McMaster University
Undergraduate Calendar
1991-1992

This Calendar covers the period from September 1991 to August 1992.

Arts and Science, Business, Engineering, Health Sciences, Humanities, Science and Social Sciences.

The University reserves the right to change information contained in this calendar, and, because of resource limitations, reserves the right to limit enrolment in or admission to any course or programme at any level. The timetable which is published annually should be used to determine:

1. if a course is to be offered, and
2. the term in which a course is to be offered.

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After consulting the programmes, you will note that some courses are available from the Centre for Continuing Education. These may be requested from the departments. Their requirements you must meet in order to register for a specific course, and national booklets about Sciences are presented alphabetically by subject and department. The programme offered by each Faculty, followed alphabetically by the programme is presented alphabetically by subject and department. The programme descriptions specify which courses and what academic standing is required in order to satisfy the University's requirements for awarding a Bachelor's degree.

After consulting the programmes, you will note that some courses are 'Required' and some are 'Electives'. To determine the prerequisite requirements you must meet in order to register for a specific course, you should then look at the section Course Listings. The course listing is presented alphabetically by subject and department.

At the back of the Calendar there are two sections of information about the University services, the libraries, residences, research laboratories, computing facilities, and student activities and organizations.

The next section Undergraduate Academic Awards, lists all the awards and scholarships offered to undergraduate students by McMaster University. The regulations governing these awards are also described. Bursaries and loan funding is presented next under Student Financial Aid.

To locate information about a specific subject, you should consult the Index at the back of the Calendar.
During 1987, McMaster University proudly celebrated one hundred years of active life in post secondary education, during which it grew to be one of the leading universities in Canada.

Named after Senator William McMaster, who bequeathed funds to endow a Christian school of learning, McMaster University grew out of educational work initiated by Baptists in central Canada as early as the 1830’s. After its initial years in Toronto from 1887 to 1930, the University was moved to Hamilton and became non-denominational in 1957, although the historic Baptist connection continues through the separately incorporated McMaster Divinity College. Over 12,000 full-time students attend McMaster University, 1,500 of whom are pursuing advanced degrees offered through the School of Graduate Studies. In addition, about 3,000 part-time students are registered in the Winter Session from September to April, and 2,500 in the Summer Session from May to August. The University also provides courses in centres located outside Hamilton, for which full credit is granted.

McMaster University is a medium-sized, full-service university offering educational programmes through six Faculties. The extensive activity in research supported by over $65 million in grants and contracts means that there are first-class libraries and sophisticated facilities. Undergraduate teaching is conducted through the Faculties of Business, 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.

The Faculty of Humanities offers programmes in Art, Art History, Classical Studies, Classics (Greek, Latin), Comparative Literature, Drama, English, French, History, Humanities, 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 in Comparative Literature, French, German, Hispanic Studies, Italian or Linguistics may complete and receive credit for the third level of the programme in study at a university in a country whose language is being studied.

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.

Bachelor of Science programmes are available in the Faculty of Science at the B.Sc., B.Sc. Honours, and B.Sc. Major levels. Programmes are offered in Biochemistry, Biology, Chemistry, Computer Science, Geography, Geography and Environmental Science, Geology, Health and Radiation Physics, Mathematics, Materials Science, Molecular Biology and Biotechnology, Physics, Psychology, and Statistics.

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 degree may be earned in Occupational Therapy or Physiotherapy.

The Faculty of Business offers the Honours B.Com., Honours B.Com. & Arts, and B.Com. degrees, which include work in the following areas: 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, Chemical Engineering and Society, Civil Engineering, Civil Engineering and Computer Systems, Civil Engineering and Society, 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 Faculties of Business and Engineering.

Most of the 1000 members of the University faculty hold doctoral degrees in the areas of their specialization. Faculty members are expected to teach both graduate and undergraduate courses and may be involved in the academic counselling of students.

The diverse academic programmes of the University are supported by some fine, and even unique, facilities. The University Library is a member of the Association of Research Libraries and contains nearly 1.5 million volumes, and has subscriptions to over 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, and support academic and non-academic applications. The Faculty of Engineering has made special arrangements for students to lease-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 newly-surfaced 400 metre all-weather track as well as fully equipped laboratories for exercise, physiology and biomechanics.

The University is located on an attractive campus beside the Royal Botanical Gardens at the western end of Lake Ontario. The campus is reserved for pedestrian traffic. Residential accommodation on the campus is available for about 2,600 students and includes men’s and women’s residences as well as co-educational facilities.

Access to downtown Hamilton and the activities that a major city has to offer is easy. As part of the extensive downtown redevelopment, new facilities, which support the cultural life of the city, have been constructed in recent years. These include an Art Gallery, a Convention Centre, Hamilton Place, an auditorium which seats over 2,400 persons and includes a studio theatre, and most recently a major arena, the Copps Coliseum. The public library includes teaching facilities, and a Downtown Information Centre operated jointly by McMaster University and Mohawk College.
Sessional Dates

For the purpose of teaching the academic year is divided into sessions as shown on the chart below.

The Winter Session, from September to April, is the session in which most undergraduate students register and classes are offered in both the day and the evening.

The February to July (Evening) Session offers courses at various times during the six-month period.

Summer (Day) Session starts at the beginning of July and ends in mid-August.

All Application Deadlines appear below the chart, as well as the dates for the McMaster Test of Writing Competence.

The 1991-92 Academic Year Divided by Session and Term

The number in the bottom left corner of each block is the start date for that term.

The number in the bottom right corner of each block is the end date of that term, including the examination period.

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<tbody>
<tr>
<td>WINTER (Day and Evening)</td>
<td>Term 1</td>
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<td>3</td>
<td>20</td>
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<td>Term 2</td>
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<td>Term 3</td>
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<td>FEBRUARY to JULY (Evening)</td>
<td>Term A</td>
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<td>Term B</td>
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<td>Term C</td>
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<td>Term D</td>
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<td>Term E</td>
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<td>SUMMER (Day)</td>
<td>Term 1</td>
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<td>Term 2</td>
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<td>Term 3</td>
<td>23</td>
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APPLICATION DEADLINES

(See also the section Application Procedures)

Winter Session — September Entry

All undergraduate programmes not mentioned below . July 15

- Medicine ........................................... November 1
- Occupational Therapy/Physiotherapy-Second Degree .... January 15
- Nursing (other than Grade 13/OAC) .................. February 15
- Social Work ..................................... March 1
- Occupational Therapy/Physiotherapy-Degree Completion ... April 1
- Labour Studies .................................. April 15
- Gerontology .................................... April 15
- Women's Studies ................................ April 15
- Nursing (Grade 13/OAC) .......................... May 1

Winter Session — January Entry

All eligible programmes .................. November 30

February to July Session

- February entry ................................ January 10
- May entry ..................................... April 15
- June entry .................................... May 31

Summer Day Session

All eligible programmes .................. May 31

McMASTER TEST OF WRITING COMPETENCE

The McMaster Test of Writing Competence will be held on the following dates (tentative).

- Friday August 9 and Saturday August 10, 1991
- Saturday September 7, 1991
- Monday December 16, 1991

CONVOCATIONS

Last day to file a Graduation Information Card for Autumn 1991 Convocation

- Autumn 1991 Convocation (all Faculties) ............. Friday September 6
- Last day for changing Programme for Spring 1992 Convocations
- Last day to file a Graduation Information Card for Spring 1992 Convocations
- Health Sciences Convocation 1992
- Spring Convocations 1992
- Last day to file a Graduation Information Card for Autumn 1992 Convocation
- Autumn 1992 Convocation (all Faculties)

- Friday September 4
- Friday November 13 (subject to approval)
WINTER SESSION 1991 – 1992 (DAY and EVENING)
The following schedule applies to both full- and part-time students.

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
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</thead>
<tbody>
<tr>
<td>Level I Early Registration</td>
<td>( )</td>
<td>Friday August 9 and Saturday August 10</td>
</tr>
<tr>
<td>Registration (all Levels)</td>
<td>( )</td>
<td>Friday August 30, Tuesday Sept. 3, Wednesday Sept. 4</td>
</tr>
<tr>
<td>Classes begin</td>
<td>Thursday September 5</td>
<td>Monday January 6</td>
</tr>
<tr>
<td>Last day for registration and adding courses</td>
<td>Wednesday September 18</td>
<td>Wednesday January 15</td>
</tr>
<tr>
<td>Last day to withdraw without failure by default</td>
<td>Friday October 11</td>
<td>Friday February 14</td>
</tr>
<tr>
<td>Thanksgiving - no classes</td>
<td>Monday October 14</td>
<td>Mon. Feb. 24 to Sat. Feb. 29</td>
</tr>
<tr>
<td>Mid-term recess</td>
<td>—</td>
<td>Friday April 17</td>
</tr>
<tr>
<td>Good Friday - No classes</td>
<td>Thurs. Nov. 28 to Fri. Dec. 6</td>
<td>Mon. April 6 to Sat. April 11</td>
</tr>
<tr>
<td>Examination ban - no tests or examinations may be held during class time</td>
<td>Wednesday December 4</td>
<td>Saturday April 11</td>
</tr>
<tr>
<td>Classes end</td>
<td>—</td>
<td>Mon. Apr. 13 to Thurs. Apr. 30</td>
</tr>
<tr>
<td>Winter Session Examinations</td>
<td>Sat. Dec. 7 to Fri. Dec. 20</td>
<td></td>
</tr>
<tr>
<td>Mid-Session Tests (Level I Courses)</td>
<td>Friday February 14, 1992</td>
<td></td>
</tr>
<tr>
<td>Final Examinations</td>
<td>Mon. Apr. 13 to Thurs. Apr. 30</td>
<td></td>
</tr>
<tr>
<td>Deferred Examinations</td>
<td>Mon. Apr. 13 to Thurs. Apr. 30</td>
<td></td>
</tr>
<tr>
<td>Last day to confirm intent to write deferred exams from Winter Session 91/92</td>
<td>Friday February 14, 1992</td>
<td></td>
</tr>
<tr>
<td>Deferred exams from Winter Session 91/92</td>
<td>Mon. July 27 to Thur. July 30</td>
<td></td>
</tr>
<tr>
<td>FEBRUARY TO JULY (EVENING) SESSION 1992</td>
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<table>
<thead>
<tr>
<th>Term A</th>
<th>Term B</th>
<th>Term C</th>
<th>Term D</th>
<th>Term E</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-unit courses</td>
<td>3-unit courses</td>
<td>6-unit courses, 2 nights/week</td>
<td>3-unit courses</td>
<td>3-unit courses, 2 nights/week</td>
</tr>
<tr>
<td>1 night per week</td>
<td>1 night per week</td>
<td>1 night per week</td>
<td>1 night per week</td>
<td>1 night per week</td>
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<tr>
<td>Term 1</td>
<td>Term 2</td>
<td>Term 3</td>
<td>Term 4</td>
<td>Term 5</td>
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<tr>
<td>Term A</td>
<td>Term B</td>
<td>Term C</td>
<td>Term D</td>
<td>Term E</td>
</tr>
<tr>
<td>Last day for registration and adding courses</td>
<td>Fri. Feb. 14</td>
<td>Fri. Feb 14</td>
<td>Fri. May 8</td>
<td>Fri. May 8</td>
</tr>
<tr>
<td>Last day to withdraw without failure by default</td>
<td>Fri. March 20</td>
<td>Mon. Feb. 24 to Sat. Feb. 29</td>
<td>Fri. June 26</td>
<td>Fri. May 22</td>
</tr>
<tr>
<td>Mid-term recess</td>
<td>Mon. Feb. 24 to Sat. Feb. 29</td>
<td>Mon. Apr. 18</td>
<td>Mon. May 18</td>
<td>—</td>
</tr>
<tr>
<td>Good Friday - no classes</td>
<td>Fri. April 17</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Victoria Day - no classes</td>
<td>Mon. May 18</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Canada Day (July 1) - no classes</td>
<td>Wed. July 1</td>
<td>Fri. May 1</td>
<td>Wed. July 1</td>
<td>—</td>
</tr>
<tr>
<td>Term A</td>
<td>Term B</td>
<td>Term C</td>
<td>Term D</td>
<td>Term E</td>
</tr>
<tr>
<td>Last day to confirm intent to write deferred exams.</td>
<td>Fri. June 26</td>
<td>Fri. Oct. 23</td>
<td>Fri. Oct. 23</td>
<td>Fri. Oct. 23</td>
</tr>
<tr>
<td>SUMMER (DAY) SESSION 1992</td>
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<thead>
<tr>
<th>Term 1</th>
<th>Term 2</th>
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<tbody>
<tr>
<td>3-unit courses</td>
<td>3-unit courses</td>
<td>6-unit courses</td>
</tr>
<tr>
<td>3 hours, daily</td>
<td>3 hours, daily</td>
<td>3 hours, daily</td>
</tr>
<tr>
<td>Term 1</td>
<td>Term 2</td>
<td>Term 3</td>
</tr>
<tr>
<td>Classes begin</td>
<td>Thursday July 2</td>
<td>Thursday July 23</td>
</tr>
<tr>
<td>Last day for registration and adding courses</td>
<td>Friday July 3</td>
<td>Friday July 24</td>
</tr>
<tr>
<td>Last day to withdraw without failure by default</td>
<td>Wednesday July 8</td>
<td>Wednesday July 29</td>
</tr>
<tr>
<td>Civic Holiday - no classes</td>
<td>—</td>
<td>Monday August 3</td>
</tr>
<tr>
<td>Term 1</td>
<td>Term 2</td>
<td>Term 3</td>
</tr>
<tr>
<td>Classes end</td>
<td>Wednesday July 22</td>
<td>Thursday August 13</td>
</tr>
<tr>
<td>Examinations</td>
<td>—</td>
<td>Last day or as arranged by instructor</td>
</tr>
<tr>
<td>Last day to confirm intent to write deferred examinations</td>
<td>Friday October 23</td>
<td>Friday October 23</td>
</tr>
</tbody>
</table>
Application Procedures

PROGRAMMES ENTERED IN LEVEL I
McMaster University has the following Level I programmes: Arts and Science I, Business I, Engineering I, Humanities I, Music I, Nursing I, Physical Education I, Natural Sciences I and Social Sciences I.

