequest of William Q. Stobo. 30170

#### THE UNIVERSITY SCHOLARSHIPS

Made available from time to time by authorization of the Board of Governors of the University. 30173

#### THE MARGUERITE Z. YATES SCHOLARSHIP

Established in 1960 by bequest of Mrs. W.H. Yates of Hamilton. 30167

#### THE YATES SCHOLARSHIPS

Established in 1963 by bequest of William Henry Yates of Hamilton. 30171

### ◆ RESIDENCE SCHOLARSHIPS

Nine scholarships were established in 1982 by the University for students in residence at the University. Three were named in honour of Sheila Scott, Dean of Women from 1965 to 1982, in recognition of her outstanding contribution to the University community during 25 years of service.

In addition to meeting the conditions noted in Category B (above), the recipients must express intent to live in residence in the following academic year. The monetary benefits will be credited to residence fees in January.

The following scholarships are awarded to the student in each residence with the highest Sessional Average (at least 9.5) in an undergraduate programme, with the exception of those in their graduating session:

<b>Sheila Scott Scholarships for Brandon Hall (two awards)</b>	30202
<b>Sheila Scott Scholarship for Wallingford Hall</b>	30158
<b>Bates Residence Scholarship</b>	30155
<b>Edwards Hall Residence Scholarship</b>	30156
<b>Hedden Hall Residence Scholarship</b>	30198
<b>Matthews Hall Residence Scholarship</b>	30157
<b>McKay Hall Residence Scholarship</b>	30201
<b>Whidden Hall Residence Scholarship</b>	30159
<b>Woodstock Hall Residence Scholarship</b>	30160

In 1993, the value of each scholarship is \$300.

### ◆ TRAVEL SCHOLARSHIPS

Students who wish to be considered for these awards should consult the Director, Student Financial Aid and Scholarships before December 1.

#### THE A.G. ALEXANDER SCHOLARSHIPS

Established in 1938 and augmented in 1946 by Sir Douglas Alexander, and members of his family, in memory of Archibald Grieg Alexander. Two scholarships to be awarded to students who have completed Level I and 60 to 75 units on the basis of excellence in a modern language or languages, English, and History (with emphasis on French). The purpose of the scholarships is to enable the winners to study abroad during the vacation before the final Fall/Winter session.

**Value:** \$5,000 each 30174

#### THE CLASS OF '37 TRAVEL

#### SCHOLARSHIP IN ARTS AND SCIENCE

Established in 1989 by the Graduating Class of 1937 in celebration of their 50th anniversary and augmented by friends of the Arts and Science programme. To be awarded to a student who has completed Level I and 30 to 72 units of an Honours programme in the Arts and Science Programme. Applicants should have demonstrated a lively interest in developing countries. The purpose of this award is to enable the winner to spend the summer, immediately following its receipt, working and/or studying in a developing country.

**Value:** \$1,500 30175 037

#### THE JOHN P. EVANS TRAVEL SCHOLARSHIP

Established in 1991 by many friends, colleagues, students and graduates of McMaster University as a tribute to John (Jack) P. Evans upon his retirement as Associate Vice-President, University Services and Secretary of the Board of Governors in recognition of his 25 years of outstanding contribution to the University Community. To be awarded to a student who has completed at least 30 units beyond Level I of an Honours programme with notable academic standing and has demonstrated a scholarly interest in Chinese language, history or culture. The purpose of the scholarship is to enable the recipient to study in China or South East Asia.

**Value:** \$1,000 30193 273

#### THE JOAN JACKSON DUNBAR TRAVEL SCHOLARSHIP

Established in 1960 by Mayor Lloyd D. Jackson ('09), LL.D ('55) and Mrs. Jackson of Hamilton in memory of their daughter, Joan ('40). To be awarded to a woman student who has completed Level I and 60 to 75 units of an Honours programme in English for excellence in the work of the programme (with emphasis on English). The winner must have secured all her secondary school education in Canada. The award is to be used for study and travel in the United Kingdom and Continental Europe during the vacation before the final Fall/Winter session.

**Value:** \$4,000 30177 053

#### THE MODERN LANGUAGES TRAVEL SCHOLARSHIP

Established in 1991 by the Department of Modern Languages. To be awarded to a student who has completed at least 30 units beyond Level I in a programme in Modern Languages and who, in the judgment of the Department of Modern Languages, has attained notable academic standing. The purpose of the

scholarship is to assist with travel expenses to study and travel abroad.  
**Value:** \$400 each 30188 274

**THE HOWARD P. WHIDDEN SCHOLARSHIP**

Established in 1941 by the Honourable Jacob Nicol ('00) of Sherbrooke, Quebec, in honour of Chancellor Howard P. Whidden, with a view to fostering relations of friendship and understanding between French-speaking and English-speaking Canadians. To be awarded to a student in his/her penultimate Level who shows ability and promise in the use of the French language. The recipient will spend some weeks of residence and study in a French-Canadian home during the summer vacation.

**Value:** \$550 30176

**THE T. RUSSELL WILKINS MEMORIAL SCHOLARSHIP**

Established in 1963 by bequest of Mrs. T. Russell Wilkins (B.A. '18 Brandon, M.A. '32), daughter of former Chancellor Howard P. Whidden, in memory of her husband, Dr. T. Russell Wilkins ('11). To be awarded to a student who has completed Level I and 60 to 75 units of an Honours programme in any one of the following subject fields (singly or in combination): Biochemistry, Biology, Chemistry, Geology, Materials Science, Physics. Candidates for this scholarship must have attained high standing in the subjects of their programme and must, in addition, have demonstrated a lively interest in the humanities and in the human and social implications of scientific developments. The purpose of the scholarship is to enable the winner to spend the summer before the final Fall/Winter session in travel and study outside Canada.

**Value:** \$5,000 30178

**C. Awards for Part-time, In-Course Students (Part-Time Studies)**

The following awards are based on competition across the University or within a Faculty or programme.

- C.1** These awards, which are granted in November, are provided exclusively for part-time first baccalaureate degree students who qualify on the basis on work included at the most recent review in other than their graduating session.
- C.2** In addition to meeting the General Conditions listed in Section 1, a student must obtain at the most recent review a Cumulative Average of at least 8.0 and no failures.
- C.3** The Cumulative Average will be used to break any tie in the competition for awards.

**THE TED ALLEN BOOK PRIZE**

Established in 1984 in memory of Frederick J. Allen, an employee and part-time student at McMaster University. To be awarded to the part-time student who attains the highest standing in ENGLISH 2H06 (American Literature).

**Value:** \$50, for books 60002 309

**THE ALUMNI ASSOCIATION SCHOLARSHIPS**

Established in 1974 by the McMaster University Alumni Association and later augmented by bequest of Harold E. Amy. Two scholarships to be awarded to part-time students who have attained the highest Cumulative Average at the most recent review.

**Value:** \$350 each 60000

**THE AUDREY DIEMERT MEMORIAL BOOK PRIZE**

Established in 1991 by family, friends and colleagues in memory of Audrey Diemert. To be awarded to a part-time student who attains the highest standing in ENGLISH 2G06, ENGLISH 2I06 or ENGLISH 3H06.

**Value:** \$100, for books 60005 258

**THE WILLIAM J. MCCALLION SCHOLARSHIPS**

Five scholarships named in 1984 in honour of Professor McCallion (B.A. '43, M.A. '46), first Dean of the School of Adult Education from 1970 to 1978, in recognition of his outstanding contribution to adult education and to the Department of Mathematical Sciences during 41 years of service. To be awarded to part-time students who have attained the highest Cumulative Average at the most recent review.

**Value:** \$250 each 60004

**THE ANNE STEIN MEMORIAL PRIZE**

Established in 1981. To be awarded to the part-time student who successfully completes SOC WORK 3DD6 and attains the highest grade in SOC WORK 3D06 in the same session.

**Value:** \$100 60001

**THE UNIVERSITY SCHOLARSHIPS**

Established in 1978. Twenty scholarships to be awarded to part-time students

who have attained the highest Cumulative Average at the most recent review.  
**Value:** \$250 each 60003

**D. Single Achievement Awards for Full-time and Part-time Students**

The following awards are granted based on competition across the University or within a Faculty or programme.

- D.1** These awards, which are granted in June or November, are provided for either full-time or part-time first baccalaureate degree students qualifying on the basis of achievement during the Spring/Summer or Fall/Winter sessions immediately preceding the May review (or deferred examinations resulting therefrom). Normally, these awards will be granted to In-Course students. A number of awards under this category are also listed under Category F for Second Degree Students.
- D.2** In addition to meeting the General Conditions listed in Section 1, a student must obtain, at the most recent review, a Cumulative Average of at least 8.0 and no failures.
- D.3** The Cumulative Average will be used to break any tie in the competition for these awards.

**THE ALUMNI CANADIAN GEOGRAPHY PRIZE**

Established in 1985 by the Geography Branch of the McMaster University Alumni Association in recognition of Dr. Lloyd G. Reeds for his contribution to teaching during more than 35 years of service. To be awarded to the student who attains the highest grade in GEOG 2E03 (Geography of Canada).

**Value:** \$150 40001 004

**THE ALUMNI SOCIAL WORK PRIZE**

Established in 1991 by the Social Work Branch of the McMaster Alumni Association. To be awarded to the student who attains the highest standing in SOC WORK 4P03.

**Value:** \$50, for books 40056 275

**THE AMERICAN-STANDARD PRIZE**

Established in 1978. To be awarded to the student in the Ceramic Engineering programme who attains the highest grade in GEOLOGY 2B04.

**Value:** \$100 40002 007

**THE MURRAY BALL PRIZES IN GEOLOGY**

Established in 1991 by May A. Ball in memory of her brother Murray Ball. Two scholarships to be awarded to students in Natural Sciences I who, in the judgment of the Department of Geology attained notable standing in (a) GEOLOGY 1A03 and (b) GEOLOGY 1C03 respectively.

**Value:** \$200 each 40057 236

**THE ABE BLACK MEMORIAL PRIZE**

Established in 1982 by friends and colleagues of Dr. A.H. Black in memory of a distinguished member of the Department of Psychology from 1958 to 1978. To be awarded to the student who, in the judgment of the Department of Psychology, has demonstrated outstanding achievement in PSYCH 4D06 (Honours Thesis).

**Value:** \$100

**THE CFUW (HAMILTON) RUBY BROWN BOOK PRIZE IN ENGLISH**

Established in 1970 by bequest of Mrs. Edgar Brown. To be awarded to a student in any Level I programme for the most creative essay in a Level I English course.

**Value:** \$50 40046 248

**THE JAMES ROBERTSON CARRUTHERS MEMORIAL PRIZE**

Established in 1984 in memory of James Robertson Carruthers ('74) by his family and friends. To be awarded to the student who, in the judgment of the Department of History, attains notable standing in HISTORY 2H06 (United States History).

**Value:** \$250 40025 032

**THE CITIZEN ACTION GROUP PRIZE**

Established in 1984 by the Citizen Action Group, Hamilton, to honour Professor Harry L. Penny, founding Director of the School of Social Work and Board Member of Citizen Action Group. To be awarded to the student in a programme in Social Work who submits an essay or report based on the student's field work experience that best addresses the need for innovative or non-traditional social work practice.