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

All of the programmes have limited admission and may be full before the deadlines given below. The University reserves the right, therefore, not to accept applications submitted after a programme is full and you are advised to submit your application well in advance of the deadlines given on page 4, Sessional Dates.

ENQUIRIES
The Directory for Correspondence and Enquiries on page 2 of this Calendar, provides a list of University offices and Administrative staff members to whom you may direct specific queries.

FORMER MCMASTER STUDENTS
If you have previously registered at McMaster, but did not attend last year, you should communicate with the Associate Dean (Studies) of the appropriate Faculty. If you are intending to return to the Faculty of Business or Science, this communication is a requirement. You may be required to write a letter in order to seek readmission, unless five years have passed since your last registration.

If five years have passed since you last registered at McMaster, you will be required to follow the current regulations and curriculum. You must obtain and complete an application form from the Admissions Office (Gilmour Hall, Room 120, telephone (416) 525-9140 extension 4796). Your application will be considered by the appropriate Faculty committee.

APPLICANTS WITH DISABILITIES
The University encourages disabled persons to apply for admission to its programmes. All students are expected to satisfy the normal requirements for courses and programmes (including final examinations), although the Associate Deans (Studies) may authorize special arrangements to assist students to complete assignments, tests and examinations. Some programmes may include requirements which cannot be met by some people. Nevertheless in selected programmes an adapted course of study may be prescribed by the Associate Dean (Studies) on behalf of the Faculty following discussion with the student. Although there are many obstacles to overcome, experience has shown that students with various disabilities have been able to complete a variety of programmes at McMaster.

Applicants with disabilities are encouraged to contact the Co-ordinator for the Disabled, Office of the Registrar, Gilmour Hall Room 109B, telephone (416) 525-9140 extension 4339, who will discuss their programmes of study and other aspects of university life, and will identify the faculty advisers to whom they should speak. Information on sources of financial assistance is also available.

A student of McMaster who incurs a permanent or temporary disability while enrolled at McMaster should consult the Associate Dean (Studies) of his or her Faculty to consider whether or not special arrangements can be made to enable that student to continue the course of studies in which he or she is enrolled.

ACADEMIC COUNSELLING FOR THOSE OFFERED ADMISSION
If you are offered 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 of our offer, we shall send you a Registration Kit with information about the University, academic counselling and registration procedures.

Each Faculty also makes arrangements for students to visit the University and meet with a Faculty advisor to set up their programmes. Though 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 time of September registration.

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

APPLICATION PROCEDURES
The application procedures differ according to your current academic qualifications and your ultimate goals. You may determine the procedure you have to use by answering each of the questions below in sequence until you are directed to the procedure you must follow.

Do you wish to receive grades in the courses you take? NO FOLLOW PROCEDURE E

Do you wish to study as a part-time student (i.e. take less than 24 units)? YES FOLLOW PROCEDURE D

Do you wish to study for an undergraduate (bachelor’s) degree? NO FOLLOW PROCEDURE D

Do you already have an undergraduate degree? YES FOLLOW PROCEDURE D

Are you seeking to enter Level I? NO FOLLOW PROCEDURE C

Are you now taking one or more Ontario Grade 13/OAC subjects? YES FOLLOW PROCEDURE A

NO FOLLOW PROCEDURE B

TELEPHONE NUMBER
Please call (416) 525-9140, extension 4796.
PROCEDURE A:

This procedure applies to applicants who are now taking one or more Ontario Academic Courses (OACs) or Ontario Grade 13 subjects in day school and wish to enter a full-time degree programme.

Application forms (OUAC 101) are available from your guidance office. You should choose one of the following programmes and complete the form:

**PROGRAMME** | **OUAC PROGRAMME CODE**
--- | ---
Arts and Science I (Special Programme) | MX
Business I | M5
Engineering I | ME
Humanities I | MH
Music I | MM
Natural Sciences I | MS
Nursing I | MN
Physical Education I | MR
Social Sciences I | ML

Send the form and the application fee to the Application Centre. We acknowledge every application.

PROCEDURE B:

This procedure applies to applicants who wish to enter Level I of a full-time degree programme, but who are not now taking one or more Ontario Academic Courses (OACs) or Ontario Grade 13 subjects in day school.

It also applies to all out-of-province applicants who wish to enter Level I of a full-time degree programme.

Obtain an application form (OUAC 105) from the Admissions Office (Gilmour Hall, Room 120, or telephone (416) 525-9140, extension 4796). You should choose one of the following programmes and complete the form:

**PROGRAMME** | **OUAC PROGRAMME CODE**
--- | ---
Arts and Science I (Special Programme) | MX
Business I | M5
Engineering I | ME
Humanities I | MH
Music I | MM
Natural Sciences I | MS
Nursing I | MN
Physical Education I | MR
Social Sciences I | ML

Send the form and the application fee to the Application Centre. You should provide to McMaster transcripts of marks and/or certificates from any secondary school or post-secondary institution you have attended.

Students who are attending, or have attended, secondary school in another province may have to obtain the transcript of secondary school marks from the Ministry or Department of Education for that province.

If you:
1. do not have the required Ontario Grade 13/OAC standing or its equivalent; and
2. will be 21 or older in the calendar year in which you plan to start your university courses; and
3. have not attended secondary school as a full-time student for at least two years,
you may qualify for entry as a Special Student. If so, write to the Admissions Office, Gilmour Hall, Room 120, or telephone (416) 525-9140, extension 4796.

PROCEDURE C:

This procedure applies to applicants who seek to enter a full-time degree programme above Level I.

Obtain an application form (OUAC 105) from the Admissions Office, Gilmour Hall, Room 120, or telephone (416) 525-9140, extension 4796.

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 Application Centre.

PROCEDURE D:

This procedure applies to applicants who wish to enter as:
1. part-time students; or
2. non-degree students (Occasional, Continuing, or Post-Degree); or
3. students taking work for credit at another university; or
4. second-degree candidates.

All those listed, except Post-Degree applicants, must obtain a McMaster application form from the Admissions Office, Gilmour Hall, Room 120, or telephone (416) 525-9140, extension 4796. You will be provided with more information on application procedures at that time.

Post-Degree applicants must obtain the appropriate application from the Graduate Studies Office, Gilmour Hall, Room 110.

PROCEDURE E:

This procedure applies to applicants who wish to register as Listeners. Listeners may attend classes, but do not write assignments or examinations. A Listener does not receive a grade for the course.

In order to register as a Listener, write, visit or telephone the Centre for Continuing Education, Commons Building, Room 116, (416) 525-9140, extension 4321.

PROGRAMMES ENTERED ABOVE LEVEL I

**Medicine and Nursing** (for holders of the Diploma R.N.): If you wish to apply to any of these programmes, refer to the Faculty of Health Sciences section of this Calendar. You should obtain the appropriate application form and make any enquiries at the Health Sciences Registry, McMaster University Medical Centre, Room 187, or telephone (416) 525-9140, extension 2114.

Medicine commences after three years of undergraduate study.

**Occupational Therapy and Physiotherapy (Degree Completion):** Entry is at Level IV for those who have completed a diploma programme at Mohawk College. This programme will be available for one more academic year only (1991/92). You should obtain an application form from the Admissions Office, Gilmour Hall, Room 120, or telephone (416) 525-9140, extension 4796. (Refer to Faculty of Health Sciences Occupational Therapy and Physiotherapy for a description of the new B.H.Sc. Second Degree Programme.)

**Social Work:** The level of entry for Social Work is Level II. Admission to the Combined B.A. and Social Work Programme is by selection of the applicants who have completed, or are completing, 30 units of work including Psychology 1A06 and Sociology 1A06 and normally with a University Average of at least 6.0.

Students, enrolled at McMaster, who are interested should apply directly to the School of Social Work prior to March 1.

Students wishing to apply for transfer from another university are required to complete a Two-Tier Application procedure. This is explained in the section Faculty of Social Sciences, School of Social Work in this calendar. Application must be made in sufficient time to guarantee further consideration beyond the March 1 deadline.
Admission Requirements

The University reserves the right to change any information contained in this section at any time without notice.

All Level I programmes have limited enrolment and admission is made by selection. This means, therefore, that possession of the minimum admission requirements does not guarantee admission.

Admission from Ontario Secondary Schools

To be considered for admission you must satisfy not only the general requirements of the University, but also the subject requirements for the specific programme you wish to enter.

For an applicant from an Ontario secondary school there are three requirements:

1. the Ontario Secondary School Diploma with acceptable standing; and
2. a 'weighted average' in the OACs completed which is above the minimum specified by each programme; and
3. satisfactory completion of the subject requirements for the appropriate programme.

Grade 13 or OAC Music is acceptable as a credit and the mark obtained is included in the average for admission. Alternatively, the applicant 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 any acceptable Conservatory of Music may be used to determine the average for admission.

We know that experimental programmes are offered in some Ontario secondary schools and welcome applicants from these programmes. If you are such an applicant and do not meet exactly the subject requirements outlined below, you should write to the Associate Registrar (Liaison and Admissions) who will ensure that your application is carefully considered.

EARLY ADMISSION FROM ONTARIO SECONDARY SCHOOLS

Early admission is granted annually in June on a date agreed upon by all Ontario universities. Early Admission is based on interim marks supplied by secondary schools in April and may be granted to an applicant who expects to acquire final standing later in the year.

If you are granted Early Admission, you must subsequently complete successfully six Ontario Academic Courses (OACs) or six Grade 13 subjects, including all required subjects. During the period OACs are being introduced, appropriate combinations of OAC credits and Grade 13 subjects, to total six, will be acceptable. In addition, you will be expected to meet the minimum average required for your programme. The University reserves the right to withdraw offers of admission to those applicants who do not meet the minimum average prescribed for the programme using the final marks, who have not received their Ontario Secondary School Diploma, or who have not responded within the two week response period. Final marks are reported to the University for students registered in OACs, but applicants may submit such marks directly to the Associate Registrar (Liaison and Admissions).

If you have final standing in each of the OACs required to enter the McMaster University programme you have chosen, you may be granted Final Admission.

Subject Requirements for Specific Level I Programmes

At the time of writing, Grade 13 courses are being phased out and being replaced by Ontario Academic Courses (OACs). During the transition period we are treating the two sets of courses as equivalent. The requirements below are written in terms of OACs for which Grade 13 courses may generally be substituted.

ARTS AND SCIENCE I (Special programme)

Applicants are required to submit a completed Supplementary Application, normally by April 1st. 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 80's or higher. The following are the minimum requirements.

1. One of OAC English 1, OAC English 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, french, other languages, Algebra and Geometry, Finite Mathematics, Biology, Chemistry, Physics, Geography, History, and Music.

Candidates without these qualifications who nevertheless provide evidence of unusual promise will also be considered.

Students Presenting Grade 13 Courses

Grade 13 courses in Algebra and in Relations and Functions will be accepted in Group 3 above.

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 Calculus, OAC Finite Mathematics or OAC Algebra and Geometry. Calculus or OAC Finite Mathematics is preferred.
2. One of OAC English 1, OAC English I or OAC anglais II.
3. At least three additional OACs selected from among English, French, other languages, Calculus, Finite Mathematics, Algebra and Geometry, Biology, Chemistry, Physics, Geography, History, Music, Accounting and Economics.
4. Completion of additional OACs to total six credits with a minimum overall average of 70.0%.

Although the stated minimum is 70.0%, in recent years an average in the mid-70's has been required for an offer of Early Admission in June.

Students Presenting Grade 13 Courses

Grade 13 courses in Algebra and in Relations and Functions may be used in Groups 1 and 3 above, but only one of OAC Algebra and Geometry and Grade 13 Algebra may be used.

ENGINEERING I

Applicants are required to submit a completed Supplementary Application. The information provided enters into the selection process. The following are the minimum requirements.

1. One of OAC English 1, OAC English I or OAC anglais II.
2. Calculus.
3. Algebra and Geometry.
4. Chemistry
5. Physics.
6. Completion of one additional OAC to total six credits with a minimum overall average of 75.0%.

Students Presenting Grade 13 Courses

1. An overall weighted average of at least 75.0% in the six credits offered including.
2. A weighted average of at least 75.0% in the following five Grade 13 credits: Calculus, Algebra, Functions and Relations, Physics, and Chemistry.

Applicants presenting a mixture of Grade 13 subjects and OACs, may
ADMISSION REQUIREMENTS

NURSING I
Possession of the minimum requirements does not guarantee admission.
For those seeking admission in September 1992 the minimum requirements will be:
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, 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.
For September 1991 only, applicants who meet the following requirements will be considered.
1. Year 4 Mathematics (Advanced level).
2. OAC Chemistry and OAC English.
3. OAC in one of Mathematics, Biology, Physics.
4. Additional OACs (within two years prior to application) to total six credits. At least two of the additional OACs must be selected from français, other languages, Calculus, Algebra and Geometry, Finite Mathematics, Biology, Physics, Geography, History and Music.
Deadlines: OAC Grade 13 applications must be postmarked by no later than May 1 in the year in which study is to commence. Non-OAC Grade 13 applications (as described in the Section Faculty of Health Sciences, School of Nursing) must be postmarked by no later than February 15 in the year in which study is to commence.

Students presenting Grade 13 Courses
Grade 13 courses in Algebra and in Relations and Functions may be used in Groups 3 and 5 for '92 requirements, or Groups 3 and 4 for '91 requirements.

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

PHYSICAL EDUCATION I
Although the minimum average required for admission is 70.0% (to be computed on the six highest OACs), it is anticipated that an average greater than 70.0% will be required for an offer of admission.
Required:
1. One of OAC English I, OAC anglais I, OAC anglais II.
2. One of OAC Algebra and Geometry, OAC Calculus, OAC Finite Mathematics.
3. Completion of additional OACs to total six credits.
It is strongly recommended that one of Biology, Chemistry, or Physics be included by potential applicants in their OACs.
Candidates without these qualifications who nevertheless provide evidence of equivalent promise will be considered.

Students presenting Grade 13 Courses
Grade 13 courses in Algebra and in Relations and Functions may be used in place of Algebra and Geometry in Group 2 above.

SOCIAL SCIENCES I
Although the minimum average required for admission is 70.0% (to be computed on the six highest OACs), it is anticipated that an average greater than 70.0% will be required for an offer of admission.
Required:
1. One of OAC English I, OAC anglais I, OAC anglais II.
2. One of OAC Algebra and Geometry, OAC Calculus, OAC Finite Mathematics.
3. Completion of additional OACs to total six credits.
Candidates without these qualifications who nevertheless provide evidence of equivalent promise will be considered.

Students presenting Grade 13 Courses
Grade 13 courses in Algebra and in Relations and Functions may be used in place of Algebra and Geometry in Group 2 above.

School of Social Work
Admission to the School of Social Work in Level II requires successful completion of any Level I programme, including Psychology 1A06 and Sociology 1A06. Criteria include an average of at least 60 at the end of Level I, and personal suitability. Applicants currently enrolled at

substitute Grade 13 courses in Calculus, Chemistry, and Physics for the OACs. An applicant presenting the OAC in Algebra and Geometry must also present English; a student presenting Grade 13 would have to present Algebra, and Relations and Functions. Other mixtures of Grade 13/ OAC credits which satisfy the minimum requirements will also be considered on an individual basis.

HUMANITIES I
Although the minimum average required for admission is 70.0% on six OACs, it is anticipated that an average greater than 70.0% will be required for an offer of admission. The following are the minimum requirements.
1. One of OAC English I, anglais I or anglais II, with a grade of at least 65.0%.
2. Completion of 5 additional OACs to total six credits.
No more than two OACs in any one subject as defined by the McMaster University Subject Area Listing will be accepted.
The Faculty of Humanities strongly recommends that students 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: If you intend to take Art 1F06, you must present a portfolio, by the end of April, and be interviewed by the Department of Art and Art History. The portfolio should contain a variety of original works in some drawing as an additional means of demonstrating their skills and interests. Late applications may be considered if places are available in the class.
Applicants for this course should use the MHA OUAC code.

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 the candidate's 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.
Those applying for Music I must make arrangements with the Department of Music for the audition.

NATURAL SCIENCES I
Students with a weighted OAC average of 75.0% or better have a good chance of success in science programmes and will be given priority. The following are the minimum requirements.
1. OAC Calculus.
2. One of OAC Algebra and Geometry, or OAC Finite Mathematics.
3. Two of OAC Biology, OAC Chemistry, OAC Physics.
4. One of OAC English I, OAC anglais I or OAC anglais II.
5. Completion of one additional OAC to total six credits.
6. An average acceptable to the Faculty in the four credits specified in points 1, 2, and 3 above. (In the last five years an average of at least 70.0% has been required.)
7. An average acceptable to the Faculty in the best six OAC credits (which must include the four OACs specified in points 1, 2 and 3 above).

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.

Students presenting Grade 13 Courses
Grade 13 courses in Algebra and in Relations and Functions may be used in Groups 2 or 5 above.
For September 1991 only, applicants who meet the previous admission requirements may be considered.

For September 1992 only, applicants who meet the following requirements will be considered.
1. Year 4 Mathematics (Advanced level).
2. OAC Chemistry and OAC English.
3. OAC in one of Mathematics, Biology, Physics.
4. Additional OACs (within two years prior to application) to total six credits. At least two of the additional OACs must be selected from français, other languages, Calculus, Algebra and Geometry, Finite Mathematics, Biology, Physics, Geography, History and Music.

Deadlines: OAC Grade 13 applications must be postmarked by no later than May 1 in the year in which study is to commence. Non-OAC Grade 13 applications (as described in the Section Faculty of Health Sciences, School of Nursing) must be postmarked by no later than February 15 in the year in which study is to commence.

Students presenting Grade 13 Courses
Grade 13 courses in Algebra and in Relations and Functions may be used in Groups 3 and 5 for '92 requirements, or Groups 3 and 4 for '91 requirements.

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

PHYSICAL EDUCATION I
Although the minimum average required for admission is 70.0% (to be computed on the six highest OACs), it is anticipated that an average greater than 70.0% will be required for an offer of admission.
Required:
1. One of OAC English I, OAC anglais I, OAC anglais II.
2. One of OAC Algebra and Geometry, OAC Calculus, OAC Finite Mathematics.
3. Completion of additional OACs to total six credits.

It is strongly recommended that one of Biology, Chemistry, or Physics be included by potential applicants in their OACs.
Candidates without these qualifications who nevertheless provide evidence of equivalent promise will be considered.

Students presenting Grade 13 Courses
Grade 13 courses in Algebra and in Relations and Functions may be used in place of Algebra and Geometry in Group 2 above.

SOCIAL SCIENCES I
Although the minimum average required for admission is 70.0% (to be computed on the six highest OACs), it is anticipated that an average greater than 70.0% will be required for an offer of admission.
Required:
1. One of OAC English I, OAC anglais I, OAC anglais II.
2. One of OAC Algebra and Geometry, OAC Calculus, OAC Finite Mathematics.
3. Completion of additional OACs to total six credits.
Candidates without these qualifications who nevertheless provide evidence of equivalent promise will be considered.

Students presenting Grade 13 Courses
Grade 13 courses in Algebra and in Relations and Functions may be used in place of Algebra and Geometry in Group 2 above.

School of Social Work
Admission to the School of Social Work in Level II requires successful completion of any Level I programme, including Psychology 1A06 and Sociology 1A06. Criteria include an average of at least 60 at the end of Level I, and personal suitability. Applicants currently enrolled at
ADMISSION REQUIREMENTS

McMaster University must make application prior to March 1 directly to the School of Social Work.

Applicants transferring from another university should consult Tuo­ter Applications in the section Faculty of Social Sciences, School of Social Work.

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, consult the Admissions Office.

Admission With Other Qualifications

A. ADMISSION FROM ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY

Applicants from Colleges of Applied Arts and Technology who have completed at least one year of work, 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. In Social Sciences, Humanities, and Business advanced credit will normally be given to well-qualified students who have completed at least two years of work.

In the granting of credit attention will be given to:
1. the applicant's performance in the college programme;
2. the duration of the previous programme;
3. the programme taken at the college and the programme to which entry is sought;
4. the applicant's secondary school record.

The credit could be up to 30 units for a well-qualified graduate of a three-year programme, and at least 6 units for an applicant who has completed two years and performed well, provided the college work is appropriate for the university programme to which entry is sought.

Credit beyond this may be given on an individual basis where the college and university programmes are in similar areas, and where the applicant’s academic record and background warrant special consideration.

For Engineering, as a general policy, applicants from Ontario Colleges of Applied Arts and Technology who have achieved a first-class honours standing in the last two years of a three-year technology programme will be considered for admission to the second level of a relevant Engineering programme.

B. ADMISSION FROM RYERSON POLYTECHNICAL INSTITUTE

In determining admission and the possibility of advance 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

For admission to McMaster University a student must present, with an appropriate average, 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. Students who wish advanced credit for work completed at Redeemer College must write an examination set by McMaster for each course in which credit is sought.

D. ADMISSION FROM OTHER CANADIAN PROVINCES

We welcome applications from students from other Canadian provinces. They must meet the following minimum requirements and present subjects appropriate for the programmes as described above under Subject Requirements for Specific Level I Programmes. For clarification, applicants are invited to contact the Office of Student Liaison.

Province | Qualifications Required
---|---
Alberta | Grade 12
British Columbia | Grade 12
Manitoba | Grade 12
New Brunswick | Grade 12
Newfoundland and Labrador | Grade 12
Northwest Territories | Grade 12
Nova Scotia | Grade 12
Prince Edward Island | Grade 12
Quebec | Year 1 CEGEP (General Course)
Saskatchewan | Grade 12

E. ADMISSION FROM OTHER COUNTRIES

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

Students from other countries 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. Each applicant is considered on an individual basis. Applicants are strongly advised not to come to the University until they have been informed of their acceptance.

Applicants whose native language is not English and who have not resided in an English-speaking country for four years 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 G.C.E. System require:
1. five G.C.E. 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 I Programmes);
3. an average of at least 'C' in the two Advanced Level subjects.

Applicants from Hong Kong require:
1. five subjects in the G.C.E. or University of Hong Kong Matriculation, 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 I Programmes);
3. an average of at least 'C' in the two Advanced Level subjects.
4. standing satisfactory to McMaster University in the Michigan English Language Assessment Battery (MELAB). Details of the test will be sent upon receipt of a formal application for admission.

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

F. SPECIAL STUDENTS AND MATURE STUDENTS

Applicants who have attended university are not admissible as special students or mature students. Applicants to Engineering are not admissible under this category.

Full-time Study (Mature Students): If you do not meet the normal admission requirements described above in Admission from Ontario Secondary Schools, you may be admitted on university probation to full-time study provided you satisfy all of the following three conditions:
1. you are at least 21 years old or will be in the calendar year in which you propose to start; and
2. you have not attended secondary school on a full-time basis for at least two years; and
3. You obtain a satisfactory standing on a scholastic aptitude test (held in May, June, August and January) and are considered qualified by the appropriate Faculty Admissions Committee.

The writing of the test will be waived for those who have satisfactorily completed a certificate programme or professional designation at McMaster University or the equivalent (see K. Graduates of McMaster Certificate Programmes below). Information concerning the deadline for final application and other details may be obtained from the Associate Registrar (Liaison and Admissions).

A student who has been admitted in this manner may, nevertheless, choose to study on a part-time basis, he or she would be on university probation and follow the normal academic regulations.

Part-time Study (Special Students): If you do not meet the normal admission requirements described above in Admission from Ontario Secondary Schools, you may be considered for admission as a part-time student on university probation, provided you are at least 21 years old (or will be in the calendar year in which you propose to start university study) and you have not attended secondary school on a full-time basis for at least two years. Admission is not automatic, but is at the discretion of the Faculty to which you are seeking admission.

If you are admitted, you may register as a Special Student to take one course at a time. Normally, these first courses will be Level I courses. After you have taken 12 to 14 units, your performance will be reviewed.

1. If you have a weighted average of at least 4.0 and a grade of at least D — in each course, you may transfer to the Level I programme of the Faculty in which you are registered.

2. If you have a weighted average of less than 2.5, you may not continue without permission of your Faculty.

3. If you meet neither of the above conditions, you may take further courses as a Special Student and your record will be reviewed after you have taken at least 24 units in total.

At the second review:

1. If you have a weighted average in all the work taken of at least 4.0, you may transfer to the Level I programme of the Faculty in which you are registered.

2. If your weighted average is less than 4.0, you will be required to withdraw.

After you have met the above conditions to clear probation, you may continue your studies on either a full-time or part-time basis.

G. STUDENTS TRANSFERRING FROM OTHER UNIVERSITIES

If you wish to transfer to McMaster University, you will normally obtain credit only for courses in which you have achieved at least a ’C’ (third-class honour) standing. Assessment of courses for transfer credit is subject to the guidelines of the individual Faculties.

A student transferring to McMaster University must satisfy the Residence Requirements set out in Academic Regulations. The University will not accord to students transferring to McMaster privileges which would not be granted by their own universities. Grades obtained in courses taken at another university will not be included in the various McMaster averages and, therefore, cannot be used to raise standing.