**Value:** \$250 40006 031

**THE COMPARATIVE LITERATURE PRIZE**

Established in 1988. To be awarded to a student in an Honours programme in Comparative Literature who, in the judgment of the Department of Modern Languages, has achieved notable standing in the Level II courses in Compara-

## 262 UNDERGRADUATE AWARDS — SINGLE ACHIEVEMENT

- ive Literature.  
**Value:** \$150 40008
- THE CONSUL GENERAL OF ITALY BOOK PRIZE**  
 Established in 1982. To be awarded to in-course students for excellence in Italian studies. 40010 041
- THE BEATRICE CORRIGAN MEMORIAL BOOK PRIZE**  
 Established in 1980 in memory of Professor Beatrice Corrigan by her friends and colleagues. To be awarded alternately to the student who achieves the highest standing in ITALIAN 3I03 and to the student who achieves the highest standing in ITALIAN 4R03.  
**Value:** \$75 40004 044
- THE CRANSTON PRIZES**  
 Established in 1958 by William H. Cranston of Midland in honour of his parents, J. Herbert Cranston ('05) and Eva Wilkins Cranston ('07). Two prizes to be awarded for excellence in the study of Canadian literature: (a) one for the highest grade in ENGLISH 2G06, and (b) one for the highest grade in ENGLISH 2C03.  
**Value:** (a) \$150; (b) \$100 40011
- THE DRAMA BOOK PRIZE**  
 Established in 1974 by Professor Ronald W. Vince. To be awarded to the student who attains the highest standing in DRAMA 1A06. 40014
- THE NEIL FORSYTH PRIZE**  
 Established in 1992 by The Steel Founders' Society of America in honour of Neil Forsyth, president of the organization in 1990 and 1991, in recognition of his outstanding service to the steelcastings industry. To be awarded to the student who attains the highest grade in MATLS 3D06.  
**Value:** \$100 121
- THE FRENCH GOVERNMENT BOOK PRIZES**  
 To be awarded from time to time to in-course students for proficiency in Level I and in Level II French. 40017
- THE R. LOUIS GENTILCORE PRIZE**  
 Established in 1989 by the family and friends of Professor R. Louis Gentilcore on the occasion of his retirement from the Department of Geography. To be awarded to a student in an Honours programme in Geography who, in the judgment of the Department, has demonstrated exceptional achievement in historical-cultural geography.  
**Value:** \$250 40062 064
- THE GERMAN EMBASSY BOOK PRIZE**  
 To be awarded from time to time for in-course students for proficiency in Level II or III German. 40018
- THE GILMOUR MEMORIAL PRIZE**  
 Established in 1927 by Year '27, in memory of Dr. Joseph Leeming Gilmour, Honorary President of their first year in 1923, and subsequently enlarged by his children. To be awarded to the student who attains the highest standing in RELIG ST 2E06.  
**Value:** \$100 40019
- THE GREEK COMMUNITY OF BURLINGTON AND DISTRICT SCHOLARSHIP**  
 Established in 1983. To be awarded to the student who obtains the highest standing in GREEK 1Z06.  
**Value:** \$250 40020 068
- THE HAMILTON ENGINEERING INSTITUTE PRIZE**  
 Established in 1962 by the Hamilton Section of the Engineering Institute of Canada and continued by the Hamilton Engineering Institute. To be awarded to the student in Engineering I who attains the highest grade in ENGINEER 1C04.  
**Value:** \$100 0023 073
- THE PAUL HYPHER PRIZE**  
 Established in 1988 in memory of Paul F. Hypher by his friends and classmates. To be awarded to the student in a programme in Commerce who attains the highest standing in COMMERCE 2MA3.  
**Value:** \$100 for books 40039 080
- THE MUNICIPAL CHAPTER OF HAMILTON, IODE, PRIZE**  
 Established in 1944 by the Municipal Chapter of Hamilton, Imperial Order Daughters of the Empire. To be awarded to the student who attains the highest standing in a Level I History course.  
**Value:** \$150 40036 081
- THE INTER NATIONES (BONN) BOOK PRIZE**  
 To be awarded from time to time to in-course students for proficiency in German studies. 40024
- THE H.L. JACKSON MEMORIAL SCHOLARSHIP**  
 Established in 1989 in memory of Professor H.L. Jackson by his friends and colleagues. To be awarded to the student who has completed Level I and at least 60 units of an Honours or Major programme in the Department of Mathematics and Statistics, who in the judgment of the department has demonstrated achievement in MATH 3A06 or 3C06.  
**Value:** \$400 40021 311
- THE HERBERT M. JENKINS PRIZE**  
 Established in 1990 as a tribute to Dr. Herbert M. Jenkins, first Director of the Arts and Science Programme, by his many friends, colleagues and students on the occasion of his retirement from McMaster University. To be awarded to a student in an Arts and Science Programme whose work, in the judgment of the Arts and Science Programme Awards and Review Committee, best reflects scholarship and the spirit of inquiry.  
**Value:** \$175 30185 249
- THE JEAN JONES PRIZE**  
 Established in 1989 in recognition of the distinguished service of Professor Jones to the School of Social Work. To be awarded to the student who attains the highest grade in SOC WORK 2B06.  
**Value:** \$50 40026 098
- THE LATIN PRIZE**  
 Established in 1987 by Dr. John B. Clinard. To be awarded to a student who, in the judgment of the Department of Classics, has demonstrated notable achievement in LATIN 1Z06.  
**Value:** \$100 40031 096
- THE SAM LAWRENCE PRIZE**  
 Established in 1957 by the East Hamilton Independent Labour Party C.C.F. Club in honour of Sam Lawrence. To be awarded to the student who, in the judgment of the Department of Economics, has demonstrated outstanding academic achievement in courses in labour economics.  
**Value:** \$175 40048
- THE LINGUISTICS PRIZE**  
 Established in 1988. To be awarded to a student in an Honours programme in Modern Languages and Linguistics who, in the judgment of the Department of Modern Languages, has achieved notable standing in Level II courses in Linguistics.  
**Value:** \$100 40032
- THE MACGIBBON SCHOLARSHIP**  
 Established in 1970 by bequest of Professor Duncan A. MacGibbon ('08). To be awarded to the student in a programme in Economics who, in the judgment of the Department of Economics, stands highest in courses in economic history.  
**Value:** \$350 40034 101
- THE WILLIAM MACKENZIE MEMORIAL PRIZE**  
 Established in 1977 in memory of Professor William Mackenzie by his friends and colleagues. To be awarded to the student who, in the judgment of the Department of Economics, has demonstrated outstanding academic achievement in ECON 3J06 (Economic Development) or, in exceptional circumstances, for work in a related area.  
**Value:** \$200 40053 312
- THE ELEANOR DORNBUSH MARPLES PRIZE IN ART HISTORY**  
 Established in 1985 by Mrs. Barbara Niedermeier and her family in memory of her sister. To be awarded to a student who, in the judgment of the Department of Art and Art History, has demonstrated outstanding achievement in ART HIST 3V03.  
**Value:** \$100 0015 103
- THE ELEANOR DORNBUSH MARPLES PRIZE IN DRAMA**  
 Established in 1987 by Vaughan W. Marples in memory of his wife. To be awarded to the student who attains the highest grade in DRAMA 2M06.  
**Value:** \$100 40016 104
- THE H.W. MCCREADY PRIZE IN BRITISH HISTORY**  
 Established in 1981 in memory of Professor H.W. McCready, a member of the Department of History from 1943 to 1975, by former students, colleagues, and friends. To be awarded to the student who, in the judgment of the Department of History, attains notable standing in HISTORY 2N06.  
**Value:** \$100 40022
- THE JOHN MCDIARMID PRIZE**  
 Established in 1966. To be awarded to the student in Engineering I who obtains the highest standing in PHYSICS 1D03.  
**Value:** \$100 40027 108
- THE MOFFAT KINOSHITA ASSOCIATES INC. PRIZES**  
 Established in 1990 by Moffat Kinoshita Associates Inc. Two prizes to be



awarded to: (a) the student who attains the highest grade in GEOG 4F03; and (b) the student who attains the highest grade in GEOG 4Z03.  
**Value:** \$175 each 40060 250

**THE JOHN F. MOORE PRIZE**

Established in 1990 by the Steel Founders' Society of America in honour of John Moore's contributions to the Society over the past 25 years. To be awarded to the student who attains the highest grade in METALL 4C04.  
**Value:** \$100 40061 264

**THE NEOSID CERAMIC ENGINEERING PRIZE**

Established in 1978 by Neosid (Canada) Limited. To be awarded to the student who has completed Level I and at least 75 units of the Ceramic Engineering programme and who attains the highest standing in CERAMICS 3A04.  
**Value:** \$50 40037 122

**THE ALAN G. NEWCOMBE PRIZE IN PEACE STUDIES**

Established in 1991 in memory of Dr. Alan G. Newcombe (1923-1991), who devoted 30 years to Peace Studies and was co-founder, with Dr. Hanna Newcombe, of the Canadian Peace Research and Education Association and the Peace Research Institute — Dundas. To be awarded to a student who, in the judgment of the Co-ordinating Council of the Centre for Peace Studies, demonstrates leadership in extracurricular endeavours and high academic achievement in SOC SCI 2B06 or SOC SCI 2C03 and 2D03.  
**Value:** \$225 40064 308

**THE DERRY NOVAK SCHOLARSHIP**

Established in 1984 by the Political Science alumni and colleagues in honour of Professor Derry Novak. To be awarded to the student in a programme in Political Science who, in the judgment of the Department of Political Science, has achieved high standing in Level III courses in political theory or political philosophy.  
**Value:** \$350 40012 125

**THE CONNIE O'SHAUGHNESSY MEMORIAL PRIZE**

Established in 1988 by family, friends and associates of Connie O'Shaughnessy ('88), a part-time student who chose to return to complete her degree on a full-time basis. To be awarded to a student who has completed Level I and 30 to 60 units who, in the judgment of the Selection Committee for Part-Time Awards, has made a significant contribution to the University life of part-time students.  
**Value:** \$300 40009 265

**THE PHYSICAL EDUCATION PRIZES**

Established in 1982. Two prizes to be awarded to students who have completed the courses in Level III of the Physical Education programme: (a) one to a student who, in the judgment of the School of Physical Education and Athletics, has submitted an outstanding paper or project, and (b) one to the student who, in the judgment of the School of Physical Education and Athletics, has demonstrated outstanding improvement in academic standing throughout the programme.  
**Value:** \$50 each 40041

**THE PIONEER GROUP LTD. PRIZE**

Established in 1990. To be awarded to a student in a Gerontology programme who, in the judgment of the Gerontology Committee of Instruction, has achieved notable academic standing, and demonstrates practical aptitude for a career in health care of the elderly.  
**Value:** \$350 40058 270

**THE PROCOR LIMITED SCHOLARSHIP**

Established in 1962. To be awarded to the student in a programme with a concentration in Russian studies who attains the highest standing in either RUSSIAN 2R03 or RUSSIAN 2RR3.  
**Value:** \$150 40042 140

**THE RAND MEMORIAL PRIZE OF CLASS '98**

Established by the Class of '98 in Arts, on the occasion of the 25th anniversary of graduation, 1923, in memory of Chancellor Theodore Harding Rand, to encourage original literary work. To be awarded to the student who has completed Level I and 60 to 75 units and who, in the judgment of the Department of English, has made the most notable original contribution to student publications.  
**Value:** \$250 40045

**THE ABRAHAM ROSENBERG MEMORIAL PRIZE**

Established in 1986 by bequest of Abraham I. Rosenberg ('34) of Hamilton and Kitchener. To be awarded to the student who attains the highest standing in ENGLISH 3B03 or SOCIOL 2X03.  
**Value:** \$150 40000 147

**THE MORRIS AND SARAH ROSENHEAD MEMORIAL PRIZE**

Established in 1988 by bequest of Sarah Rosenhead of Hamilton. To be awarded to the student who attains the highest standing in ENGLISH 1D06.  
**Value:** \$150 40033 152

**THE LARRY SAYERS PRIZE IN CHINESE HISTORY**

Established in 1983 in memory of Larry P. Sayers ('82) by his friends. To be awarded to the student who, in the judgment of the Department of History, has demonstrated outstanding achievement in at least six units of courses work in Chinese history.  
**Value:** \$250 40030 149

**THE LARRY SEFTON SCHOLARSHIP**

Established in 1985 by the Hamilton Steelworkers Area Council in memory of Larry Sefton, area supervisor (1946-53) and director of District 6 (1953-73) of the United Steelworkers of America, to recognize his commitment to education, to working people, to unions and to the City of Hamilton. Five scholarships to be awarded to students in the Labour Studies programme, who in the judgment of the Committee of Instruction for Labour Studies, have achieved notable standing: (a) one to a student entering Level II of a programme in Labour Studies as a full-time student; (b) one to student entering Level II of a programme in Labour Studies as a part-time student; (c) one to a student entering Level III of a programme in Labour Studies as a full-time student; (d) one to student entering Level III of a programme in Labour Studies as a part-time student; (e) one to a student entering Level IV of an Honours programme in Labour Studies.  
**Value:** \$300 each 30099 151

**THE MARGARET A. SERVICE BOOK PRIZE**

Established in 1990 by friends, colleagues and former students in memory of Margaret A. Service. To be awarded to the student who upon completion of Level I attains the highest standing in BIOLOGY 1A06.  
**Value:** \$125 40059 277

**THE SOCIAL WORK PRIZE**

Established in 1982. To be awarded to the student who attains the highest grade in SOC WORK 2D03.  
**Value:** \$50 40050

**THE ANNE STEIN MEMORIAL PRIZE**

Established in 1971 by friends and colleagues of Anne Stein. To be awarded to the student who successfully completes SOC WORK 3DD3 and attains the highest average in SOC WORK 3D06 in the same session.  
**Value:** \$100 40003

**THE STO PRIZE IN GERONTOLOGY**

Established in 1987 by the Superannuated Teachers of Ontario, District 13. To be awarded to the student who attains the highest standing in GERONTOL 1A06.  
**Value:** \$75 40047 163

**THE SWISS MINISTER TO CANADA BOOK PRIZES**

Established in 1950. To be awarded from time to time to in-course students for proficiency in French, German, or Italian. 40051

**THE KENNETH W. TAYLOR BOOK PRIZE**

Established in 1976 by his children in memory of Dr. Kenneth W. Taylor ('21), LL.D. ('50). To be awarded to the student who, in the judgment of the Department of Economics, has demonstrated outstanding academic achievement in courses within the area(s) of monetary economics and financial institutions and of public finance.  
**Value:** \$100 40029 171

**THE MICHAEL THOMSON MEMORIAL BOOK PRIZES**

Established in 1975 by the members of the Departments of German and Russian in memory of Michael Thomson, Supervisor of the McMaster University language laboratories from 1961 to 1975. Two prizes to be awarded: (a) one to the student who attains the highest standing in GERMAN 1Z06 and (b) one to the student who attains the highest standing in RUSSIAN 2C06.  
**Value:** \$50 each 40035 266

**THE JOHN TOTH MEMORIAL PRIZE**

Established in 1983 in memory of John Toth by his friends. To be awarded to the student who attains the highest average in any six units of Level III or IV Latin courses.  
**Value:** \$50 40028 176

**THE THOMAS TRUMAN MEMORIAL PRIZE**

Established in 1992 by friends and colleagues in memory of Professor Thomas Truman, a member of the Department of Political Science from 1966 to 1990. To be awarded to the student entering the final level of an Honours programme



in Political Science who, in the judgment of the Department of Political Science, has achieved notable academic standing in at least nine units of Comparative Politics courses.