Students applying from another university who have been required to withdraw from that university and have fulfilled their period of suspension may apply for admission. Such students, however, must present a letter of explanation and clarification concerning their past academic performance. In addition, students may be asked to provide academic documentation providing proof of further academic achievement which is both current and relevant.

For students transferring from a non-Canadian university, if your 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. Application forms are obtainable from the Associate Registrar (Liaison and Admissions).

If you wish to enter a Second Bachelor’s Degree in a subject area from the Faculty of Science, you should note the additional regulations for such a programme in the section Faculty of Science, Second Bachelor’s Degree Programmes.

Graduates of other universities must supply an official up-to-date transcript with the completed application.

I. CONTINUING AND POST-DEGREE STUDENTS:

(Graduates not proceeding to a second degree or an advanced degree)

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

Continuing students who wish to take courses other than Commerce and Engineering need only to apply formally through Admissions in the first instance. In subsequent sessions they need only to submit a Registration form.

Continuing students who wish to take Commerce or Engineering courses must re-apply for each session on an application form obtainable from the Associate Registrar (Liaison and Admissions).

Applicants will be expected to have at least a ‘C’ (third-class standing) average, with no failures, in the work of their final year (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 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 Dean of Graduate Studies.

A 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.

Such students must apply to the appropriate departments and have their admissions and registrations approved by the School of Graduate Studies for each session in which they wish to take courses. These students will be registered and pay fees as undergraduates.

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 towards the advanced degree will not normally be granted for the work previously taken.

J. OCCASIONAL STUDENTS:

(Non graduates attending undergraduate classes for other than degree credit)

Occasional students are those who:

1. do not hold a University degree; and

2. wish to take undergraduate courses; and

3. are or will be at least 21 in the calendar year in which they plan to take university courses.

An Occasional Student may take up to 12 units of work in courses at the discretion of the Dean of Studies and instructor(s) concerned in the period September 1 to August 31.

The status of an Occasional Student is reviewed after the completion of five courses, and a decision may be made at that time by the student as to whether he or she wishes to enter a degree programme or to continue as an Occasional student.

K. GRADUATES OF McMaster CERTIFICATE PROGRAMMES

Students who have completed certificate programmes may be granted advanced credit up to maxima specified by Undergraduate Council. Such credit will normally be applied against elective courses and faculties will take into account the subject matter of both the certificate and degree programmes.
ADMISSION REQUIREMENTS

I. ENRICHMENT PROGRAMME

High school students with first-class standing may be allowed to enrol in courses which do not duplicate the material available to them in their own high schools. Degree credit for successfully completed courses will not be granted until after students have been admitted to and have registered at McMaster University.

Applicants must provide letters of recommendation from their Principal as well as one other teacher who knows their abilities, aptitudes and interests.

Interested students are invited to contact the Office of Admissions for information regarding available courses and application procedures.

M. STUDENTS STUDYING IN CANADA ON STUDENT AUTHORIZATION (VISA)

In limited enrolment programmes up to 5% of places available in Level I may be filled by Visa students.

N. ADVANCED CREDIT

As noted in sections (A), (B), (C), and (Q) above, advanced credit may be granted to applicants who have completed work at another university or college, subject to the applicant having met the minimum requirements prescribed. Advanced credit serves to shorten the degree programme.

In special situations, where a student has acquired the knowledge at another kind of institution, or in a different manner such that the qualifications are difficult to assess, the University may require an examination of the student. In such a case, the Associate Dean (Studies) of the Faculty will request the appropriate academic department to assess the feasibility of such an examination. When such an examination is deemed feasible, the department involved will be responsible for deciding the appropriate method of evaluation and for administering the examination, which may consist of a variety of possible modes of evaluation, both written and oral. The examinations must be arranged by the last date for registration in the student's initial term at the University and may not be repeated. Any credit granted as a result of such an examination will be shown on the transcript in the normal manner used for advanced credit.

Academic Regulations

The regulations which follow are the general regulations of the University. You should read both these general regulations and the Faculty regulations which may be more stringent and 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.

Honours and three-level degree programmes are offered in the Faculties of Humanities, Science, and Social Sciences and in the Arts and Science Programme. Major programmes are offered in the Faculties of Science and Social Sciences. The general regulations governing these programmes appear in this section of the Calendar. The regulations governing programmes in Business, Engineering, Engineering and Management, Medicine, Nursing, Occupational Therapy and Physiotherapy, Social Work, and Physical Education appear in the appropriate Faculty sections. In the event there is a conflict between the programme regulations for these eight programmes and the general regulations in this chapter, the programme regulations take precedence.

The following regulations cover the ordinary cases. Faculties are authorized to use discretion in special situations by taking into account past practice, the spirit of the regulations, and circumstances which, in the opinion of the Faculty, are deserving of unusual treatment. Students who have irregular cases should consult the appropriate Associate Dean (Studies).

General 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.

In order 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 Area courses.

The work used to satisfy the residence requirements must be completed at McMaster University; work taken at another university or college, or at another time, will not count toward the minimum residence requirements. The appropriate Dean of Studies may relax these requirements in special cases, and may take into account high academic standing and place of residence, among other considerations.

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 or at the beginning of each session, and information on how to register will be sent to eligible students. Counselling is available to assist you in course selection and in some programmes is compulsory.

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. First select the courses required for your programme and then 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 fail to meet the programme requirements, you will not be eligible to graduate, and, if you have not passed the prerequisite courses, you will not be able to take the course selected.
Approval of Programmes: You are responsible for the completeness and accuracy of your registration. If you try to register in a programme or courses for which you are not qualified, your registration may not be accepted and you may not receive credit in selected courses. Your programme and course selection must be approved by the Associate Dean (Studies) of your Faculty. Similarly, you must obtain approval from the Associate Dean (Studies) for any change, including the dropping of courses. You should note that in order to qualify for most scholarships, you must register for the full load prescribed for your programme and level.

Extra 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 Associate Dean (Studies) of your Faculty. Normally, a University Average of at least 7.0 in the immediately preceding review period will be required if extra work is to be permitted. Additional academic fees will be assessed where the extra work is approved to clear an academic deficiency.

Sequence of Courses: Courses must be taken in the sequence specified in the programmes of the University which are set out by Faculty. For programmes described by Level, this means that, when registering in a Level, you must have completed the preceding Level, or be registered in any remaining courses for that Level. At the discretion of your Faculty, substitutions may be approved, especially for part-time students, when a required Area course is not available.

Repetition of Courses: To repeat a course for which credit has been obtained, you need approval of your 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 various averages; however, only one successful attempt will enter into the computation of credit earned towards your degree.

Repeated course work will not be considered when reviewing for Academic Awards, and therefore, cannot be used to win awards.

Limit on Level I Courses: After you have completed Level I, you may obtain credit in no more than 12 additional units of courses beginning with the digit 1 in a three-level degree programme, and no more than 18 additional units of courses beginning with the digit 1 in a four-level degree programme, except where special permission has been obtained from the Associate Dean (Studies). This means that 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.

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 your Associate Dean (Studies) and pay the appropriate fee. If your Associate Dean (Studies) grants you this privilege, you should take note of any conditions that might apply, including the requirement of a grade of at least C for transfer credit. Courses taken at another university cannot be used to satisfy the minimum residence requirements, and probably will delay graduation if permission has been granted to take the last courses for the degree at another institution.

You should note that the grades obtained in courses taken at another university will not be included in the various McMaster averages, and, therefore, cannot be used to raise standing.

Students taking courses on letter of permission must continue to carry a full load during the Winter Session if they wish to be considered for Academic Awards.

Study Abroad: Study Abroad opportunities exist through exchange agreements signed with a number of universities in other countries. For information on the opportunities available and procedures, please contact the Office of the International Students’ Advisor.

Auditing Courses: A student who does not wish to have credit for a course may, with the approval of the Chair of the Department and the Associate Dean, audit the course. The student must satisfy the prerequisites for the course, but will not complete assignments nor write the final examinations.

Cancellation of a Course: If you cancel a course during the change of registration period, it will not show on your record. After that the course will show on your record. The grade will be recorded as CAN (cancelled) if the course is cancelled up to and including the last date for withdrawing from the course shown in the Sessional Dates.

After the last date for withdrawing you will remain registered in the course whether or not you attend, you will receive no refund of fees, and you will be assigned a grade based on the work submitted.

The various dates appear in the Sessional Dates at the beginning of this Calendar and are rigidly adhered to.

Students dropping courses to less than a full load may affect their current and future eligibility for Academic Awards. Please refer to the section entitled Undergraduate Academic Awards for further details.

Withdrawal from the University: If you wish to withdraw from the University, you must consult the appropriate Associate Dean (Studies). Your identity card must be surrendered to the Associate Dean (Studies). Fees are not refunded unless this procedure is followed.

Your record in the courses being taken will be handled as outlined in the section above Cancellation of a Course.

Readmission: If you are seeking readmission to the University following withdrawal or poor academic performance, you must do so in writing. You should pay attention to any special requirements of the Faculty you wish to re-enter, including the deadline for applications. These requirements are specified in the Faculty sections of the Calendar.

In considering applications for readmission, the University may take into account both the secondary and post-secondary educational achievement of the applicant, and may require oral or written tests of the applicant, or other evidence which in the judgement of the appropriate Faculty is relevant. The Faculty may specify conditions which must be met in granting readmission.

Transfer of Credit between Faculties: Transfer of credit between Faculties is handled by the Associate Deans (Studies). Full credit may not be given at the time of transfer between Faculties and additional courses may need to be taken.

MCMASTER TEST OF WRITING COMPETENCE

This regulation is currently under review.

All students entering baccalaureate degree programmes must write a test of writing competence which is held in August, September, December, and April. New students who present an interim or final mark of at least 69.0% in an Ontario Grade 13 or OAC English course, and students entering the Occupational Therapy — Degree Completion Programme, are exempt.

Those who fail or do not take the test will have the following notation on their records and transcripts: This student has not passed the McMaster Test of Writing Competence. This will be removed after the test is passed.

Those who do not attempt the test will not be allowed to register in or after the September following their initial registrations.

The Faculties of Engineering, Humanities, and Social Sciences have additional requirements which are noted in their Faculty sections of this Calendar.

EXAMINATIONS

The section Sessional Dates should be consulted for the dates of the final examinations in all terms and sessions. Mid session tests for full-year Winter Session Level I courses are held in December.

Mid-session tests in December for Level I courses and final examinations for two and three-unit courses normally are of two hours duration. Final examinations for courses of four or more units normally are of three hours duration.

No examinations or tests may be held in the final week of the terms of the Winter Session except for those specifically approved by the Undergraduate Council. The specific dates appear in the Sessional Dates.

Tests and examinations organized by the Office of the Registrar may be scheduled in the morning, afternoon, or evening, Monday through Saturday. You should arrange to be available throughout the examination periods since, until the final examination timetable is published, you cannot know when during the examination period your examination may be scheduled. Cases in which examinations can be rescheduled are described at the end of this section.
ACADEMIC REGULATIONS

If you miss an examination for medical reasons you must submit a medical certificate from Student Health Services or from a doctor to your Associate Dean (Studies). The certificate must define the nature and severity of disability and the period of absence, and must be submitted by the end of the examination session.

If you miss an examination for any reason other than illness, you must report immediately to the Examination Section of the Office of the Registrar.

Deferred Examinations: A deferred examination privilege may be granted by your Faculty Reviewing Committee if you fail to write a final examination for a certifiable medical or compassionate reason, provided that you have submitted the certificate by the end of the examination period. Deferred examinations are conducted in the examination period which follows the period for which the privilege is granted (e.g. in April for an examination missed in December.) Specific dates and deadlines appear in the Sessional Dates.

A decision to grant a deferred examination privilege will be reported on your grade report. You must confirm your intent to write a deferred examination by submitting an application to the Office of the Registrar. Specific deadline dates appear in the Sessional Dates.

Examination Regulations: These regulations apply to all examinations conducted by the Office of the Registrar. Variations may occur for instructor-conducted examinations. Students who do not observe these regulations will be required to withdraw from examinations. Special circumstances must be reported immediately to the Examination Section of the Office of the Registrar.

McMaster student photo identification cards are required at all examinations. Students who seat themselves at an examination without photo I.D. cards will be required to withdraw from the examination. Students who arrive without photo I.D. cards will be required (before being seated) to obtain a substitute card and pay the appropriate fee; no extension of the examination will be permitted to compensate for any delay encountered.

It is the responsibility of students to be present on the day and hour when an examination is scheduled. If you fail to appear at the scheduled time, you will be considered to have defaulted the examination.

Punctuality is essential and no extra time will be allowed to those arriving late. No candidate will be admitted to an examination room more than 30 minutes after the start of any session.

The University makes every effort to ensure that examinations are complete when students receive them. However, it is the student's responsibility to ensure that the examination is complete, and to draw attention to any discrepancies in the paper.

No candidate may leave the room to withdraw from an examination during the first 45 minutes of any session. Candidates must leave the room immediately after handing in their examination materials.

A student who becomes ill during an examination may be excused by a Presider but must file a doctor's certificate with the appropriate Associate Dean (Studies).

No conversation or any form of communication between candidates is permitted in the examination room. No books, papers or instruments may be taken into any examination room unless specifically prescribed on the examination paper. No examination books or supplies are to be removed from the examination room. Smoking is not permitted in any examination room. Handbags must be left beneath the chairs, not on the desks. The University can assume no responsibility for lost articles.

Rescheduling Examinations: Special examination arrangements will be made if you have a conflict with religious obligations. Your request with appropriate documentation from a minister or equivalent must be submitted to the Examinations Section of the Office of the Registrar at least ten working days before the scheduled examination date.

If you are a part-time student and your employer requires you to be away from the Hamilton area when you are to write an examination, you may seek special arrangements for writing your examination. Your application must be supported by a letter of explanation from an executive of your company.

Examinations are not rescheduled for purposes of travel.

Other regulations related to the conduct of, and special arrangements for, examinations appear on the examination timetable and the examination booklets.

GRADING SYSTEM

The grade for a course is normally determined by combining the grades obtained on coursework, assignments, tests, and examinations. The method for determining the final grade is to 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.

Since September 1982, the grading scale has been as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
<th>Equivalent</th>
<th>Standing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>12</td>
<td>90 - 100</td>
<td>first</td>
</tr>
<tr>
<td>A</td>
<td>11</td>
<td>85 - 89</td>
<td>first</td>
</tr>
<tr>
<td>A-</td>
<td>10</td>
<td>80 - 84</td>
<td>second</td>
</tr>
<tr>
<td>B+</td>
<td>9</td>
<td>77 - 79</td>
<td>second</td>
</tr>
<tr>
<td>B</td>
<td>8</td>
<td>73 - 76</td>
<td>second</td>
</tr>
<tr>
<td>B-</td>
<td>7</td>
<td>70 - 72</td>
<td>second</td>
</tr>
<tr>
<td>C+</td>
<td>6</td>
<td>67 - 69</td>
<td>third</td>
</tr>
<tr>
<td>C</td>
<td>5</td>
<td>63 - 66</td>
<td>third</td>
</tr>
<tr>
<td>C-</td>
<td>4</td>
<td>60 - 62</td>
<td>third</td>
</tr>
<tr>
<td>D+</td>
<td>3</td>
<td>57 - 59</td>
<td>pass</td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>53 - 56</td>
<td>pass</td>
</tr>
<tr>
<td>D-</td>
<td>1</td>
<td>50 - 52</td>
<td>pass</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>0 - 49</td>
<td>failure</td>
</tr>
</tbody>
</table>

Before submitting a failing grade, the instructor reassesses whatever examples of the student's work are available.

For the purpose of satisfying 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.

Weighted averages are calculated using the grade points and units for a course as shown in the example below:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>C+</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>D+</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>B-</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>D+</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

AVERAGE = 213 / 30 = 7.1

Terminology

This glossary of terminology is arranged in alphabetic sequence.

Area Courses (A' courses) are those courses in which the grades are used in computing the Cumulative Area Average (CAA) and the Graduation Average (GA). These courses are listed in the programme requirements.

Course Numbers (e.g. 1A03) can be deciphered 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 defines the number of units of credit associated with the course.

Cumulative Area Average (CAA) is computed as shown in the example below, using the best 80% of the grades obtained in the Area courses prescribed for the programme beyond Level 1, provided that at least 12 units of Area courses have been attempted since the CAA was computed.

For students re-admitted to the University after obtaining a University Average of less than 2.0, the CAA will be computed from the time of re-admission.

In Combined Honours programmes consisting of two separate components two Cumulative Area Averages will be computed on the best 80% of the grades in each component; in other Combined Honours programmes a single average will be computed.

The grades in the following example are ranked in descending sequence. Since the student has taken 27 units, the average will be computed on the basis of the best 21.6 units (80% of 27 = 21.6). Thus, only 0.6 units of the course in which the student obtained the D+ have been included.
ACADEMIC REGULATIONS

Elective Courses ('E' courses) are those courses which are not required courses, and which a student has free 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 various averages.

Graduation Average is used to determine the standing of a student at the time of graduation. In the case of the three-level degree programmes it is computed on at least 24 units of Area courses, and in the case of Honours and Major programmes on at least 36 units of Area courses. For Combined Honours programmes created from two distinct components, two Graduation Averages will be computed using at least 24 units in each component; in other Combined Honours programmes a single average will be computed.

For three-Level programmes the computation will be based on Level II and III Area courses, (i.e. courses with a first digit of 2 or 3) and for Major and Honours programmes on Level III and IV Area courses (i.e. courses with a first digit of 3 or 4). Where a student has taken more than the minimum number of Area courses specified for the programme, the Graduation Average will be computed on the best 80% of the appropriate Area courses, or the minimum, whichever number of units is greater.

In the example below of a three-level degree programme the total number of appropriate Area course units with a course number beginning with 2 or 3 actually taken was 42 and the required number was 24, so that the average will be computed on the basis of the best 33.6 units (80% of 42 = 33.6). If the student had taken 24-30 units of appropriate Area courses, the Graduation Average would be calculated on 24 units.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
<th>(Units)</th>
<th>GA Points</th>
<th>GA Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-</td>
<td>10</td>
<td>(6)</td>
<td>6.0</td>
<td>66.0</td>
</tr>
<tr>
<td>B</td>
<td>8</td>
<td>(6)</td>
<td>6.0</td>
<td>60.0</td>
</tr>
<tr>
<td>B+</td>
<td>9</td>
<td>(3)</td>
<td>3.0</td>
<td>27.0</td>
</tr>
<tr>
<td>B</td>
<td>8</td>
<td>(6)</td>
<td>6.0</td>
<td>48.0</td>
</tr>
<tr>
<td>B+</td>
<td>9</td>
<td>(3)</td>
<td>3.0</td>
<td>27.0</td>
</tr>
<tr>
<td>B</td>
<td>8</td>
<td>(6)</td>
<td>6.0</td>
<td>48.0</td>
</tr>
<tr>
<td>B-</td>
<td>7</td>
<td>(3)</td>
<td>3.0</td>
<td>21.0</td>
</tr>
<tr>
<td>B-</td>
<td>7</td>
<td>(3)</td>
<td>3.0</td>
<td>21.0</td>
</tr>
<tr>
<td>C+</td>
<td>6</td>
<td>(6)</td>
<td>6.0</td>
<td>36.0</td>
</tr>
<tr>
<td>Total</td>
<td>(42)</td>
<td>(33.6)</td>
<td>298.2</td>
<td></td>
</tr>
</tbody>
</table>

Graduation Standing is assigned on the basis of the Graduation Average calculated as above. First-class standing is given to those with averages of 9.5 or higher; second-class for averages of 7.0 to 9.4, and third-class for averages of 4.0 to 6.9.

Level is used in two ways:
1. to describe how far through a programme a student has progressed. A student entering the University with the normal admission requirements will register in Level I and normally take 30 units of courses beginning with the digit 1; upon completion of Level I the student will progress to Level II, etc. The number of units required to complete a level is specified for each programme in the Faculty section of this calendar.
2. to indicate at what stage in a programme a student normally takes a given course. Level I courses (beginning with the digit 1) normally are taken by students registered in Level I, Level II courses by students registered in Level II, etc. The level designation is only a guideline, however, in that the academic regulations and curriculum requirements may provide for deviations from this guideline.

Programme Probation may be assigned to students who do not meet the normal promotion requirements on the Cumulative Area Average for a programme, which appear under the programme regulations. A student may be on Programme Probation only once.

Required Courses ('R' courses) are those courses which are specifically designated for inclusion in a programme.

Reviewing Period is the time between two reviews for a student. Students records are reviewed in May, July, and August each year for those who
1. have attempted 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 which constitute their probationary period.

Units define the amount of credit associated with a course and are used in the computation of averages. A unit is roughly equivalent to one lecture-hour per week for one term or two hours of laboratories or seminars per week for one term. Most courses are of 3 or 6 units credit. Normally 30 or more units of work are specified for a Level; approximately 90 units or more constitute the work for a three-level degree and 120 units or more for a four-level degree.

University Average is computed on the grades obtained in all courses since the last review of student standing. The University Average, calculated on at least 18 units, is used; except with the special permission of the Faculty in which he or she is registered.

Programme Requirements and Academic Standing

Students entering McMaster University register in one of the following Level I programmes: Arts and Science I, Business I, Engineering I, Humanities I, Music I, Natural Science I, Nursing I, Physical Education I, Social Sciences I. The admission requirements for specific programs beyond Level I (e.g. Honours History) appear in the appropriate Faculty sections of the Calendar and prescribe the required standard of performance in appropriate Level I courses.

ACADEMIC STANDING

Academic standing is reviewed in May, July, 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 which constitute their probationary period.

In the review of academic standing, three sets of decisions are made:
1. whether a student may continue at the University for which the University Average, calculated on at least 18 units, is used;
2. whether a student may continue in a programme for which the Cumulative Area Average, calculated on at least 12 units of area work, is used; and
3. whether a student may graduate and the classification of the degree, for which the Graduation Average is used.

REQUIREMENTS FOR LEVEL I

If you enter the University without advanced standing being granted, you must attempt a full load of Level I work before proceeding to the work of higher Levels. Admission to the programmes beyond Level I is based on the performance in Level I, and you must meet the normal requirements prescribed in the following section, Minimum Requirements for Continuance at the University, in order to continue at the University.

If you meet the requirements 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 as Irregular on Programme Probation.

If you again fail to qualify for admission to a programme, you may not continue without special permission.
ACADEMIC REGULATIONS

If you are repeating Level I voluntarily, your registration status will be Clear Admission.

In the case of part-time students, the Associate Dean (Studies) has the discretion to permit students to take some of the work in the higher Level 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.

MINIMUM REQUIREMENTS FOR CONTINUANCE AT THE UNIVERSITY

You may continue at the University if you obtain a University Average of at least 2.5, subject to meeting any special requirements of your program. If you fail to meet the requirement of a 2.5 average, you may continue on University Probation for one reviewing period, provided that you have a University Average of at least 2.0. You may be on University Probation only once.

If your University Average is less than 2.0 you may not continue without permission and must seek re-admission. The decision will be made by the appropriate Faculty Reviewing Committee, and, if you are permitted to continue, you will be placed on probation for one reviewing period.

If you fail to obtain a University Average of 2.5 on a second occasion, you will be required to withdraw from the University for a period of at least 12 months. If there are special circumstances which apply, the Faculty Reviewing Committee may waive the requirement of withdrawal for 12 months.

In the event that you are eligible to continue at the University, but are ineligible to continue in any programme because the programme requirements have not been met, you require the permission of your Faculty to re-register. If permitted to re-register, you will be on programme probation and may register as irregular for one reviewing period, during which you may take up to 18 units of Area work that would qualify you to re-enter a programme. Other courses taken may be used as electives. This privilege will be granted only once.

PROGRAMME REQUIREMENTS FOR B.A. AND B.SC. PROGRAMMES

The programme requirements are in addition to the minimum requirements prescribed above for continuance at the University.

Honours Programmes: If you obtain a Cumulative Area Average of at least 7.0 you may continue in an Honours programme. If you fail to obtain a Cumulative Area Average of 7.0 but have an average of at least 6.5, you may continue on Programme Probation for one reviewing period. You may be on Programme Probation only once. If you fail to obtain a Cumulative Area Average of 6.5, you may not continue in the programme and must seek entry to another programme.

Graduation Standing in Honours degree programmes is awarded in three classes: first-class, second-class, and third-class. For first-class standing a minimum Graduation Average of 8.5 is required; for second-class standing 7.0, and for third-class standing 4.0. A student who at the normal time of graduation fails to meet the requirements for a major degree may seek to transfer to another programme.

Combined Honours Programmes: All Combined Honours programmes offered by the Faculty of Science will be treated in the same manner as single Honours programmes above, thus, a single CAA and GA will be calculated.

In the case of Combined Honours programmes in other Faculties two separate Cumulative Area Averages will be computed using the Area courses for each of the two components, except where the Calendar specifies that a single average will be computed. Where two Cumulative Area Averages are computed, you must meet the specified minimum averages for each of the two components of the combined Honours Programme.

Similarly, two separate Graduation Averages will be computed, and Graduation Standing will be determined by taking the mean of the two Graduation Averages, except for those programmes where a single CAA is computed, in which case one Graduation Average will be computed.

A student who at the time of graduation fails to meet the requirements for a combined Honours degree may seek to transfer to another programme.

Major Programmes: Major programmes are available through the Faculties of Science and Social Sciences.

Effective for students registered in the programme before September 1987: If you obtain a Cumulative Area Average of at least 4.0, you may continue in a Major programme. If you fail to obtain a Cumulative Area Average of 4.0 but have an average of at least 3.5, you may continue on Programme Probation for one reviewing period. You may be on Programme Probation only once. If you fail to obtain a Cumulative Area Average of 3.5 you may not continue in the programme and must seek entry to another programme.

Effective for students admitted to a Major programme after August 1987: If you obtain a Cumulative Area Average of at least 5.0, you may continue in a Major programme. If you fail to obtain a Cumulative Area Average of 5.0 but have an average of at least 4.5, you may continue on Programme Probation for one reviewing period. You may be on Programme Probation only once. If you fail to obtain a Cumulative Area Average of 4.5 you may not continue in the programme and must seek entry to another programme.