**Value:** \$100 0081 179

#### THE UNIVERSITY PRIZES FOR SPECIAL ACHIEVEMENT

Established in 1973. Two prizes to be awarded in each Faculty and other academic units to students who exhibit exceptional skill and originality in a creative project (such as an essay, poem, sculpture, mathematical or scientific problem, engineering design) or a related series of such projects.

**Value:** \$150 each 40052

#### THE WIDMAIER PRIZES FOR PROFICIENCY IN GERMAN

Established in 1990 by Dr. and Mrs. F. Widmaier. Four prizes to be awarded to students of GERMAN 1206 who, in the judgment of the Department of Modern Languages, have achieved notable proficiency in German.

**Value:** \$250 each 40054 278

#### THE R.M. WILES MEMORIAL BOOK PRIZE

Established in 1975 in memory of Professor Roy McKeen Wiles by his friends and colleagues. To be awarded to the student who, in the judgment of the Department of English, has written the best essay on a topic relating to English literature of the period 1660-1800.

**Value:** \$200, for books 40044

### E. Awards for Graduating Students

The following awards are based on competition across the University or within a Faculty or programme.

**E.1** These awards, which are granted in May, are provided exclusively for graduating students qualifying on the basis of achievement in their first baccalaureate degree programme.

**E.2** In addition to meeting the general conditions listed in Section 1, a student must obtain:

- a. Cumulative Average of at least 8.0;
- b. no failures in the courses last taken equal to:
  - i. either the number of units specified in the Calendar for the final level of their programme;
  - ii. or, if the Calendar does not specify the programme work by individual levels, the final 30 units of work.

#### ◆ MEDALS

##### THE GOVERNOR GENERAL'S ACADEMIC MEDAL

Given by Her Excellency the Governor General of Canada. To be awarded to the student graduating from a first baccalaureate degree programme who, in the judgment of the selection committee, has attained the highest standing throughout the programme. 50022

##### THE E.H. AMBROSE GOLD MEDAL

Established in 1971 by Clarkson Gordon in memory of their former Hamilton partner, E.H. Ambrose, member of the University's Board of Governors from 1957 to 1967 and its Chair, 1965 to 1967, and augmented by Mrs. E. H. Ambrose in 1987. To be awarded to the student in the graduating class of a programme in Commerce who, on the basis of scholarship and leadership, is judged to be the outstanding member of the class. 50014 006

##### THE ASSOCIATION OF PROFESSIONAL ENGINEERS GOLD MEDAL

Established in 1961 by the Ontario Professional Engineers Foundation for Education. To be awarded to the graduand of a programme in Engineering who attains the highest Cumulative Average. 50005 008

##### THE BASU MEDAL

Established in 1984 in memory of Professor Sanjoy Basu by friends, colleagues and accounting organizations. To be awarded to the graduating student who, in the judgment of the School of Business, has displayed outstanding achievement in accounting and has attained an average of at least 10.0 in any four of COMMERCE 4AA3, 4AB3, 4AC3, 4AD3, 4AE3, 4AF3. 50006 013

##### THE EZIO CAPPADOCIA MEDAL

Established in 1986 by Professor E. Cappadocia on the occasion of his retirement from the Department of History. To be awarded to a student graduating from an Honours programme in History who, in the judgment of the Department of History, has displayed outstanding achievement and has contributed to the Department's activities. 50018 030

##### THE J.E.L. GRAHAM MEDAL

Established by the Faculty of Social Sciences in 1982 in recognition of Professor J.E.L. Graham for his outstanding contributions to the Faculty and the University during 32 years of service. To be awarded on the recommenda-

tion of the Faculty of Social Sciences to a student in the graduating class who, on the basis of scholarship, is judged to be an outstanding member of the class of Social Sciences graduands, and who has completed the programme primarily on a part-time basis. 50029

##### THE AMELIA HALL GOLD MEDAL

Established in 1985 by members of the Class of '38 in recognition of Amelia Hall ('38), D. Litt. ('75), one of the great pioneers of Canadian theatre and a consummate actress, who performed on Canadian stage, screen, radio and television for 35 years. To be awarded to a graduating student who, in the judgment of the Committee of Instruction for Drama, has made a significant contribution to drama during the student's University career. 50003 070

##### THE HUMANITIES MEDALS FOR SPECIAL ACHIEVEMENT

Established by the University in 1982. Up to five medals to be awarded to graduating students in the Faculty of Humanities in recognition of outstanding achievement in scholarship and contributions to the cultural and intellectual life of the University including such areas as the creative and performing arts and faculty government. 50026

##### THE HURD MEDAL

Established in 1955 by Donald W. Hurd ('49) in memory of his father, Dean William Burton Hurd. To be awarded to a student at graduation for distinguished achievement in an Honours programme in which economics is a major field of study. 50027 079

##### THE R.C. MCIVOR MEDAL

Established by the Faculty of Social Sciences in 1982 in recognition of Professor R.C. McIvor, former Dean of the Faculty, for his outstanding contributions to the Faculty and the University during 35 years of service. To be awarded on the recommendation of the Faculty of Social Sciences to the full-time student in the graduating class who, on the basis of scholarship, is judged to be the outstanding member of the class of Social Sciences graduands. 50043

#### ◆ RING

##### THE BURKE MEMORIAL RING

Presented by science graduates of the University in memory of Dean C.E. Burke. To be awarded to a graduate of a B.Sc. programme who is named to the Deans' Honour List and who has made the most outstanding contribution to undergraduate activities. 50007

#### ◆ SCHOLARSHIPS AND PRIZES

##### THE CAMERON D. ALLEN BOOK PRIZE

Established in 1978 in memory of Cameron D. Allen. To be awarded to a student graduating from an Honours programme in Geography who, in the judgment of the Department of Geography, shows outstanding achievement in studies in climatology.

**Value:** \$50, for books 50009 267

##### THE AMBASSADOR OF SPAIN BOOK PRIZE

Established in 1982. To be awarded to a graduating student in an Honours Hispanic Studies programme who, in the judgment of the Department of Modern Languages, has achieved notable academic standing. 50002 005

##### THE ANTHROPOLOGY PRIZE

Established in 1982. To be awarded to the graduating student who has completed a programme in Anthropology primarily on a part-time basis and who, in the judgment of the Department of Anthropology, has demonstrated outstanding academic achievement.

**Value:** \$50 50004

##### THE WILLIAM AND LIDA BARNES MEMORIAL PRIZE IN HISTORY

Established in 1969 by their son, William D. Barnes, of Morgantown, West Virginia. To be awarded to the graduand who, in the judgment of the Department of History, has attained notable standing in the Honours History programme.

**Value:** \$200 50050 010

##### THE MARION BATES BOOK PRIZE

Established in 1967, Centennial Year, by the Alumnae members of the McMaster Alumni Association in honour of Marion Bates, Dean of Women from 1947 to 1965. To be awarded to a student graduating from an Honours programme in History who, in the judgment of the Department of History, has displayed outstanding achievement in Canadian history courses consistently throughout the degree programme.

**Value:** \$100, for books 50034

**THE ABE BLACK MEMORIAL PRIZES**

Established in 1982 by friends and colleagues of Dr. A.H. Black in memory of a distinguished member of the Department of Psychology from 1958 to 1978. Four prizes to be awarded: (a) one to the student who attains the highest Cumulative Average in an Honours B.A. programme in Psychology; (b) one to the student who attains the highest Cumulative Average in the Honours B.Sc. programme in Psychology; (c) one to the student who attains the highest Cumulative Average in the Honours Biology and Psychology (Life Sciences) programme.

**Value:** (a) \$75; (b) \$75; (c) \$75 50000 017

**THE RUTH BURKE MEMORIAL PRIZE**

Established in 1963 by Dr. and Mrs. Herbert S. Armstrong in memory of Mrs. Charles E. Burke. To be awarded to the student in the Nursing programme who attains the highest Cumulative Average. The Prize is a set of engraved sterling silver coffee spoons.

50047 268

**THE CERTIFIED GENERAL ACCOUNTANTS ASSOCIATION PRIZE**

Established in 1982 by the Certified General Accountants Association of Ontario. To be awarded to the graduating student who, in the judgment of the School of Business, has displayed outstanding achievement in accounting and has attained an average of at least 10.0 in COMMERCE 3AA3, 3AB3, 4AA3 and 4AB3.

**Value:** \$150 50012 033

**THE CFUW (HAMILTON) MEMORIAL PRIZE IN WOMEN'S STUDIES**

Established in 1992 by current and past members of the Canadian Federation of University Women (Hamilton), formerly known as the University Women's Club of Hamilton. To be awarded to the graduating student from a programme in Women's Studies who, in the judgment of the Committee of Instruction for Women's Studies, has demonstrated outstanding academic achievement in the Women's Studies component of the programme.

**Value:** \$150 and book ends 132

**THE DENTON COATES MEMORIAL SCHOLARSHIP**

Established in 1982 in memory of Denton E. Coates ('70) by his friends. To be awarded to the graduand who, in the judgment of the Department of Materials Science and Engineering, has demonstrated outstanding achievement in independent research as exemplified by the senior thesis in MATLS 4K04.

**Value:** \$300 50013

**THE LAURA DODSON PRIZE**

Established in 1985 by Laura Dodson ('56). To be awarded to the student graduating from the Honours Arts and Science programme who has displayed outstanding achievement in both arts and science.

**Value:** \$150 0031 049

**THE HELEN EMERY PRIZE IN ENVIRONMENTAL SCIENCE**

Established in 1990 by Miss Helen Emery of Barrie, Ontario. To be awarded to a student graduating from the Honours Geography and Environmental Sciences programme who has displayed outstanding achievement.

**Value:** \$150 50053 237

**THE EUROPEAN HISTORY PRIZE**

Established in 1986 by Professor Ezio Cappadocia, on the occasion of his retirement from the Department of History, in memory of his mentor, Professor Frank H. Underhill. To be awarded to a student graduating from an Honours programme in History who, in the judgment of the Department of History, has displayed outstanding achievement in European history courses consistently throughout the degree programme.

**Value:** \$100 50017 058

**THE FINANCIAL EXECUTIVES INSTITUTE PRIZE**

Established in 1983 by the Hamilton Chapter of the Financial Executives Institute. To be awarded to the graduating student who, in the judgment of the School of Business, has demonstrated outstanding achievement in courses in finance.

**Value:** \$500 50019 060

**THE GERONTOLOGY PRIZES**

Established in 1988 by the Pioneer Group Limited. Two prizes to be awarded (a) one to a full-time student and (b) one to a part-time student, both of whom are graduating from a programme in Gerontology who, in the judgment of the Gerontology Committee of Instruction, have demonstrated high academic achievement and leadership in extracurricular activities.

**Value:** \$100 each 50021 066

**THE IROQUOIS TROPHY**

Established in 1970 by the Department of Mechanical Engineering. To be presented to a graduating mechanical engineer on the basis of academic

excellence, participation in campus societies, clubs, or other activities, and general leadership. A replica of the Trophy is permanently held by each winner. 50028

**THE BURTON R. JAMES MEMORIAL PRIZE**

Established in 1974 by his friends and colleagues in honour of Burton R. James ('39), Controller, 1963-71, Assistant Vice-President - Administration, 1971-73, McMaster University. To be awarded to the student who, in the judgment of the Faculty of Business, has attained an outstanding Cumulative Average in a programme in Commerce.