Graduation Standing in Major degree programmes is awarded in three classes: first-class, second-class, and third-class. For first-class standing a minimum Graduation Average of 9.5 is required; for second-class standing 7.0; and for third-class standing 4.0 for the first group covered above and 5.0 for the second group. A student who at the normal time of graduation fails to meet the requirements for a major degree may seek to transfer to another programme.

Three-Level Degree Programmes: If you obtain a Cumulative Area Average of at least 4.0 you may continue in the programme. If you fail to obtain an average of 4.0 but have an average of at least 3.5, you may continue on Programme Probation for one reviewing period. You may be on Programme Probation only once. If your Cumulative Area Average is less than 3.5, you may not proceed in the programme and must transfer to another programme.

Graduation Standing in these programmes is awarded in three classes: first-class, second-class, and third-class. For first-class standing a minimum Graduation Average of 9.5 is required; for second-class standing 7.0; and for third-class standing 4.0. A student who at the normal time of graduation fails to meet the requirements for one of these degrees may seek to transfer to another programme.

TRANSFER BETWEEN PROGRAMMES

If you are registered in Level III of an Honours or Major programme and wish to transfer to a three-level degree programme in order to be eligible for graduation at the next Convocation, you may apply to the appropriate 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.

If you wish to transfer from one programme to another, you must have a Cumulative Area Average with standing appropriate for the programme you wish to enter. The Faculty will specify whether you need to take additional course work to obtain a specialist background equivalent to that of students already registered in the programme. You should discuss the practicability of transfer with the appropriate Associate Dean (Studies).

SECOND BACHELOR'S DEGREE PROGRAMMES

For admission to a second undergraduate degree programme you must have obtained an Honours or Major Degree. The minimum admission requirements and programme of study for the second degree depend on both second and first degrees and whether they are in the same subject.

Credit for courses taken towards the first degree may be applied to the second degree, except in the case of some professional programmes (e.g. Bachelor of Education and Bachelor of Library Science). Some additional regulations are applied by the Faculty of Science involving cognate disciplines e.g. Mathematics and Statistics. These are described in the section Faculty of Science in this Calendar. The new programmes in Occupational Therapy and Physiotherapy (B.H.Sc.) are available only as a Second Degree. Advance credit is not available in these 2-year programmes.

Extra courses taken while you are registered in a first degree programme may, with the approval of the Faculty, be applied to the second degree programme.
All the additional work to obtain the second degree must be taken at McMaster University. Decisions on admissions and the courses required to complete the second degree will be made by the appropriate Faculty.

Credit from the first two degrees cannot be applied to a third undergraduate degree. To obtain a third undergraduate degree it would be necessary to take the complete programme, i.e. approximately 90 units for a three-level degree and approximately 120 for a four-level degree.

Students who do not qualify for a Second Degree programme on the basis of the relevant course work completed during their first degree studies may, with the permission of the department and appropriate Associate Dean (Studies), be allowed to qualify on the basis of further work undertaken as Continuing students considered in conjunction with their previous performance in the area courses.

Students who are allowed to qualify for admission on the basis of further work taken as Continuing students at McMaster University may, with the permission of the department and the appropriate Associate Dean (Studies), have this course work applied toward the fulfillment of the requirements for the second degree. Faculties wishing this provision to apply only to second degree programmes in another subject may make that restriction in the Faculty regulations. (The Faculty of Science has so indicated.)

A student in a Second Degree programme must meet the minimum requirements prescribed in earlier sections for the University Average, the Cumulative Area Average, and the Graduation Average, with the exception that, where the number of Area courses prescribed is less than the minimum normally prescribed for inclusion in the Graduation Average, all Area courses taken in the second degree programme will be included in the computation of the Graduation Average. If less than 12 units are used to compute the Graduation Average, no Graduation Standing (first class, etc.) will be given.

Major Degree Following a Three-Level Degree in Same Subject: For entry into a Major Degree programme in the Faculty of Science, a Graduation Average of at least 4.0 in the first degree programme is required for those entering a major programme before September 1987; thereafter an average of at least 5.0 will be required.

If admitted, you must take at least 30 units of work as specified by the department(s); normally this will include the Level IV specialist courses and courses from Levels II and III to provide specialist background equivalent to that of students already in the programme.

Honours Degree Following Major or a Three-Level Degree in the Same Subject: For entry, a Graduation Average of at least 7.0 in the first degree programme is required.

If admitted, you must take at least 30 units of work specified by the department(s); normally this will include the Level IV specialist courses and courses from Levels II and III to provide specialist background equivalent to that of students already in the programme.

Second Degree in Another Subject: For admission to the second degree you must meet the admission requirements for the programme you wish to enter (e.g. an average in specified courses of at least 7.0 for entry to an Honours programme and of at least 4.0 for entry to other programmes of the Faculties of Humanities, Science, and Social Sciences). The average used for admission would normally be based on Area courses for, or courses related to, the programme you wish to enter.

If the second degree is a Bachelor of Arts or Bachelor of Science degree, you must complete at least 30 units of work specified by the department offering the programme. If the second degree is a Major or Honours degree, the minimum is 60 units.

DEANS’ HONOUR LIST
Each year outstanding students are recognized by their being named to the Deans’ Honour List for which a minimum average of 9.5 is required. In the case of full-time students, they must have completed in a Winter Session at least 30 units (36 in the case of Engineering). The Deans have the power to exercise discretion where the full load for a particular level of a programme is less than 30 (36 in Engineering e.g. Civil Engineering, Level IV, 34 to 36 units). In the case of a full-time student the minimum average of 9.5 must have been obtained on the University Average. For those who have studied part-time on a continuous basis, the assessment will be made at the reviewing periods where 30, 60, and 90 units have been completed, and at graduation.

(The special provision for students in the B.H.Sc. programme is explained in the section Faculty of Health Sciences, Occupational Therapy & Physiotherapy Programme.)

Graduation
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 15 for Spring Convocation and before September 8 for Autumn Convocation.

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

A Programme Standing will be determined for students who have fulfilled the graduation requirements in May of each year. The Programme Standing will be determined on the basis of the Graduation Average and will appear on the transcript. The notation will show your rank in the graduating class for the programme and the number of students graduating from that programme in May.
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 coursework, 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. a disregard for the norms of scholarly integrity, without necessarily intending to deceive; and

b. 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.

Students are strongly encouraged, however, 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 re-admission to an undergraduate degree programme may not be appealed, except under the conditions described in the next paragraph. Applicants may, however, ask for a review of a decision on admission or re-admission 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 re-admission 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:

i. the applicant withdrew from the University voluntarily; and
ii. the applicant alleges error or injustice on grounds other than academic judgement.

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 principles 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 name, student number, 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. For those admitted to the Nursing and M.D. Programmes a separate admission file is maintained. 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 student’s 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, a student is responsible for the full payment of all fees as defined in this Calendar.

Payment of academic fees does not mean acceptance to the University or approval of a student's registration. Academic requirements have to be fulfilled before registration is completed.

New students may not forward academic fees to the Business Office until they have received their Letters of Acceptance. Students should not send residence fees unless notification of acceptance has been received.

Students are responsible for the fees for each academic session and 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 are in effect at the time of printing 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 by students taking 18 units or more.

Fees for full-time students cover the student's portion of the tuition cost, registration, library, diplomas, campus health services, student organizations, and athletics (except for the facilities fee), 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 programs to recover in part or in full the cost of providing course materials, and 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 commencing September 1. Fees shown below are for 1990/91. The fee schedule and refund schedule for 1991-92 is enclosed in the Registration Handbook sent to each student during the summer preceding registration.

CANADIAN CITIZENS and LANDED IMMIGRANT STUDENTS

Full-time Fees (for an academic load of 30 units or more except for Engineering, Eng. Mgt. III, V - 32 units or more)

<table>
<thead>
<tr>
<th></th>
<th>Tuition Fee</th>
<th>Fees</th>
<th>Total Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine I,II</td>
<td>$3,126.00</td>
<td>$282.00</td>
<td>$3,408.00</td>
</tr>
<tr>
<td>Medicine III</td>
<td>2,082.00</td>
<td>264.00</td>
<td>2,346.00</td>
</tr>
<tr>
<td>Engineering, and Eng. Mgt. III, V</td>
<td>1,778.00</td>
<td>329.45</td>
<td>2,107.45</td>
</tr>
<tr>
<td>Eng. Mgt. II,IV</td>
<td>1,637.00</td>
<td>329.45</td>
<td>1,966.45</td>
</tr>
<tr>
<td>Nursing</td>
<td>1,637.00</td>
<td>334.45</td>
<td>1,971.45</td>
</tr>
<tr>
<td>Business and Commerce</td>
<td>1,637.00</td>
<td>316.45</td>
<td>1,953.45</td>
</tr>
<tr>
<td>Arts &amp; Sci. Prog.</td>
<td>1,637.00</td>
<td>276.45</td>
<td>1,913.45</td>
</tr>
<tr>
<td>Physical Education</td>
<td>1,637.00</td>
<td>271.45</td>
<td>1,908.45</td>
</tr>
<tr>
<td>Humanities and Social Sciences</td>
<td>1,637.00</td>
<td>281.45</td>
<td>1,918.45</td>
</tr>
<tr>
<td>Science</td>
<td>1,637.00</td>
<td>266.45</td>
<td>1,903.45</td>
</tr>
</tbody>
</table>

Students registered in the Co-op programme in Honours Biology/Pharmacology Level III will be assessed an additional $250.00 Co-op Fee per term along with the normal Science fees.

Students registered in the Co-op programme in Honours Biology/Pharmacology Level IV will be assessed 1/2 the Tuition and Supplementary Fees for Science and an additional $250.00 Co-op Fee.

For academic loads from 18 to 29 units (31 units for Eng., Eng. Mgt. III, V), the fee was $56.07 per unit plus full supplementary fees.

Students registering in overload courses in their programme may be assessed extra fees.

Student Health Services Fee: The supplementary health services Medical fee of $35.00 supports the "on campus" clinic facilities which provide the services of doctors and nurses. The McMaster Student Union Health Insurance Plan fee of $26.25 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 ten days. Prescribed drugs, excluding contraceptives, may be claimed through this plan. For details concerning dollar amounts allowable, contact the McMaster Student Union Office.

Part-time Fees

For students who took less than 18 units, the fee was $56.07 per unit plus a supplementary fee of $4.43 per unit for membership in the McMaster Association of Part-time Students/COPUS and Centennial Fund donation. Students who took 18-23 units paid supplementary fees as follows:

- Student Athletic Fee ........................................ $53.00
- Student Health Services .................................... 35.00
- Canadian Federation of Students ............................ 7.00
- McMaster Student Union Fees:
  - Student Organization Fee ..................................... 71.00
  - Health Insurance Plan ....................................... 26.25
  - Student Refugee Fee ......................................... 1.00
  - Ancillary Fee for CFMU FM .................................. 8.20
  - Ancillary Fee for MarMar Yearbook ....................... 5.00

Plus
- McMaster Student Union's University ..................... 2.00

And
- Student Centre Building Fee (per unit) .................. 2.00

Society Fees according to Faculty:
- Arts & Science Society ........................................ 10.00
- Commerce Society ............................................. 50.00
- Engineering Society .......................................... 63.00
- Humanities Society ........................................... 15.00
- Nursing Society ................................................ 18.00
- Nursing Learning Resource Fee .............................. 50.00
- Bachelor of Physical Education Society ................. 5.00
- Social Science Society ........................................ 15.00

Listeners

A Listener is a student not seeking academic credit, and 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.

Persons Aged 65+

Subject to meeting admission and prerequisite requirements, persons aged 65 and over may register in any courses without payment of tuition and supplementary fees.
FINANCIAL INFORMATION

VISA STUDENTS
Full-time Visa Students (for an academic load of 28 units or more except for Engineering, Nursing 32 units or more)

<table>
<thead>
<tr>
<th>Tuition Fee</th>
<th>Supplementary Fees</th>
<th>Total Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine II</td>
<td>$13,359.00</td>
<td>$2,822.00</td>
</tr>
<tr>
<td>Medicine III</td>
<td>8,906.00</td>
<td>264.00</td>
</tr>
<tr>
<td>Nurturing</td>
<td>8,913.00</td>
<td>334.45</td>
</tr>
<tr>
<td>Engineering, and Engin. &amp; Mgt.</td>
<td>8,913.00</td>
<td>329.45</td>
</tr>
<tr>
<td>Business and Commerce</td>
<td>5,468.00</td>
<td>316.45</td>
</tr>
<tr>
<td>Arts &amp; Sci. Prog.</td>
<td>5,468.00</td>
<td>276.45</td>
</tr>
<tr>
<td>Physical Education</td>
<td>5,468.00</td>
<td>271.45</td>
</tr>
<tr>
<td>Humanities and Social Sciences</td>
<td>5,468.00</td>
<td>281.45</td>
</tr>
<tr>
<td>Science</td>
<td>5,468.00</td>
<td>266.45</td>
</tr>
</tbody>
</table>

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

Part-time Visa Students
Visa students enrolled in Engineering, Engineering and Management and Nursing courses were assessed at $298.00 per unit tuition fee up to 17 units, plus supplementary fees of $4.43 per unit. Visa students enrolled in courses for all other programmes were assessed at $182.00 per unit tuition fee up to 17 units plus $4.43 per unit supplementary fee.

Residence and Food Service Fees

REGULAR SESSION
Residence fees for students living on campus cover the period, Labour Day to the end of the April examination period.

The fees below are those for 1990-91.

<table>
<thead>
<tr>
<th>Payable in Full</th>
<th>Payable in Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residences</td>
<td></td>
</tr>
<tr>
<td>Room and Board</td>
<td></td>
</tr>
<tr>
<td>12 Meal Plan</td>
<td>$3,813.00</td>
</tr>
<tr>
<td>14 Meal Plan</td>
<td>4,013.00</td>
</tr>
<tr>
<td>19 Meal Plan</td>
<td>4,173.00</td>
</tr>
<tr>
<td>Apartments: Per Person (Room Only)</td>
<td>$1,966.00</td>
</tr>
<tr>
<td>Food Plan Only</td>
<td></td>
</tr>
<tr>
<td>12 Meal Plan</td>
<td>$1,907.00</td>
</tr>
<tr>
<td>14 Meal Plan</td>
<td>2,107.00</td>
</tr>
<tr>
<td>19 Meal Plan</td>
<td>2,267.00</td>
</tr>
</tbody>
</table>

Students wishing to make changes in their selection of meal plans may do so up to September 14th. Please contact Food Services, Ext. 3837 to make any changes in food plans.

A complete and current schedule of residence charges and payment dates may be obtained upon application to the Residence Admissions Co-ordinator, Commons Building, telephone 525-9140, extension 4223.

The University reserves the right to use the rooms during vacation periods, and the charges do not include the use of the room or the cost of meals during these periods, unless arrangements to the contrary are made.

Students 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. Only single occupancy is available unless a specific roommate is named.

Room rates include bed linens, weekly service and weekly linen change (but no towels). Parking is extra.

Stays of less than one month are subject to 5% Provincial sales tax.

A cash key deposit of $10.00 is collected upon check-in.

The following rates apply for 1991 for visitors. For further information, contact Conference Services, Commons Building, Room 115, telephone (416) 525-9140, extension 4781.

<table>
<thead>
<tr>
<th>Single Occupancy</th>
<th>Cost Per Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Nights</td>
<td>$28.50</td>
</tr>
<tr>
<td>Weekly rate</td>
<td>$150.00</td>
</tr>
<tr>
<td>Double Occupancy</td>
<td></td>
</tr>
<tr>
<td>Individual Nights</td>
<td>$23.50</td>
</tr>
<tr>
<td>Weekly rate</td>
<td>$120.00</td>
</tr>
</tbody>
</table>

* Available only if paid in full, in advance.

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 below Prepayment of Fees). Students unable to make full payment at the time of registration may be assessed by paying the minimum first payment which is equal to approximately 70% of the total fees at the time of registration, and the balance no later than January 24. Failure to make payment by January 24 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 $25.00 first occurrence and an additional $10.00 each subsequent occurrence. Failure to comply with payment dates will result in the University adding interest at the rate of 1.5% per month on overdue fees.

In addition, refusal to pay fees, or any part of the fees, may result in the student being refused admission to the University or being requested to withdraw with all privileges suspended. Fees to the date of withdrawal will be assessed. Students wishing to re-register within the same academic session will also be assessed a reinstatement fee.

No student may 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 such time as 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 your payment to appear on University records by the time you register, pre-payment must be received at the University by:

July 30 for Level I students who will be registering in early August;
August 16 for Upper Level students who will be registering in early September.

Students must complete the fee prepayment form and send it together with a cheque, which may be post-dated to August 30, to the Business Office. The 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.

Students who are expecting to receive financial assistance under the Ontario Student Assistance Programme or are to be recipients of scholarships, bursaries or other awards, may arrange fee deferrals prior to the day of registration, provided they can show satisfactory evidence that such awards have been granted by contacting the Credit/Collection Department, extension 4331/3325. All fees are payable upon receipt of financial assistance.

Any known differences between the amount of the award, and minimum first payment must be paid by August 30.

Students being sponsored by outside organizations, e.g. Vocational Rehabilitation Services, R.C.M.P., Canadian Armed Forces, etc., are required to bring copies of fee authorizations at the time of request of deferral.

Students who are unable to pay their fees at the time of registration should contact the Business Office Room 208 Gilmour Hall prior to registration.
REFUNDS

Students who are forced by illness or other personal reasons to withdraw from courses are entitled to a partial refund of their fees. A refund schedule is included with the fee schedules which are sent in the summer preceding September registration. Refunds are 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 up to the end of the drop and add period.

Miscellaneous Fees

The following fees were in effect for the 1990-91 academic year, and are over and above assessed academic fees, supplementary fees, and residence fees and food plan fees.

OPTIONAL USER FEES

<table>
<thead>
<tr>
<th>Fee</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Fee</td>
<td>$10.00</td>
</tr>
<tr>
<td>Transcript (per copy)</td>
<td>2.00</td>
</tr>
<tr>
<td>Replacement of Diploma</td>
<td>25.00</td>
</tr>
<tr>
<td>Replacement of M.D. and Graduate Diploma</td>
<td>30.00</td>
</tr>
<tr>
<td>Letter of Permission</td>
<td>30.00</td>
</tr>
<tr>
<td>Late Document Fee</td>
<td>30.00</td>
</tr>
<tr>
<td>Late Registration Fee</td>
<td>50.00</td>
</tr>
<tr>
<td>Part-Time Student</td>
<td>25.00</td>
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Replacement Food Card

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FINANCIAL INFORMATION

Towel Only .................................. 25.50
Athletic Guest fee .......................... 5.00
3 for ................................................................ 10.00
5 for ................................................................ 15.00
Library charges
Overdue Recalled Books (per day) ............ 2.00
Overdue Reserve Material (per hour) ........ 2.00
Replacement Costs/Fines .... up to ........... 100.00
Returned Books After Replacement Obtained | 10.00
Locker, large .................................... 11.50
Locker, small ...................................... 4.00
Campus Health Service (optional for
Part-time (day) students) ...................... 35.00
Lesson Fee (for students registered in
Music 1E06, 2E06, 3E06 or 4E06) Per 30 minute
lesson ............................................... 15.00
Total for one year ................................ $390.00

EXPENSES

To some extent, expenses are controlled by the student (e.g., clothing, living expenses and amusement). The essential costs for a typical student in Level I not living at home will be approximately $6,419 depending upon the amount the student chooses to pay for room and board.

Costs Other Than Fees For Students in Clinical Courses: Students must buy uniforms, shoes, stockings and uniform accessories, for clinical practice. Uniforms and accessories are ordered under the direction of the School of Nursing and 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 ($241.00 in 1990) 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. It is suggested that insurance policies be inspected 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. It must be remembered that the greater part of a student's day is usually devoted to activities not related to a University course. There are various insurance plans available and although the University does not specifically endorse any one of these plans, it has no objection to the explanatory brochures and literature being posted on bulletin boards or distributed in appropriate places. Students involved in laboratory or field work are particularly encouraged to investigate such coverage.

FOR INFORMATION ON STUDENT AWARDS AND FINANCIAL AID, PLEASE REFER TO SECTIONS ON "UNDERGRADUATE ACADEMIC AWARDS" AND "STUDENT FINANCIAL AID" IN THIS CALENDAR.
Degrees and Programmes

McMaster University offers the following undergraduate degrees:

**FACULTY AND DEGREE**  Duration in Years

**Arts and 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 5 years of study.)

**Faculty of Business**

- B.Com ................................ 4
- B.Com. (Honours) ....................... 4
- B.Com.& Arts (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.-Second Degree ............... 2
- B.H.Sc.-Degree Completion ............ 1
  (Degree completion programme offered for the last time in 1991-92.)
- B.Sc.N .................................. 4
  (In addition, the B.Sc.N. is available as a 2-year programme to those holding the R.N. Diploma)
- M.D. (Doctor of Medicine) ............ 3
  (The M.D. Degree is taken after at least three years of undergraduate study.)

**Faculty of Humanities**

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

**Faculty of Science**

- B.Sc .................................. 3
- B.Sc. (Major) ........................... 4
- 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.-Second Degree 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, 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 Associate Dean (Studies).

**Courses Instructed in French**

In order 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 6 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 section Courses Listing in this Calendar.

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* These courses are **not** acceptable for the 6-unit complementary studies elective required in Engineering I.
† These courses are **not** acceptable for the 6 units of Humanities or Social Sciences electives required in Natural Sciences I.
# Degrees by Programme

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* degre programme is available through a combination of evening and summer study.
† degree programme is pending approval.
× course areas not offered as degrees.
• a five year co-op degree programme.
The Arts and 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 significant achievements in both arts and sciences. The Programme also allows for substantial specialization in a discipline or problem area through the use of electives. The philosophy of the Arts and Science Programme can be expressed by quoting A.N. Whitehead:

"What education has to impart is an intimate sense for 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 and 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, behavioural 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 serious 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 issues, 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 law, medicine, health administration, business, and journalism.

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 and 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 and Science Programme with a prescribed set of courses in a subject. Completion of a combined honours programme can be expected to satisfy course requirements for admission to graduate study in the particular subject. Students are advised, however, to contact the Department in which they are contemplating graduate study to obtain information on admission requirements.

Students who plan to seek employment directly upon graduation may wish to consider concentrating their electives in such work-related subjects as economics, psychology, computer science, business or applied mathematics.

Academic Regulations

The Arts and Science Programme is governed by the General Academic Regulations of the University, (see the Academic Regulations section of this calendar) and the regulations described below.

The Programme begins in Level I and leads to the degree, Bachelor of Arts and 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 and Science Programme is limited to approximately fifty students.

Inquiry Seminar Requirements

Inquiry seminars are comprised of Arts and Science I096 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 and Science I096 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 or 6 units of upper-level inquiry seminar and an additional 6 units of a course or courses, approved by the Director, in which another age or culture is studied, and in which students can enhance their skills in inquiry.

Students intending to graduate with B. Arts Sr. degree are required to complete 6 units of upper-level inquiry seminar. An additional 6 units of upper-level inquiry seminar may be taken as an elective.

Combined Honours

Students in the Arts and Science Programme may undertake combined honours programmes in many disciplines within the Faculties of Social Sciences, Humanities or 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 and 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 and Science Programme and the appropriate Departmental Counsellor.

Individual Study/Thesis: Students in the B. Arts Sc. (Honours) Programme are required to complete either Individual Study or Thesis (Arts and Science 4A06, or 4C06). This requirement can be, and in some cases must be, met by a Departmental course in the combined discipline.

Level I Standing

Level I standing is computed as a weighted average of the best 80% of the 30 units of Level I work. Continuation beyond Level I requires a weighted average of at least 7.0. In the case of some combined honours programmes, the weighted average must include specified courses. These courses are indicated in the programme descriptions below.

Continuation Beyond Level II

For students in the B. Arts Sc. (Honours) and B. Arts Sc. Programmes, continuation beyond Level II requires a Cumulative Area Average (CAA) of at least 7.0.

For students in a combined programme of Arts and Science and Another Subject, continuation beyond Level II requires an overall CAA of at least 7.0 in all courses taken in Levels II, III and IV, and a CAA of at least 7.0 calculated for those courses designated as area courses by the combined discipline.

Area Courses

All courses completed by students in Levels II, III, IV or V are Area courses unless designated as extra at the time of registration, or otherwise stated in the Programme descriptions below.

Programme Probation

A student whose Cumulative Area Average is less than 7.0 but no lower than 6.5, and who has not been placed on probation before, may be granted Programme Probation at the discretion of the Director. A student whose Cumulative Area Average is less than 6.5 will not be granted Programme Probation.

Graduation Average

The Graduation Average for all Arts and Science programmes will include Arts and Science 2A06 and 2D06. For combined programmes, a single Graduation Average will be computed.
Arts and Science Programmes

B. ARTS SC. (HONOURS) AND B. ARTS SC.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Biology 1A06. (Biology 1A06 must be completed by the end of Level II.)
E Electives to a total of 30 units.

Level II: 30 units
R Arts and Science 2A06, 2B06, 6 units upper-level Inquiry (may be taken in Level III); six units from Arts and Science 2B06, Statistics 2D03, 2M03, Computer Science 1MA3 or 1ZA3, Mathematics 1B03; Biology 1A06 (if not completed in Level I).
E Electives to a total of 30 units.

Level III: 30 units
R Arts and Science 3B06, either 3A06 or 3D06, and 6 units upper-level Inquiry if this requirement has not already been completed.
E Electives to a total of 30 units. Students enrolled in B. Arts Sc. may include an additional 6 units upper-level Inquiry as an elective if 6 units were completed in Level II.

Level IV: 30 units
R Science 3A06 or 3D06 (whichever not completed in Level III). If the inquiry requirement has not already been completed, an additional 6 units from upper-level Inquiry, or from a course or courses approved by the Director in which another age or culture is studied; 6 to 12 units from Arts and Science Programme Note:
The Anthropology component includes a study of the four major subfields of Social/Cultural Anthropology, Physical/Biological Anthropology, Archaeology, and Linguistics. Students must complete at least 3 units above Level I in each of the major subfields. 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. Students should consult with the Departmental Counsellor concerning the specific courses related to each subfield.