**Value:** \$150 50008

**THE W. NORMAN JEEVES SCHOLARSHIP**

Established in 1987 by the French Section, Department of Romance Languages, in honour of W. Norman Jeeves, Professor of French from 1965 to 1987. To be awarded to a graduand of an Honours programme in French who, in the judgment of the Department of French, has demonstrated outstanding academic achievement in the French component of the programme.

**Value:** \$350 50052 088

**THE FRANK E. JONES PRIZE**

Established in 1982 in honour of Professor F.E. Jones for his outstanding contributions to the Department of Sociology. To be awarded to the full-time student with the highest Cumulative Average in an Honours programme in Sociology.

**Value:** \$50 50020

**THE RUTH LANDES PRIZE**

Established in 1982 in honour of Professor Ruth Landes for her outstanding contributions to the Department of Anthropology. To be awarded to the graduating full-time student in a three-Level programme in Anthropology who, in the judgment of the Department of Anthropology, has demonstrated outstanding academic achievement.

**Value:** \$50 50048

**THE FELIKS LITKOWSKI PRIZE IN POLITICAL SCIENCE**

Established in 1987 by Albert Litkowski ('78) and Richard Litkowski ('86) in honour of their father. To be awarded to a full-time student graduating from an Honours programme in Political Science who, in the judgment of the Department of Political Science, has demonstrated outstanding academic achievement.

**Value:** \$300 50032 100

**THE AGNES AND JOHN MACNEILL MEMORIAL PRIZE**

Established in 1946 by bequest of Annie May MacNeill ('03). To be awarded to the student graduating from an Honours programme in English who has attained the most notable standing in English throughout the degree programme.

**Value:** \$150 50001

**THE CATHERINE MACNEILL PRIZE**

Established in 1946 by bequest of Annie May MacNeill ('03). To be awarded to a woman student in her graduating year who has attained notable standing in scholarship and has shown qualities of leadership.

**Value:** \$150 50011

**THE PILAR MARTINEZ PRIZE**

Established in 1983 by Dr. Pilar Martinez. To be awarded to the student who has attained the highest Cumulative Average in a programme in Hispanic Studies. The Prize is a handcrafted object.

**Value:** \$200 50041 105

**THE ESTHER MCCANDLESS MEMORIAL PRIZE**

Established in 1984 by friends and colleagues in memory of Professor E. L. McCandless, a humanitarian and distinguished member of the Department of Biology from 1964 to 1983. To be awarded to a student who achieves an outstanding Cumulative Average in an Honours programme in Biology.

**Value:** \$200 50016

**THE JOHN R. MCCARTHY SCHOLARSHIP**

Established in 1987 by John R. McCarthy LL.D. ('65), former Deputy Minister of University Affairs and Deputy Minister of Education for the Province of Ontario. To be awarded to a student graduating from a programme in Arts & Science, Humanities, Science, or Social Sciences who enrolls in the Faculty of Education of an Ontario university in the academic session immediately following graduation. The student selected will have made a contribution to the life of the University by displaying leadership in student government or student affairs and leadership and sportsmanship in athletic endeavours.

Applications and the name of two referees should be submitted to the Director of Student Financial Aid and Scholarships by April 2.

**Value:** \$800 50030 107

**THE A.G. MCKAY PRIZE IN CLASSICAL STUDIES**

Established in 1990 by Professor Emeritus A.G. McKay. To be awarded to a graduating student from an Honours programme in Classical Studies who, in the judgment of the Department of Classics, has demonstrated outstanding academic achievement and leadership.

Value: \$100 50054 269

**THE WALTER SCOTT MCLAY PRIZE**

Established in 1938 in honour of Dean McLay, by his daughter, Mrs. R.R. McLaughlin (Marjorie McLay '25) and further enlarged in 1950 by A.H. Wilson of Woodstock. To be awarded to the student who attains the highest Cumulative Average in an Honours programme in English.

Value: \$250 50057 279

**THE E.S. MOORE PRIZE IN GEOLOGY**

Established in 1956 by Elwood S. Moore, LL.D. ('55). To be awarded to the student graduating in an Honours programme in Geology who, in the judgment of the Department of Geology, has attained the most notable standing in Geology.

Value: \$150 50015 116

**THE NATIONAL ASSOCIATION OF CORROSION ENGINEERS PRIZE**

Established in 1989 by the Toronto Section of the National Association of Corrosion Engineers. To be awarded to the graduand, who, in the judgment of the Department of Materials Science and Engineering, has submitted an outstanding thesis in the area of Corrosion Science and Engineering. In the absence of a qualified candidate, the award will be made to the student who attains the highest standing in MATLS 4D03 (Corrosion).

Value: \$100 50036 120

**THE P.L. NEWBIGGING PRIZES**

Established in 1982 in recognition of Dr. Lynn Newbigging for his outstanding contributions to the Department of Psychology. Four prizes to be awarded to students with the highest Cumulative Average: (a) one to a full-time student in the three-level B.A. programme in Psychology; (b) one to a student in a B.A. programme in Psychology who has completed the programme primarily on a part-time basis; (c) one to a full-time student in the three-level B.Sc. programme in Psychology; and (d) one to a student in a B.Sc. programme in Psychology who has completed the programme primarily on a part-time basis.

Value: \$50 each 0040 280

**THE ONTARIO ASSOCIATION OF****PROFESSIONAL SOCIAL WORKERS PRIZE**

Established in 1986 by the Hamilton Branch. To be awarded to the graduating student who attains the highest average in SOC WORK 4D06 and 4DD6.

Value: \$125 0037 126

**THE ONTARIO PHYSIOTHERAPY ASSOCIATION BOOK PRIZE**

Established in 1985 by the Ontario Physiotherapy Association (Hamilton Branch). To be awarded to the student who has attained the highest Cumulative Average in the Physiotherapy programme.

Value: \$100, for books 50038 128

**THE HARRY L. PENNY PRIZE**

Established in 1984 in recognition of Professor Harry L. Penny, founding Director of the School of Social Work, for his outstanding contribution to the School. To be awarded to the student with the highest Cumulative Average in a Social Work programme.

Value: \$50 50023

**THE PHYSICAL EDUCATION PRIZE**

Established in 1982. To be awarded to the graduating student who, in the judgment of the School of Physical Education and Athletics, has submitted an outstanding paper or project.

Value: \$50 50058

**THE PIONEER GROUP PRIZE IN NURSING**

Established in 1989 by the Pioneer Group Limited in conjunction with the R. Samuel McLaughlin Centre for Gerontological Health Research. Two prizes to be awarded to students graduating from the Nursing programme who, in the judgment of the School of Nursing, have achieved notable standing and demonstrated practical aptitude for a career in the health care of the elderly.

Value: \$150 50056 137

**THE POLITICAL SCIENCE PRIZE**

Established in 1982. To be awarded to a graduating student who has completed a programme in Political Science primarily on a part-time basis and who, in the judgment of the Department of Political Science, has demonstrated outstanding academic achievement.

Value: \$50 50042

**THE POLITICAL SCIENCE HONOURS ESSAY PRIZE**

Established in 1982. To be awarded to the student who, in the judgment of the Department of Political Science, has demonstrated outstanding achievement in POL SCI 4Z06.

Value: \$50 50059

**THE LLOYD REEDS PRIZES**

Established in 1983 in recognition of Dr. Lloyd G. Reeds for his outstanding contributions to the Department of Geography during 35 years of service. Four prizes to be awarded: (a) one to the student who attains the highest Cumulative Average in an Honours B.A. programme in Geography; (b) one to the student who attains the highest Cumulative Average in an Honours B.Sc. programme in Geography; (c) one to the student who attains the highest Cumulative Average in a three-level B.A. or B.Sc. programme in Geography; and (d) one to the student who, in the judgment of the Department of Geography, has demonstrated outstanding achievement in GEOG 4C06.

Value: \$50 each 50033

**THE RELIGIOUS STUDIES PRIZES**

Established in 1982. Two prizes to be awarded to students who attain the highest Cumulative Average in a three- or four-level programme in Religious Studies: (a) one to a student who has completed the programme on a full-time basis, and (b) one to a student who has completed the programme primarily on a part-time basis.

Value: \$50 each 50045

**THE RELIGIOUS STUDIES HONOURS ESSAY PRIZE**

Established in 1982. To be awarded to the student who, in the judgment of the Department of Religious Studies, has demonstrated outstanding achievement in RELIG ST 4J06.

Value: \$50 50044

**THE SHELL CANADA PRIZES IN ENGINEERING AND MANAGEMENT**

Established in 1983. Three prizes to be awarded to students graduating from an Engineering and Management programme. Awards will be based on scholarship and on the quality of and creativity shown in written communication.

Value: \$225 each 50049

**THE RICHARD SLOBODIN PRIZE**

Established in 1982 in honour of Professor Richard Slobodin for his outstanding contributions to the Department of Anthropology. To be awarded to the graduating full-time student in an Honours Anthropology programme who, in the judgment of the Department, has demonstrated outstanding academic achievement.

Value: \$50 50046

**THE SOCIOLOGY PRIZES**

Established in 1982. Two prizes to be awarded to students with the highest Cumulative Averages: (a) one to a student who has completed the three-level programme in Sociology on a full-time basis; and (b) one to a student who has completed a programme in Sociology primarily on a part-time basis.

Value: \$50 each 50051

**THE SOCIETY OF CHEMICAL INDUSTRY MERIT AWARDS**

Established in 1961. Three plaques to be awarded: (a) one to a Chemical Engineering graduand, (b) one to an Honours Biochemistry or Honours Biochemistry and Chemistry graduand, and (c) one to an Honours Applied Chemistry, Honours Chemistry, Honours Chemistry and Geology, or Honours Chemistry and Physics graduand, who have attained the highest Cumulative Average (at least 9.5) and have completed the programme in the normal number of years.

50060 157

**THE HARRY WAISGLASS BOOK PRIZE**

Established in 1988 in honour of Harry Waisglass, the first Director of the Labour Studies Education Programme at McMaster. To be awarded to a student graduating from a programme in Labour Studies who, in the judgment of the Committee of Instruction for Labour Studies, has demonstrated outstanding achievement.

Value: \$50 50024

**THE MARK WATSON MEMORIAL PRIZE IN HISTORY**

Established in 1987 by friends in the Department of History in memory of Mark A. Watson ('86). To be awarded to a student graduating from a three-level programme in History who, in the judgment of the Department of History, has displayed outstanding achievement consistently throughout the degree programme.

Value: \$100 50035 183

**F. Awards for Second Baccalaureate Degree Students**

The following awards are granted based on competition across the University or within a Faculty or programme.

- F.1** These awards, which are granted in June or November, are provided for either full-time or part-time second baccalaureate degree students qualifying on the basis of achievement during the Spring/Summer or Fall/Winter sessions immediately preceding the May review (or deferred examinations resulting therefrom).
- F.2** In addition to meeting the General Conditions listed in Section 1, a student must obtain, at the most recent review, a Cumulative Average of at least 8.0 and no failures.
- F.3** The Cumulative Average will be used to break any tie in the competition for these awards.

**THE CANADIAN ASSOCIATION OF OCCUPATIONAL THERAPISTS BOOK PRIZE**

Established in 1992 by the Canadian Association of Occupational Therapists. To be awarded to a graduating student who, in the judgment of the School of Occupational Therapy and Physiotherapy, is most outstanding in the theory component of the Occupational Therapy programme.  
Value: \$75

**THE CANADIAN ASSOCIATION OF OCCUPATIONAL THERAPISTS BOOK PRIZE**

Established in 1985. To be awarded to the student who has attained the highest Cumulative Average in the Occupational Therapy programme.  
Value: \$75, for books 50010 024

**THE CANADIAN PHYSIOTHERAPY ASSOCIATION SCHOLARSHIP**

Established in 1992 by the Canadian Physiotherapy Association. To be awarded to the graduating student who has attained the highest Cumulative Average in the Physiotherapy programme.  
Value: \$150

**THE CANADIAN PHYSIOTHERAPY CARDIO-RESPIRATORY SOCIETY BOOK PRIZE**

Established in 1992 by the Canadian Physiotherapy Cardio-Respiratory Soci-

ety. To be awarded to a graduating student who, in the judgment of the School of Occupational Therapy and Physiotherapy, has demonstrated notable academic achievement and excellence in clinical fieldwork related to cardio-respiratory physiotherapy.  
Value: \$60

**THE HOMEWOOD AWARD**

Established in 1987 at Mohawk College by the Occupational Therapy Department of Homewood Sanatorium and transferred to McMaster University in 1992. To be awarded to the student completing Block IV of the B.H.Sc. (OT) programme who, in the judgment of the School of Occupational Therapy and Physiotherapy, has demonstrated outstanding academic achievement and excellence in clinical fieldwork related to psychiatry.  
Value: \$100

**THE KARL KINANEN ALUMNI PRIZE IN GERONTOLOGY**

Established in 1992 by the Gerontology Alumni of McMaster University in recognition of Karl Kinanen for his leadership in the development of Gerontological Studies at the University. To be awarded to a student graduating from a programme in Gerontology who, in the judgment of the Gerontology Committee of Instruction, has demonstrated high academic achievement and leadership in community activities.  
Value: \$100

**THE ONTARIO ASSOCIATION OF PROFESSIONAL SOCIAL WORKERS PRIZE**

Established in 1992 by the Hamilton Branch. To be awarded to the graduating student from the second baccalaureate degree programme in Social Work who has attained the highest average in SOC WORK 4D06 and 4DD6.  
Value: \$125

(The above award is offered in addition to the award in Category E with the same name and terms.)

**THE SMITH AND NEPHEW INC. AWARD**

Established in 1991. To be awarded to the student completing Year I of the B.H.Sc. (OT) programme who, in the judgment of the School of Occupational Therapy and Physiotherapy, has demonstrated outstanding academic achievement and excellence in clinical fieldwork.  
Value: \$75

40066 307

The following awards are cross-listed with Section 2, Category D; see latter section for description of terms.

- THE ALUMNI SOCIAL WORK PRIZE
- THE ABE BLACK MEMORIAL PRIZE
- THE CANADIAN CLUB OF HAMILTON SCHOLARSHIP
- THE JAMES ROBERTSON CARRUTHERS MEMORIAL PRIZE
- THE CITIZEN ACTION GROUP PRIZE
- THE CONSUL GENERAL OF ITALY BOOK PRIZE
- THE BEATRICE CORRIGAN MEMORIAL BOOK PRIZE
- THE CRANSTON PRIZES
- THE NEIL FORSYTH PRIZE
- THE GILMOUR MEMORIAL PRIZE
- THE INTER NATIONES (BONN) BOOK PRIZE
- THE JEAN JONES PRIZE
- THE SAM LAWRENCE PRIZE
- THE LINGUISTICS PRIZE
- THE MacGIBBON SCHOLARSHIP

- THE WILLIAM MACKENZIE MEMORIAL PRIZE
- THE ELEANOR DORNBUSH MARPLES PRIZE IN ART HISTORY
- THE ELEANOR DORNBUSH MARPLES PRIZE IN DRAMA
- THE H.W. McCREADY PRIZE IN BRITISH HISTORY
- THE CONNIE O'SHAUGHNESSY MEMORIAL PRIZE
- THE PIONEER GROUP LTD. PRIZE
- THE PROCOR LIMITED SCHOLARSHIP
- THE ABRAHAM ROSENBERG MEMORIAL PRIZE
- THE LARRY SAYERS PRIZE IN CHINESE HISTORY
- THE LARRY SEFTON SCHOLARSHIP
- THE ANNE STEIN MEMORIAL PRIZE
- THE SWISS MINISTER TO CANADA BOOK PRIZES
- THE KENNETH W. TAYLOR BOOK PRIZE
- THE JOHN TOTH MEMORIAL PRIZE
- THE THOMAS TRUMAN MEMORIAL SCHOLARSHIP
- THE UNIVERSITY PRIZES FOR SPECIAL ACHIEVEMENT
- THE R.M. WILES MEMORIAL BOOK PRIZE

**SECTION 3. INDEX OF AWARDS**

**Legend**

<b>B</b> Business	<b>N</b> Nursing
<b>E</b> Engineering	<b>AS</b> Arts & Science Programme
<b>H</b> Humanities	<b>HS</b> Health Sciences
<b>S</b> Science	<b>U</b> University-wide
<b>SS</b> Social Sciences	<b>OT/PT</b> Occupational Therapy/Physiotherapy

**Index**

Aaron Prize (H) .....	252
ACI (Ontario Chapter) Scholarship (E) .....	252
A.G. Alexander Scholarships (H) .....	260
Cameron D. Allen Book Prize (S, SS) .....	264

Ted Allen Book Prize (Part-time)(U) .....	261
Alumni Association Scholarships (U) .....	250
Alumni Association Scholarships (Part-time) (U) .....	261
Alumni Canadian Geography Prize (U) .....	261
Alumni Social Work Prize (SS) .....	261
Ambassador of Spain Book Prizes (H) .....	264
E.H. Ambrose Gold Medal (B) .....	264
American-Standard Prize (E) .....	261
Amoco Canada Undergraduate Scholarship (S) .....	252
Anthropology Prize (SS) .....	264
Edgar R. Ashall Scholarship (U) .....	260
Ashbaugh Scholarships (U) .....	250
ASM International (Ontario Chapter) Scholarship (E,S) .....	252
Association of Professional Engineers Gold Medal (E) .....	264
Association of Professional Engineers Scholarship (E) .....	250
Association of Professional Engineers Undergraduate	

## 268 UNDERGRADUATE AWARDS — INDEX

Scholarships (E) .....	252	Dofasco Scholarship (E) .....	250
A.H. Atkinson Prize (E) .....	252	Rosemary Douglas-Mercer Memorial Prize (H) .....	254
Murray Ball Entrance Scholarship in Earth Sciences (S) .....	251	Drama Book Prize (U) .....	262
Murray Ball Prizes in Geology (S) .....	261	Horace A. Dulmage Prize in Philosophy (H) .....	254
Murray Ball Scholarships in Geology (S) .....	252	Joan Jackson Dunbar Travel Scholarship (H) .....	260
J. Douglas Bankier Memorial Scholarship (S) .....	252	Dundas Scholarships (U) .....	250
William and Lida Barns Memorial Prize in History (H) .....	264	Education Foundation of the Federation of Chinese Canadian Professionals of Ontario Scholarships (AS, E, S) .....	260
Scott Bartlett Memorial Prize (B) .....	252	Edwards Hall Residence Scholarship (U) .....	260
Basu Medal (B) .....	264	George and Nora Elwin Scholarships (U) .....	250
Marion Bates Book Prize (H) .....	264	Helen Emery Entrance Scholarship for Environmental Science (S) .....	251
M. Banker Bates Scholarship (B) .....	252	Helen Emery Scholarship in Environmental Science (S) .....	254
Bates Residence Scholarship (U) .....	260	Helen Emery Prize in Environmental Science (S) .....	265
Beauty Counselors of Canada Scholarship (S) .....	252	Ernst & Young Scholarship (B) .....	254
Louise E. Bettger Scholarships in Music (H) .....	252	L.F. Eull Prize (E) .....	254
J. P. Bickell Scholarships (E,S) .....	252	European History Prize (H) .....	265
Abe Black Memorial Prize (Essay) (S, SS) .....	261	John P. Evans Travel Scholarship (H) .....	260
Abe Black Memorial Prizes (S,SS) .....	264	Financial Executives Institute Prize (B) .....	265
Brian Blakey Memorial Scholarship (H) .....	252	Neil Forsyth Prize (E, S) .....	262
Brampton Brick Limited Ceramic Scholarship (E) .....	253	Barbara Francis Scholarship (AS) .....	254
Brien Scholarship in Philosophy (H) .....	253	Harold and Gertrude Freeman Scholarship in French (H) .....	254
Josephine Staples Brien Scholarship (U) .....	253	French Government Book Prizes (H) .....	262
Dr. and Mrs. F.R. Britton Scholarship in Mathematics (S) .....	253	Fortinos Scholarship (B) .....	250
Ten Broeke-Bensen Memorial Scholarship (H) .....	253	4 R's Environmental Programme Awards (E, SS) .....	254
Ruby Brown Book Prize in English (U) .....	261	H.P. Frid Scholarship (U) .....	250
Burke Memorial Ring (S) .....	264	Klaus Fritze Memorial Prize (S) .....	254
Ruth Burke Memorial Prize (N) .....	265	Merrill Francis Gage Entrance Scholarship (H) .....	251
Crispin Calvo Prize (S) .....	253	Merrill Francis Gage Scholarship (H) .....	254
Ella Halstead Campbell Prize (H) .....	253	R. Louis Gentilcore Prize (S,SS) .....	262
Canada Brick Scholarships (E) .....	253	Geology Book Prize (S) .....	254
Canada Scholarships (AS, E, S) .....	250	German Embassy Book Prize (H) .....	262
Canadian Association of Occupational Therapists Book Prize (HS) .....	267	Gerontology Prizes (SS) .....	265
Canadian Association of Occupational Therapists Book Prize (HS) .....	267	J.L.W. Gill Prizes (S) .....	254
Canadian Ceramic Society (Western Section) Scholarship (E) .....	253	Gilmour Memorial Prize (U) .....	262
Canadian Physiotherapy Association Scholarship (OT/PT) .....	267	George P. Gilmour Memorial Scholarship (AS) .....	255
Canadian Physiotherapy Cardio-Respiratory Society Book Prize (OT/PT) .....	267	Governor General's Academic Medal (U) .....	264
Canadian Society For Chemical Engineering Prize (E) .....	253	Governors' Scholarships (U) .....	251
Canadian Society For Chemistry Prizes (S) .....	253	Daphne Etherington Graham Memorial Scholarship in English (H) .....	255
Canadian Society of Civil Engineers (Hamilton Section) Prize (E) .....	253	J.E.L. Graham Medal (SS) .....	264
Ezio Cappadocia Medal (H) .....	264	Greek Community of Burlington and District Scholarship (U) .....	262
James Robertson Carruthers Memorial Prize (U) .....	261	H.B. Greening Book Prize (H) .....	255
Norman N. Caskey Memorial Prize (H) .....	253	Amelia Hall Gold Medal (H) .....	264
Certified General Accountants Association Prize (B) .....	253	Ruth and Jack Hall Prize (E,S) .....	255
Certified General Accountants Association Prize (B) .....	265	Ronald K. Ham Memorial Prize (E,S) .....	255
CFUW (Hamilton) Prize .....	265	Hamilton Chemical Association Prize (S) .....	255
Chancellor's Gold Medal (U) .....	252	Hamilton Economic Development Commission Scholarships (B) .....	255
Chancellors' Scholarships (U) .....	250	Hamilton Engineering Institute Prize (E) .....	262
Chemical Institute of Canada (Hamilton Section) Prizes (E,S) .....	253	Hamilton Industrial Scholarships (U) .....	260
Citizen Action Group Prize (SS) .....	261	Hamilton Spectator Scholarship (U) .....	251
Civitan-Bell Scholarship (SS) .....	253	Donald Hart Scholarship (B) .....	255
Hugh Clark Scholarship (SS) .....	253	Hedden Hall Residence Scholarship (U) .....	260
Class of '37 Scholarship (H,S) .....	253	Anna Marie Hibbard Scholarship (U) .....	255
Class of '37 Travel Scholarship in Arts and Science (AS) .....	260	Rose Hill Scholarship (SS) .....	255
Class of '50 Scholarship in Honours Economics (SS) .....	253	Dr. Thomas Hobley Prize (SS) .....	255
Classics Prize (H) .....	253	John Hodgins Memorial Scholarship (E) .....	251
Denton Coates Memorial Scholarship (E,S) .....	265	Nellie P. Hogg Scholarships (U) .....	251
Comparative Literature Prize (H) .....	261	Homewood Award (OT) .....	267
Consul General of Italy Book Prize (H) .....	262	Dr. Harry Lyman Hooker Entrance Scholarships (U) .....	251
Consulting Engineers of Ontario (CEO) Scholarship (E) .....	254	Dr. Harry Lyman Hooker Scholarships (U) .....	255
Consumers Glass Scholarship (E) .....	254	Bertram Osmer Hooper Scholarship (B,H,SS) .....	260
Beatrice Corrigan Memorial Book Prize (U) .....	262	Nina Louise Hooper Scholarship (U) .....	260
Cranston Prizes (H) .....	262	Humanities Medals for Special Achievement (H) .....	264
Helen M. Currey Scholarship (U) .....	250	Hurd Medal (SS) .....	260
Edwin Marwin Dalley Memorial Scholarships (U) .....	260	Paul Hypher Prize (B) .....	262
D. M. Davies Prize (S) .....	254	Municipal Chapter of Hamilton, IODE, Prize (U) .....	262
Dr. Rudolf de Buda Scholarship (E) .....	254	Amelia Morden, Paardeburg Chapter, IODE, Scholarship (U) .....	251
John Deere Ltd. Scholarship (B) .....	254	Institute of Electrical and Electronics Engineers (Hamilton Section) Prizes (E) .....	255
DeVilliers-Mahaffy Merit Awards (U, S, H) .....	251	Intermetco Limited Scholarship (E) .....	255
Deloitte & Touche Scholarship (B) .....	254	Inter Naciones (Bonn) Book Prize (H) .....	262
Audrey Diemart Memorial Book Prize (H) .....	261	Iroquois Trophy (E) .....	265
Digital Equipment of Canada Limited Award of Merit (E) .....	254	ITCA Community Involvement Prize (H) .....	255
Laura Dodson Prize (AS) .....	265		



Ivey Scholarship (H) .....	255	Anne Murray Scholarship (H) .....	257
H.L. Jackson Memorial Scholarship (S) .....	262	National Association of Corrosion Engineers (E) .....	266
Burton R. James Memorial Prize (B) .....	265	Neosid Ceramic Engineering Prize (E) .....	263
W. Norman Jeeves Scholarship (H) .....	265	P.L. Newbigging Prizes (S,SS) .....	266
Herbert M. Jenkins Prize (AS) .....	262	Alan G. Newcombe Prize in Peace Studies (SS) .....	263
A.I. Johnson Scholarship (E) .....	255	Niemeier Scholarship (N) .....	257
Kathleen Mary Johnston Memorial Prize (SS) .....	255	Robert Nixon Scholarship (U) .....	257
Frank E. Jones Prize (SS) .....	265	Derry Novak Prize (SS) .....	263
The Jean Jones Prize (SS) .....	262	Alvin I. Ogilvie Scholarships (U) .....	251
Jury Prize (H) .....	255	Fredric P. Olsen Book Prize (S) .....	257
Jury Scholarship (U) .....	251	Ontario Association of Professional Social Workers Prize (SS) .....	267
Cathryn E. Kaake Merit Award (U) .....	251	Ontario Hydro Scholarship in Electrical Engineering (E) .....	257
Stanford N. Katambala Geology Prize (S) .....	255	Ontario Physiotherapy Association Book Prize (HS) .....	266
Karl Kinanen Alumni Prize in Gerontology (SS) .....	267	Connie O'Shaughnessy Memorial Prize (U) .....	263
George P. and Leatha M. Keys Scholarships (S) .....	256	Lillian and Leroy Page Scholarship (S) .....	250
Kit Memorial Scholarship (H) .....	256	Paikin Scholarship (H) .....	257
Raymond C. Labarge Merit Awards (U) .....	251	Gladys Ballantyne Parker Prize (H) .....	257
Ruth Landes Prize (SS) .....	265	F.W. Paulin Scholarship (E) .....	257
Latin Prize (U) .....	262	Peat Marwick Thorne Scholarship (B) .....	257
Gary Lautens Memorial Scholarship .....	256	Harry L. Penny Prize (SS) .....	266
Howard O. Lawrence Scholarship (E) .....	256	Pevensing Scholarship (SS) .....	257
Megan Lawrence Scholarship (SS) .....	256	Physical Education Prize (SS) .....	266
Sam Lawrence Prize (SS) .....	262	Physical Education Prizes (SS) .....	263
Ray Lawson Scholarships (E) .....	256	Tony Pickard Memorial Scholarship (U) .....	260
Linguistics Prize (H) .....	262	Pioneer Group Prize in Nursing (N) .....	266
Claude C. Lister Scholarship (B) .....	260	Pioneer Group Limited Prize (SS) .....	263
Feliks Litkowski Prize in Political Science (SS) .....	265	Pioneer Group Limited Scholarship (SS) .....	257
Lloyd Memorial Scholarship (U) .....	251	Political Science Prize (SS) .....	266
MacGibbon Scholarship (SS) .....	262	Political Science Honours Essay Prize (SS) .....	266
William Mackenzie Memorial Prize (SS) .....	262	Price Waterhouse and Co. Scholarship (B) .....	257
Betty MacMillan Prize (SS) .....	256	Leslie A. Prince Merit Awards (U) .....	251
Agnes and John MacNeill Memorial Prize (H) .....	265	Procor Limited Scholarship (H) .....	263
Catherine MacNeill Prize (U) .....	265	Psychology Society Prizes (S,SS) .....	257
Josephine Magee Scholarship (U) .....	250	Dr. John A. Pylypiuk Scholarship (H) .....	257
Lianne Marks Scholarship (SS) .....	256	Rand Memorial Prize of Class '98 (H) .....	263
Eleanor Dornbush Marples Prize in Art History (H) .....	262	Lloyd Reeds Prizes (S,SS) .....	266
Eleanor Dornbush Marples Prize in Drama (H) .....	262	Sharon Reeves Scholarship (H) .....	257
Pilar Martinez Prize (H) .....	265	A.G. Reilly Scholarship (U) .....	251
Ronald E. Materick Scholarship (E) .....	256	Religious Studies Prizes (SS) .....	266
Matthews Hall Residence Scholarship (U) .....	260	Religious Studies Honours Essay Prize (SS) .....	266
Albert Matthews Scholarship (U) .....	251	Ella Julia Reynolds Scholarships (H) .....	257
Harold Matthews Memorial Scholarship (U) .....	251	Herbert A. Ricker Scholarships (E, S) .....	258
William J. McCallion Scholarships (Part-time) (U) .....	261	Rosart Properties Inc. Scholarship (S,SS) .....	258
Esther McCandless Memorial Prize (S) .....	265	Abraham Rosenberg Memorial Prize (H) .....	263
John R. McCarthy Scholarship (AS, H,S,SS) .....	265	Morris and Sarah Rosenhead Memorial Prize (U) .....	263
H.W. McCready Prize in British History (H) .....	262	Rotary Club of Hamilton Scholarship (U) .....	260
John McDiarmid Prize (E) .....	262	E.T. Salmon Scholarship (H, S) .....	258
McGregor-Smith-Burr Memorial Scholarship (H) .....	256	E. Togo Salmon Prize in History (H) .....	258
R.C. McIvor Medal (SS) .....	264	Hilda Savage Memorial Scholarship (U) .....	260
McKay Hall Residence Scholarship (U) .....	260	Larry Sayers Prize in Chinese History (H) .....	263
A.G. McKay Prize in Classical Studies (H) .....	265	Sheila Scott Scholarship in English (H) .....	258
Alexander Gordon McKay Scholarship (H) .....	256	Sheila Scott Scholarship for Wallingford Hall (U) .....	260
A.B. McLay Scholarship in Physics (S) .....	256	Sheila Scott Scholarships for Brandon Hall (U) .....	260
Boyd McLay Scholarship in Physics (S) .....	256	Larry Sefton Scholarships (SS) .....	263
Walter Scott McLay Scholarship (H) .....	266	Grace Senra-Fontes Memorial Prize (N) .....	258
McMaster Merit Awards (U) .....	251	Margaret A. Service Book Prize (S) .....	263
McMaster Nursing Alumni Prize (N) .....	256	Louis L. Shein Scholarship (H) .....	258
McMaster University Retirees' Association (SS) .....	256	Shell Canada Prizes in Engineering and Management (E) .....	266
McNabb Scholarship (S) .....	256	Shell Canada Scholarships in Engineering and Management (E) .....	258
Simon McNally Scholarships (E) .....	256	Shell Canada Series Scholarships (B, E) .....	258
Isabella Campbell McNee Scholarship (U) .....	251	Shenstone Prize (S) .....	258
Peter McPhater Memorial Scholarship (H) .....	256	Gerald and Verna Simpson Memorial Scholarship (S) .....	258
J. J. Miller Prize (S) .....	257	Richard Slobodin Prize (SS) .....	266
Modern Languages Travel Scholarship (H) .....	260	Smith and Nephew Inc. Award (OT) .....	267
Moffat Kinoshita Associates Inc. Prizes (U) .....	262	Patricia L. Smye Memorial Scholarships (H, SS) .....	258
Molson Scholarship in Environmental Studies (E, S, SS) .....	257	Social Work Prize (SS) .....	263
E.S. Moore Prize in Geology (S) .....	266	Society of Chemical Industry Merit Awards (E, S) .....	266
John F. Moore Prize (E) .....	263	Society of Management Accountants of Ontario Scholarship (B) .....	258
Michael J. Morton Memorial Book Prize (S) .....	257	Sociology Prizes (SS) .....	266
Elizabeth Mosgrove Scholarship (U) .....	257	Somerville Scholarships (U) .....	260
Moulton College Entrance Scholarship (U) .....	251	Sons of Italy of Ontario Scholarship (H) .....	258
Moulton College Scholarships (U) .....	257	South Ontario Economic Development Council Scholarships (S, SS) .....	258

## 270 UNDERGRADUATE AWARDS — INDEX

Salvatore Spitale Memorial Prize (H) .....	258	University Scholarships (U) .....	260
S.L. Squire Scholarships (E, S) .....	258	University Scholarships (Part-time) (U) .....	261
Clarence L. Starr Prize (N) .....	258	UWC Past Presidents' Prize (E) .....	259
Anne Stein Memorial Prize (SS) .....	263	Valley City Manufacturing Co. Ltd. Scholarships (S) .....	259
Anne Stein Memorial Prize (Part-time) (SS) .....	238	Varey Scholarship (S) .....	259
STO Prize in Gerontology (U) .....	261	Harry Waisglass Book Prize (SS) .....	266
Mabel Stoakley Scholarship (U) .....	259	F.W. Waters Scholarship in Philosophy (H) .....	259
Stobo Scholarship (U) .....	260	Mark Watson Memorial Prize in History (H) .....	266
Marie L. Stock Scholarship (H) .....	259	Weisz Family Foundation Scholarship (B) .....	259
John Charles Stradwick Scholarship (B) .....	251	Wheeler Scholarship (U) .....	251
Tobena Sweet Memorial Prize (N) .....	259	Howard P. Whidden Scholarship (U) .....	261
Swiss Minister to Canada Book Prizes (H) .....	263	Whidden Hall Residence Scholarship (U) .....	260
Juanita LeBarre Symington Scholarship (H) .....	259	Widmaier Prizes for Proficiency in German (U) .....	264
T.H.B. Symons Scholarship in Canadian Studies (H,SS) .....	259	R.M. Wiles Memorial Book Prize (H) .....	264
Kenneth W. Taylor Book Prize (SS) .....	263	T. Russell Wilkins Memorial Scholarship (S) .....	261
Hugh R. Thompson Memorial Prize (S,SS) .....	259	Marjorie and Charles Wilkinson Scholarship (SS) .....	259
Dr. R.A. Thompson Prize in Mathematics (S) .....	259	Emanuel Williams Scholarship in Physics (S) .....	259
D. E. Thomson Scholarship (U) .....	251	Janice Wilson Memorial Prize (H) .....	259
Michael Thomson Memorial Book Prizes (U) .....	263	Women's Art Association Scholarships (H) .....	259
Frank Thorolfson Memorial Scholarship (H) .....	251	Woodstock Hall Residence Scholarship (U) .....	260
Graham Ronald Toop Scholarship (H) .....	259	Ivor Wynne Memorial Prize (SS) .....	259
John Toth Memorial Prize (H) .....	263	Marguerite Z. Yates Scholarship (U) .....	260
TRAC Scholarships (E) .....	259	Yates Scholarships (U) .....	260
John H. Trueman Scholarship (H) .....	259	Gladys A. Young Scholarship (U) .....	259
Thomas Truman Memorial Scholarship (SS) .....	263	Lillian and Manuel Zack Scholarship (N) .....	260
Tynowski Scholarship (U) .....	250		
Undergraduate Council Scholarships (H, SS) .....	251		
University Prizes for Special Achievement (U) .....	264		

---

---



# GENERAL INDEX

Ability and Access, Office of .....	231	Awards (see Undergraduate Academic Awards) .....	249
Academic Awards, General Conditions .....	249	B.A. programmes, Faculty of Humanities .....	61-74
Academic Counselling at Admission .....	12	B.A. programmes, Faculty of Social Sciences .....	98-114
Academic Ethics .....	19	B.A. (Honours) programmes, Faculty of Humanities .....	61-74
Academic Probation (defined) .....	6	B.A.(Honours) programmes, Faculty of Social Sciences .....	98-114
Academic Regulations, University-wide .....	13	B.A.(Major) programme, Faculty of Social Sciences .....	110
Academic Regulations, Arts and Science Programme .....	25	B.A./B.S.W. programmes .....	111
Academic Regulations, School of Business .....	33	B.Arts Sci. programmes .....	25-32
Academic Regulations, Faculty of Engineering .....	36	B.Com. programme .....	35
Academic Regulations, Faculty of Health Sciences .....	45	B.Com.(Honours) programme .....	34-35
(see also, Medicine, School of Nursing and School of Occupational Therapy and Physiotherapy)		B.Com. Arts programme .....	35
Academic Regulations, Faculty of Humanities .....	60	B.Eng. programmes .....	36-44
Academic Regulations, Faculty of Science .....	75	B.Eng.Mgt. programmes .....	36-44
Academic Regulations, Faculty of Social Sciences .....	99	B.H.Sc. programmes .....	55, 57-58
(see also, Department of Physical Education and School of Social Work)		B.Mus. programmes .....	72
Academic Regulations, Occupational Therapy and Physiotherapy Second Degree Programme .....	57	B.P.E. programmes .....	107
Academic Regulations, School of Medicine .....	48	B.Sc. programmes .....	75-97
Academic Regulations, School of Nursing .....	54	B.Sc.(Honours) programmes .....	75-97
Academic Regulations, Department of Physical Education .....	107	B.Sc.N. programmes .....	52-55
Academic Regulations, School of Social Work .....	111	B.S.W. programmes .....	111-112
Academic Regulations, Women's Studies .....	114	Baccalaureate degree (defined) .....	249
Academic Services and Research Facilities .....	235	Baccalaureate degrees, summary .....	23-24
Academic Standing .....	14	Bertrand Russell Archives .....	235
Accommodations, Academic .....	232	Biochemistry courses .....	127
Address, Mailing .....	2	Biochemistry programmes .....	78
Admission Requirements .....	7	Biochemistry and Chemistry programme .....	79
Admission with Qualifications Other Than Grade 13/OAC .....	8	Biological Chemistry programme .....	83
Arts and Science I Admission .....	7	Biology courses .....	128
Business I Admission .....	7	Biology and Pharmacology Co-op programme .....	81
Engineering I Admission .....	7	Biology and Philosophy programme (B.Sc.) .....	81
Humanities I Admission .....	7	Biology programmes .....	80
Medicine Admission .....	11, 45	Biology and Psychology programme .....	82
Midwifery Admission .....	50	Biology, Philosophy and (B.A.), programme .....	81
Music I Admission .....	8	Biotechnology and Genetic Engineering Option (Biochemistry) programme .....	78
Natural Sciences I Admission .....	8	Biotechnology, Molecular Biology and, programme .....	92
Nursing I Admission .....	8, 52	Board of Governors, members of .....	243
Nursing, Post RN Admission .....	11, 52	Book Prizes (see Undergraduate Academic Awards)	
Occupational Therapy and Physiotherapy Second Degree Programme .....	55	Bookstore .....	233
Physical Education I Admission .....	8	Bursaries (defined) .....	6
Social Sciences I Admission .....	8	Bursaries (see Student Financial Aid) .....	245
Social Work Admission .....	11, 111	Business I .....	34
Advanced credit, admission with .....	10	Business courses .....	131
Advanced Standing (defined) .....	6	Business, Faculty of, (see School of Business) .....	33
Alumni Association, described .....	233	CA (Cumulative Average), defined .....	6
Alumni Association, enquiries .....	2	Canada Student Loans Plan .....	245
Ancient History and Archaeology (See Classics programmes) .....	62	Canadian Studies (see Minors and Thematic Areas of Study) .....	116
Anthropology, courses .....	119	Cancellation of Course .....	14
Anthropology, programmes .....	100	Cancelling (Dropping) a Course, (see also Sessional Dates) .....	14
Antirequisite (defined) .....	6	Centre for Continuing Education .....	2
Appeal Procedures .....	19	Centre for Electrophotonic Materials and Devices .....	237
Applicants with Disabilities .....	231	Centre for Flexible Manufacturing Research and Development .....	237
Application, Deadlines, (all programmes, full- and part-time) .....	12, 14	Centre for Health Economics and Policy Analysis .....	237
Application Procedures .....	11	Centre for International Health .....	237
Applied Chemistry, programme .....	83	Centre for Peace Studies .....	238
Approval of Programmes .....	13	Centres of Excellence .....	237
Art and Art History courses .....	123	Ceramic Engineering (B.Eng., B.Eng.Mgt., B.Eng.Soc.) programmes .....	37
Art and Art History programmes .....	61	Ceramic Engineering and Management .....	37
Art Gallery .....	236	Ceramic Engineering and Society .....	38
Arts and Science, courses .....	125	Ceramics courses (see Materials Science and Engineering) .....	185
Arts and Science Programme .....	25	Certificate Programmes, Graduates of .....	10
Arts and Science, combined programmes .....	26-32	Chapel services .....	233
Asian Studies, (see Minors and Thematic Areas of Study) .....	116	Chaplains .....	233
Athletics .....	233	Chemical Engineering courses .....	131
Audio Visual Services .....	236	Chemical Engineering (B.Eng., B.Eng.Mgt., B.Eng.Soc.) programmes .....	38
Auditing Courses .....	13	Chemical Engineering and Management .....	38
Autobiographical submission (sketch), Medical programme .....	49	Chemical Engineering and Society .....	38
		Chemistry courses .....	133
		Chemistry programmes .....	82

## 272 GENERAL INDEX

Chemistry and Geology programme .....	84	Economics and Computer Science (B.A.) programme .....	101
Chemistry and Physics programme .....	84	Economics and Geography (B.A.) programme .....	102
Chinese courses .....	135	Economics and Mathematics (B.A.) programme .....	102
Civil Engineering (B.Eng., B.Eng.Mgt., B.Eng.Soc.) programmes .....	39	Economics, Honours Commerce and (Honours B.Com. & Arts) .....	35
Civil Engineering and Computer Systems, programme .....	39	Educational Centre for Aging and Health .....	239
Civil Engineering and Engineering Mechanics courses .....	136	Eighteenth-Century Studies (see Minors and Thematic Areas of Study) .....	116
Civil Engineering and Management .....	39	Eighteenth-Century Studies, McMaster Association for .....	238
Civil Engineering and Society .....	39	Elective Courses (defined) .....	6
Classical Languages and Literature (see Classics programmes) .....	62	Elective Courses Available to Level I Students .....	23
Classics courses .....	137	Electrical and Computer Engineering courses .....	153
Classics programmes .....	62	Electrical Engineering (B.Eng., B.Eng.Mgt., B.Eng.Soc.) programmes .....	40
Code of Conduct .....	19	Electrical Engineering and Management .....	41
Combined Honours (see programme descriptions and regulations under Faculty sections)		Electrical Engineering and Society .....	41
Commerce courses .....	140	Electrophotonic Materials and Devices, Centre for .....	237
Commerce programmes .....	33	Energy Studies, McMaster Institute for .....	240
Commerce electives (Engineering) .....	36	Engineering I, programme .....	37
Communications Research Laboratory .....	238	Engineering (General) courses .....	155
Comparative Literature, courses .....	144	Engineering and Management courses .....	156
Comparative Literature programmes .....	68	Engineering and Management, described .....	156
Complementary Studies Electives (Engineering) .....	36	Engineering, Faculty of .....	36
Complementary Studies Electives (Science) .....	77	Engineering and Society courses .....	157
Computing and Information Services (CIS) .....	236	Engineering Mechanics courses, (see Civil Engineering and Engineering Mechanics) .....	136
Computer Engineering courses, (see Electrical and Computer Engineering) .....	153	Engineering Physics courses .....	157
Computer Engineering (B.Eng., B.Eng.Mgt., B.Eng.Soc.) programmes .....	40	Engineering Physics (B.Eng., B.Eng.Mgt.) programmes .....	41-42
Computer Engineering and Management .....	40	Engineering Physics and Management .....	41
Computer Engineering and Society .....	40	English courses .....	159
Computer Science and Mathematics programmes .....	85	English programmes .....	64
Computer Science and Statistics programmes .....	86	Enrichment Programme, admission .....	10
Computer Science and Systems, courses .....	145	Entering Students (see Admission Requirements)	
Computer Science and Systems programmes .....	84	Entering Students, Academic Awards for .....	250
Computer Science, Economics and, (B.A.) programme .....	101	Environmental Science course .....	163
Computer Science, Psychology and, (B.Sc.) programme .....	85	Environmental Sciences, Geography and, (B.Sc.) programme .....	86
Computer Systems, Civil Engineering and, programme .....	39	Environmental Studies, Geography and, (B.A.) programme .....	103
Conference Services .....	232	Evening courses, explained (see Sessional Dates and Part-time Degree Studies)	
Confidentiality of Records .....	19	Evening Session, dates (see Sessional Dates)	
Continuance at the University, minimum requirements .....	14	Examinations, dates (see Sessional Dates)	
Continuing Students (defined) .....	6, 10	Examinations regulations .....	16
Convocation dates .....	4	Expenses (see Financial Information) .....	20
Co-operative Education (Science) .....	75	Extra Courses (defined) .....	6
Co-ordinator of Part-time Degree Studies .....	118	Extra Work, (see also regulations under Faculty sections) .....	13
Costs (see Financial Information) .....	20	Faculties and Programmes Section	
Counselling, Academic .....	12	Arts and Science Programme .....	25-32
Counselling and Career Services .....	230	Faculty of Business, (see School of Business)	
Course Numbers, explained .....	6	Faculty of Engineering .....	36-44
Course Listings .....	119	Faculty of Health Sciences .....	45-58
Cross-listed Courses (defined) .....	6	Faculty of Humanities .....	59-74
Cumulative Average (CA) (defined) .....	6	Faculty of Science .....	75-97
Deadlines, Application .....	12	Faculty of Social Sciences .....	98-113
Deadlines, Fees .....	21	Women's Studies Programme .....	114
Dean of Student Affairs .....	230	Faculty (defined) .....	6
Deans (see listings under Faculty sections)		Failures (defined) .....	249
Deans' Honour List .....	16	Fees, tuition, regulations (see Financial Information) .....	20
Deferred Examinations, explained .....	17	Film courses (see Drama) .....	147
Deferred Examinations, dates (see Sessional Dates)		Final Admission .....	7
Degree (defined) .....	6	Financial Information .....	20-22
Degrees and Programmes (Summary) .....	23	Financial Information, enquiries .....	2
Department (defined) .....	6	Financial Information, Medicine .....	50
Directory for Correspondence and Enquiries .....	2	Food Services, description .....	232
Disabled Students, And Applicants .....	231	Food Services (Meal Plans), fees .....	21
Disabled Student Services (see Ability and Access, Office Of) .....	231	Former McMaster Students, application .....	12
Discipline .....	19	French courses .....	164
Dishonesty .....	19	French programmes .....	66
Divinity, College of .....	3	French Language Instruction .....	23
Drama courses .....	147	French, Summer Immersion Programme .....	60
Drama programmes .....	63	Full load (defined) .....	6, 249
Dropping (Cancelling) Courses (see also Sessional Dates) .....	14	Full-time Student (defined) .....	6
Early Admission .....	7	Full-time Students, Academic Awards for .....	252
Earth Science programme .....	95	Full-time Students, fees .....	20
Economics courses .....	150	General Science programme .....	96
Economics programmes .....	101	Geographic Weighting, Medical programme .....	49

Geography courses .....	166	Japanese courses .....	182
Geography (B.A.) programmes .....	102-104	Japanese Studies .....	67
Geography (B.Sc.) programmes .....	86	Japanese Studies courses .....	182
Geography and Environmental Sciences (B.Sc.) programme .....	86	Labour Studies, application deadline .....	12, 106
Geography and Environmental Studies (B.A.) programme .....	103	Labour Studies courses .....	182
Geography and Geology (B.A.) programme .....	103	Labour Studies programmes .....	105
Geography and Geology (B.Sc.) programme .....	87	Latin courses (see Classics) .....	140
Geography, Economics and, (B.A.) programme .....	102	Letter of Permission (defined) .....	6
Geology and Physics programmes .....	88	Letters of Permission .....	13, 22
Geology courses .....	169	Level (defined) .....	6
Geology, Chemistry and, programme .....	84	Level I, admission requirements .....	7
Geology, Geography and, (B.A.) programme .....	105	Level I Courses, Available Electives .....	23
Geology, Geography and, (B.Sc.) programme .....	87	Level I Courses, limit on .....	13
Geology programmes .....	88	Level I Programmes (see Faculties and Programmes sections)	
German courses .....	171	Level I Requirements, academic standing .....	14
German programmes .....	70	Libraries .....	235
Gerontological Studies .....	238	Life Science programme .....	96
Gerontological Studies programmes .....	104	Linguistics courses .....	184
Gerontology, application deadline .....	12, 104	Linguistics, Modern Languages and, programme .....	68
Gerontology as a Second Degree .....	105	Linguistics, subfield of Anthropology .....	100
Gerontology courses .....	172	Listeners, admission .....	11
Governing Bodies .....	243-244	Listeners, fees .....	20
Grade 13, Admission from, (see		Literary Studies programme .....	69
Admission from Ontario Secondary Schools) .....	7	Lloyd Reeds Map Library .....	235
Grading System .....	17	Loans (defined) .....	6
Graduand Awards (defined) .....	249	Loans (see Student Financial Aid) .....	20
Graduate Studies, enquiries .....	2	MAPS (McMaster Association of Part-time Students) .....	118, 234
Graduating Students, Academic Awards for .....	264	MD programme .....	46
Graduation, regulations .....	17	MSU (McMaster Students' Union) .....	233
Graduation Standing .....	14	Major Programme (see Faculty of Social Sciences, Psychology) .....	109
Great Britain, admission from .....	9	Manufacturing Engineering courses (see Mechanical Engineering) .....	191
Greek courses (see Classics) .....	139	Manufacturing Engineering programme .....	42
Grievances .....	19	Materials courses (see Materials Science and Engineering) .....	185
H.G. Thode Library of Science and Engineering .....	235	Materials Engineering (B.Eng., B.Eng.Mgt) programmes .....	42
Health and Society (See Minors and Thematic Areas of Study) .....	116	Materials Research, McMaster Institute for .....	240
Health Economics and Policy Analysis, Centre for .....	237	Materials Science (B.Sc.) programmes .....	89
Health Sciences courses .....	174	Materials Science and Engineering courses .....	185
Health Sciences, Faculty of .....	45	Mathematics and Physics programme .....	90
Health Sciences Library .....	235	Mathematics and Statistics courses .....	186
Health Services, Student .....	230	Mathematics and Statistics programmes .....	91
Health Services, Student, fee .....	20	Mathematics, Computer Science and, programmes .....	85
Hebrew courses (see Religious Studies) .....	220	Mathematics, Economics and, (B.A.) programme .....	102
Hispanic Studies courses .....	175	Mature Student (defined) .....	6
Hispanic Studies programmes .....	70	Mature Students, admission .....	10
History courses .....	176	McMaster Accelerator Laboratory .....	241
History programmes .....	67	McMaster Association for Eighteenth Century Studies .....	238
Hong Kong, admission from .....	9	McMaster Association of Part-time Students (MAPS) .....	118, 234
Honours Programmes (see descriptions and regulations		McMaster Certificate Programmes Graduates, admission from .....	10
under the Faculties and Programmes sections)		McMaster Institute for Energy Studies .....	240
Housing, Off-campus .....	232	McMaster Institute for Materials Research .....	240
Housing, Residences .....	232	McMaster Institute for Molecular Biology and Biotechnology .....	240
Housing, Residence fees .....	21	McMaster Institute for Polymer Production Technology .....	240
Housing and Food Services .....	232	McMaster International .....	240
Human Rights Consultant .....	230	McMaster Nuclear Reactor (MNR) .....	241
Human Rights, Statement on .....	19, 230	McMaster Students Union (MSU) .....	233
Humanities I, programme .....	59	McMaster University Alumni Association .....	233
Humanities (General) courses .....	180	Mechanical Engineering courses .....	191
Humanities, Faculty of .....	59	Mechanical Engineering (B.Eng., B.Eng.Mgt.) programmes .....	43
Humanities Requirements for Social Sciences programmes .....	99	Medical and Health Option, Physics Programme .....	93
In-course Awards (defined) .....	249	Medical Programme .....	46
Index of Academic Awards .....	267	Meal Plans, fees .....	21
Indigenous Studies courses .....	180	Metallurgical Engineering (B.Eng., B.Eng.Mgt.) programmes .....	43
Indigenous Studies Minor (see Minors and Thematic Areas) .....	116	Metallurgy, courses (see Materials Science and Engineering) .....	186
Innis Room (Business Library) .....	235	Michael G. DeGroot School of Business .....	33
Instructional Development Centre (IDC) .....	236	Michigan English Language Assessment Battery (MELAB) .....	9
Insurance, (see Financial Information)		Midwifery courses .....	193
International Justice and Human Rights, courses .....	227	Midwifery fees .....	20
International Justice and Human Rights, Theme School On .....	115	Midwifery programme .....	50
International Students (see Visa Students) .....	9, 21	Mills Memorial Library .....	235
International Students' Advisor .....	230	Minor (defined) .....	6
Irregular status .....	14	Minors and Thematic Areas .....	116
Italian courses .....	181	Minors (regulations) .....	15
Italian programmes .....	71	Minors (see Faculties and Programmes sections)	

## 274 GENERAL INDEX

Miscellaneous Fees .....	22	Polish courses .....	210
Modern Languages and Linguistics programme .....	68	Political Science courses .....	211
Modern Languages courses .....	193	Political Science programmes .....	108
Modern Languages programmes .....	69	Polymer Production Technology, McMaster Institute for .....	240
Molecular Biology courses .....	194	Post-Degree Student (defined) .....	6
Molecular Biology and Biotechnology programme .....	92	Post-Degree Student, admission .....	10
Molecular Biology and Biotechnology, McMaster Institute for .....	240	Post Office .....	233
Music I programme .....	59	Practicum courses .....	63, 107, 205
Music courses .....	195	Prepayment of Academic Fees .....	21
Music programmes .....	72	Prerequisites (defined) .....	6
Natural Sciences I programme .....	78	Prizes (see Undergraduate Academic Awards)	
New Materials and Their Impact on Society, courses .....	227	Probation, Programme .....	6
New Materials and Their Impact on Society, Theme School on .....	115	Professional Certification (see programme descriptions in Business, Engineering, and Science)	
Nuclear Reactor (MNR), McMaster .....	241	Professional Degrees, summary .....	24
Nursing courses .....	198	Professors (see Courses Listing by Departments)	
Nursing programmes .....	52-55	Programme (defined) .....	6
Nursing, School of .....	52	Programme Approval .....	13
OSAP (Ontario Student Assistance Programs) .....	245	Programme for Quantitative Studies in Economics and Population .....	242
Occupational Therapy and Physiotherapy courses .....	200	Programme Probation .....	6
Occupational Therapy and Physiotherapy, described .....	55	Programme Requirements (see regulations under the Facultie and Programmes sections)	
Occupational Therapy and Physiotherapy Second Degree Programmes .....	55	Programme (Academic) Standing .....	14
Off Campus Centres .....	118	Programme Transfer .....	15
Off Campus Housing .....	232	Programme Transfer at Admission .....	7
Office of Gerontological Studies .....	238	Psychology courses .....	214
Officers of the University .....	244	Psychology B.A. programmes .....	109
Ombuds Office .....	232	Psychology B.Sc. programmes .....	94
Ontario Centres of Excellence .....	237	Psychology, Biology and, programme .....	82
Ontario Centre for Materials Research .....	240	Psychology, Computer Science and, programme .....	85
Ontario Colleges of Applied Arts and Technology, admission from .....	8	Publications, University .....	2
Ontario Secondary Schools, admission from .....	7	Publications, Library .....	235
(admission from other provinces, and other countries, see Admission Requirements) .....	7	Questionnaire, Nursing .....	52
Ontario Special Bursary Plan .....	245	R (Required) Courses, defined .....	6
Ontario Student Loans Plan .....	245	R. Samuel McLaughlin Centre for Gerontological Health Research	239
Ontario Telecommunications Research Centre .....	237	Readmission, (see also Academic Regulations in the Faculties and Programmes sections) .....	12
Ontario Work Study Plan .....	245	Records Retention Policies .....	18
Parking, services described .....	233	Redeemer College, admission from .....	8
Part-time Degree Studies .....	118	Refund on Withdrawal .....	22
Part-time Degree Studies Coordinator .....	118	Registration, dates .....	5
Part-time Degree Programmes available .....	24	Registration (defined) .....	6
Part-time Student (defined) .....	20	Registration, fees at .....	21
Part-time Student, fees .....	20	Religious Studies courses .....	217
Part-time Students, Academic Awards for .....	261	Religious Studies, programmes .....	110
Part-time Studies Awards (defined) .....	249	Repeating a Course .....	13
Payment of Fees .....	21	Required Courses (defined) .....	6
Peace Studies Minor (see Minors and Thematic Areas of Study) .....	116	Required to Withdraw .....	14
Pharmacology courses .....	202	Requirements for Level I, Academic Standing, (see also Admission statements in the Faculties and Programmes sections)	14
Pharmacology, Biology and, Co-op programme .....	81	Research Facilities, Academic Services and .....	235
Philosophy courses .....	202	Rescheduling Examinations .....	17
Philosophy programmes .....	73	Residence Requirements, Academic .....	13
Philosophy and Biology (B.A.) programme .....	73	Residences, description .....	232
Philosophy and Mathematics (B.A.) programme .....	73	Residences, fees .....	21
Philosophy, Biology and, (B.Sc.) programme .....	81	Residences, Summer, Fees .....	21
Philosophy, Biology and, (B.Sc.) programme .....	81	Result of Session (defined) .....	6
Photo Identification Card, required at examinations .....	16	Review (defined) .....	6
Physical Education I, programme .....	98, 107	Reviewing Period (defined) .....	6
Physical Education activities (see Student Services and Organizations — Athletics) .....	233	Room and Board, fees .....	21
Physical Education as a Second Degree .....	108	Russian courses .....	220
Physical Education courses .....	205	Russian programmes .....	71
Physical Education programmes .....	107	Ryerson Polytechnic, admission from .....	8
Physics and Astronomy courses .....	208	Sanskrit courses (see Religious Studies) .....	219
Physics and Astronomy programmes .....	92	Scholarships (see Undergraduate Academic Awards) .....	249
Physics, Chemistry and, programme .....	84	School of Business .....	33
Physics, Engineering, (see Engineering Physics) .....	158	School of Medicine, described .....	46
Physics, Geology and, programmes .....	88	School of Medicine, admission .....	46
Physics, Mathematics and, programme .....	90	School of Nursing, described .....	52
Physics, Medical and Health Option, programmes .....	93	School of Nursing, admission .....	52
Physics, Theory Option, programme .....	93	School of Occupational and Physiotherapy .....	55
Physiotherapy courses .....	201	School of Social Work, programmes .....	111
Physiotherapy, Occupational Therapy and, Second Degree Programme .....	55	Sciences I, Natural, programme .....	78
Policy Analysis, Centre for Health Economics and .....	237		

Sciences I, Social, programme .....	98	Terminology, Academic Awards .....	249
Science courses .....	220	Terminology, University .....	6
Science Inquiry .....	77	Test of English as Foreign Language (TOEFL) .....	10
Science programmes .....	70	Theme School on International Justice and Human Rights .....	227
Science (General) programme .....	96	Theme School on New Materials And Their Impact on Society .....	228
Science, Faculty of .....	75	Theory Option (Physics) programme .....	93
Second Bachelor's Degree, admission .....	10	Third Year Study Elsewhere, Humanities .....	61
Second Bachelor's Degree, regulations .....	16	Third Year Study Elsewhere, Science .....	75
Second Bachelor's Degree, regulations, Faculty of Science .....	77	Transcript (defined) .....	6
Second Language Proficiency, Humanities .....	60	Transcripts (and Student Records), access to .....	19
Selection of Courses .....	13	Transcripts, costs .....	22
Senate, members of .....	243	Transcripts, where to obtain .....	18
Senate Policy Statements .....	19	Transfer between Faculties .....	14
Services to Students .....	230	Transfer between programmes .....	15
Session (defined) .....	6	Transfer from another university, admission .....	10
Sessional Average (SA) (defined) .....	6, 249	Transfer from another university, admission to Nursing .....	53
Sessional Dates .....	5	Transfer from another university, admission to Social Work .....	111
Social Sciences I, programme .....	98	Transfer of credit between Faculties .....	14
Social Science courses .....	221	Transfer of programme after admission .....	7
Social Sciences, Faculty of .....	98	Tuition (defined) .....	6
Social Work, application deadlines .....	12, 111	Tuition .....	20
Social Work courses .....	221	Undergraduate Academic Awards (defined) .....	6
Social Work programmes .....	111	Undergraduate Academic Awards .....	249
Social Work as a Second Degree .....	112	Undergraduate Fees .....	20
Sociology courses .....	223	United States, admission from .....	9
Sociology programmes .....	113	Units (defined) .....	6
Spanish courses (see Hispanic Studies) .....	175	Urban Documentation Centre .....	235
Special Applicants to Medical programme .....	48	Using the Calendar .....	1
Special (Mature) Students .....	10	VISA Students, admission .....	9
Statistics courses (see Mathematics and Statistics courses) .....	190	VISA Students, fees .....	21
Statistics programmes .....	91	Weighted Average (defined) .....	6
Statistics, Computer Science and .....	86	Weighted Average, calculation at admission .....	7
Student Counselling Service (see Counselling and Career Services)		West Indies, admission from .....	9
Student Financial Aid .....	245	William Ready Division of Archives and Research Collections .....	235
Student Government and Activities .....	233	Winter Session, dates .....	5
Student Health Services .....	230	Withdrawal (defined) .....	6
Student Placement Service .....	230	Withdrawal (cancelling, dropping) from a Course, .....	14
Student Records, access to .....	19	(see also Sessional Dates)	
Student Services and Organizations .....	230	Withdrawal from the University .....	14
Study Abroad, (see also Third Year Study Elsewhere) .....	14	Women's Studies Courses .....	228
Summer Immersion Programme in French .....	60	Women's Studies Programme .....	114
Technical Electives, (Engineering) .....	36	World History, Culture and Thought Menu (Science) .....	77
Telecommunications Research Institute of Ontario .....	237	World History, Culture and Thought Menu (Social Sciences) .....	99
Term (defined) .....	6		





