Area Courses:
All Level II, III and IV Anthropology courses.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; 6 units from Anthropology 1A03, 1L03, 1Z03.

Level II: 30 units
R Arts and Science 2A06; 6 units from: Arts and Science 2R06, Statistics 2D03, 2M03, either Computer Science 1MA3 or 1ZA3, Mathematics 1B03; Biology 1A06; 12 units from: Anthropology 2D03, 2F03, 2I03, 2Q03, 2Q06.

Level III: 30 units
R Arts and Science 2B06, 3A06; 6 units upper-level Inquiry; 3 units from Anthropology 3A03, 3B03, 3D03, 3F03; 9 units from Anthropology Area courses.

Level IV: 30 units
R Arts and Science 3B06, 3D06; 6 units upper-level Inquiry; Anthropology 4103, 3 units Level IV Anthropology, 6 additional units of Anthropology Area courses.

HONOURS ARTS AND SCIENCE AND BIOCHEMISTRY

Admission:
Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work and at least an average of 7.0 in Arts and Science 1D06 and Chemistry 1A06.

Area Courses:
Biochemistry 2A06, 3A06, 3L06, 4A03, 4B06, 4D03, 4E03, 4I03, 4M03, 4P03, Biology 2B03, 2C03, Chemistry 2B06, 2Q06, 2R03, 3D03, 3F03.

Programme Note:
Biochemistry 2A06 will be included in calculating the Graduation Average.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Chemistry 1A06

Level II: 33 units
R Arts and Science 2A06; Arts and Science 2R06 or Statistics 2M03 and Computer Science 1MA3 or 1ZA3; Biochemistry 2A06; Biology 1A06; Chemistry 2B06, 2R03.

Level III: 33 units
R Arts and Science 2D06, 3A06; Biochemistry 3A06, 3B06; Biology 2B03 (if not completed), 2C03; Chemistry 3F03.

Level IV: 33 units
R Arts and Science 3B06, 3D06, 6 units upper-level Inquiry; Biochemistry 4B06 or 4P03 and 4A03, 4E03, 6 units from: 4D03, 4I03, 4M03.

HONOURS ARTS AND SCIENCE AND BIOLOGY

Admission:
Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work, and at least a 7.0 in one of Arts and Science 1D06 or Chemistry 1A06.

Programme Notes:
1. Continuation in the programme beyond Level II requires at least 7.0 in Biology 1A06.

2. Students are advised to note carefully the prerequisites for all Level III and IV courses listed in the programme, particularly Biochemistry 3A06 and 3G06.

3. In Levels IV and V students may elect either the Whole Organism Option or the Cell, Molecular Biology, Genetics Option.

Area Courses:
All Level II, III, and IV Biology courses; Biochemistry 3A06, 3G06, 4D03, 4E03, 4I03, 4M03; Engineering 1X03; Geography 3F03, 4P03, Geology 2B03, 3D06, 3J03, 4D03, 4F03; Molecular Biology 4H03; Pharmacology 4B03; Psychology 3F06, 3R03, 3S03, 3T03.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Chemistry 1A06

Level II: 30 units
R Arts and Science 2A06, 2B06, 2R06; Biology 1A06; Chemistry 2B06

Level III: 30 units
R Arts and Science 3B06, 6 units upper-level Inquiry; 12 units from Biology 2B03, 2C03, 2D03, 2E03, 2F03; Biochemistry 3G06.

Level IV: 30 units Whole Organism Option (OPTION A)
R Arts and Science 3A06 or 3D06; Biology 3G06, or 4B03, or 3S03 and 3T03; Biology 3N06, one of Biology 3A06, 3F06, 3K06; Biology 3L03 or 3J03.
E 3 to 6 units.

Level V: 30 units
R Arts and Science 3A06 or 3D06 (whichever not completed), 6 units upper-level Inquiry; Arts and Science 4C06; Biology 4D03 or 4X03; 6 units of Level III or Level IV Biology courses
E 3 units.

Level IV: 30 units Cell, Molecular Biology, Genetics Option (OPTION B)
R Arts and Science 3A06 or 3D06; Biology 3E03, 3H03, 3I03, 3J03, 3N06, 3O03

Level V: 30 units
R Arts and Science 3A06 or 3D06 (whichever not completed), 6 units upper-level Inquiry; Arts and Science 4C06; 6 units from Biology 4N03, 4M03, 4MM3; Biology 4I03 or 4V03; 3 units of Level IV Biology courses.

HONOURS ARTS AND SCIENCE AND COMPUTER SCIENCE

Continuation Beyond Level I
Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work including Arts and Science 1D06, and Computer Science 1MA3 and 1MB3.

Area Courses:
All Level II, III, IV Computer Science courses except 2ME3, 2SB3, 2ZB3, 4EC3.

Level I: 30 units
ARTS AND SCIENCE PROGRAMME

R Arts and Science 1A06, 1B06, 1C06, 1D06; Computer Science 1MA3 and 1MB3.

Level II: 33 units
R Arts and Science 2A06, 2D06; Biology 1A06; Statistics 2D03 or 2M03; Mathematics 1B03; Computer Science 2MF3, 2MC3, 2MD3.

Level III: 33 units
R Arts and Science 3A06, 3B06, 6 units upper-level Inquiry; Computer Science 2MF3 or 2MJ3, 3MC3, 3HF3, 3M13 and one of 3CA3, 3EA3, 3FA3.

Level IV: 30 units
R Arts and Science 3D06, 6 units upper-level Inquiry; Computer Science 4MP6 and 9 additional units of Level III or IV Computer Science courses, including Computer Science 3EA3 if not already taken.

E 3 units.

HONOURS ARTS AND SCIENCE AND DRAMA

Admission:
Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work, including a grade of at least B -- in Drama 1A06.

Programme Note:
Students in Drama must include a minimum of 3 units of work from at least 3 of the 4 Fields of Study (See Programme Notes under Drama).

Area Courses:
All Level II, III, and IV Drama courses.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Drama 1A06.

Level II: 30 units
R Arts and Science 2A06; six units from Arts and Science 2R06, Statistics 2D03, 2M03, Computer Science 1MA3 or 1ZA3, Mathematics 1B03; Biology 1A06; 12 units Level II Drama.

Level III: 30 units
R Arts and Science 2D06, 3A06, 6 units upper-level Inquiry; 12 units Level III or IV Drama.

Level IV: 30 units
R Arts and Science 3B06, 3D06, 6 units upper-level Inquiry; 12 units Level III or IV Drama including at least one Level IV Drama course approved as the Arts and Science Programme Individual Study/Thesis requirement.

HONOURS ARTS AND SCIENCE AND ECONOMICS

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

Admission:
Option A requires a Level I standing of at least 7.0, with at least 7.0 in Economics 1A06. Option B requires a Level II Cumulative Area Average of at least 7.0, with at least 7.0 in Economics 1A06.

Programme Note:
For both Options A and B, a Single Graduation Average will be calculated on the basis of all Level II, III and IV Economics courses and all Level III and IV Arts and Science courses, and Arts and Science 2A06 and 2D06.

Area Courses:
All Level II, III, and IV Economic courses.

Option A:

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Economics 1A06.

Level II: 30 units
R Arts and Science 2A06, 2D06; Biology 1A06; Economics 2G03, 2G06, 2H03, 2H06.

Level III: 30 units
R Arts and Science 3A06, 3B06, 6 units upper-level Inquiry; one of Economics 3306, Arts and Science 2R06; one of Economics 2K03, 3F03, 3R03.

E 3 units. (Mathematics 1L03 is strongly recommended.)

Level IV: 30 units
R Arts and Science 3D06 and 6 units upper-level Inquiry; Economics 3L33, 3F03 and 12 additional units of Economics, 6 units of which must be approved as substitutes for Arts and Science 4A06/4C06.

Option B:

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Biology 1A06.

Level II: 30 units
R Arts and Science 2A06, 2D06, 2R06; Economics 1A06.

Level III: 30 units
R Arts and Science 3A06, 3B06, 6 units upper-level Inquiry; Economics 2G03, 2G06, 2H03, 2H06.

Level IV: 30 units
R Arts and Science 3D06, 6 units upper-level Inquiry; one of Economics 2K03, 3F03; Economics 3L33, 3F03; Economics 3 units; Economics 5 units to replace Arts and Science 4A06/4C06.

HONOURS ARTS AND SCIENCE AND ENGLISH

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

Enrolment in this programme is limited. Selection is based on academic achievement, but requires, as a minimum, a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work including a grade of at least B -- in English 1D06.

Programme Notes:
1. Completion of the English component of this combined programme requires a minimum of 6 units of work from four of the six fields listed in Department Note #2 of the "Department of English" section of this Calendar. English 2A06, 4X03 and the Level IV seminars may not be used for field coverage. Students should plan their programmes in consultation with the Departmental Counsellor in the English Department.
2. In addition to the 36 units of English Area courses, students must successfully complete 6 units of a language other than English. The English Department strongly advises students to fulfill this requirement before Level III.
3. With special permission of the English Department, students may substitute English 4X03 for 3 units of Level IV seminar work in the second term.

Area Courses:
English 2A06, 2B06, 2G06, 2H06, 3C06, 3D03, 3D06, 3G06, 3H06, 3F03, 3J06, 3K06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3, 3T03, 3V06, 4X06 and all Level IV seminar courses.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; English 1D06

Level II: 30 units
R Arts and Science 2A06; Biology 1A06; 6 units from: Arts and Science 2R06, Statistics 2D03, 2M03, either Computer Science 1MA3 or 1ZA3, Mathematics 1B03; English 2A06; 6 units from: English 2B06, 2G06, 2H06.

Level III: 30 units
R Arts and Science 2D06, 3B06; 6 units upper-level Inquiry; 12 units Level III English Area courses.

Level IV: 30 units
R Arts and Science 3D06; 6 units upper-level Inquiry; 6 units Level III English Area courses; 6 units Level IV seminars; 6 units Language requirements.

HONOURS ARTS AND SCIENCE AND FRENCH

Continuation Beyond Level I:
Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work including at least B -- in French 1A06. 

Area Courses:
All Level II, III, IV French courses, except French 3Y03.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; French 1A06.

Level II: 30 units
R Arts and Science 2A06; Biology 1A06; 6 units from: Arts and Science 2R06, Statistics 2D03, 2M03, either Computer Science 1MA3 or 1ZA3, Mathematics 1B03; Biology 1A06; French 2A03; one of: French 2J03, 2K03; one of: 2W03, 2WW3; 3 units French Area courses.

Level III: 30 units
R Arts and Science 3D06; 6 units upper-level Inquiry; French 3C03; one of: French 3K03, 3KK3; one of: French 3Q03, 3QQ3; 3 units Level III or IV French Area courses.

Level IV: 30 units
R Arts and Science 3D06; 6 units upper-level Inquiry; French 4A03; 3 units Level III or IV French Area courses; two 3-unit Level IV French courses approved as replacement for Arts and Science 4A06 or 4C06.
**ARTS AND SCIENCE PROGRAMME**

**ARTS AND SCIENCE AND GEOGRAPHY**

**Continuation Beyond Level I:**

Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work including at least 7.0 in 6 units of Level I Geography.

**Programme Note:**

Students will normally select Area courses in Geography from one of the two major subfields of Physical Geography or Human Geography. Students should consult with the Departmental Counsellor concerning the specific courses related to each subfield.

**Area Courses:**

All Level II, III and IV Geography courses.

**Level I:** 30 units

- R Arts and Science 1A06, 1B06, 1C06, 1D06, Geography 1A06 or 1B06.

**Level II:** 30 units

- R Arts and Science 2A06, 2D06; Biology 1A06; Geography 2LL3, 2NN3; 6 units of Geography Area courses.

**Level III:** 30 units

- R Arts and Science 3A06, 3B06; 6 units upper-level Inquiry; 12 units of Geography Area courses including Geography 3003.

**Level IV:** 30 units

- R Arts and Science 3D06; 6 units upper-level Inquiry; 12 units from Level III or IV Geography Area courses; Geography 4C06.

**HONOURS ARTS AND SCIENCE AND GERMAN**

**Continuation Beyond Level I:**

Level I standing of at least 7.0 including a grade of at least B – in German 1A06 for Alternative A, or a grade of at least B – in German 1B06 for Alternative B.

**Programme Notes:**

1. With the approval of the Department of Modern Languages and of the Associate Dean of Humanities the Director of the Arts and Science Programme, Level III of Honours German may be replaced by courses of study at a university in a German-speaking country. Students who plan to spend their third year abroad must have a CAA of at least 9.0 in each of German and Arts and Science in their second year.

2. German 2A03, 2B03, 2E03 and 2G03 will be included in calculating the Graduation Average.

**Area Courses:**

- Alternative A: Level II, III and IV German courses, excluding German 2206.
- Alternative B: Level II, III and IV German courses.

**Level I:** 30 units

- R Arts & Science 1A06, 1B06, 1C06, 1D06; German 1A06 or 1B06.

**Level II:** 30 units

- R Arts & Science 2A06, 2D06; 6 units from: Arts and Science 2003, 2003, either Computer Science 1MA3 or 1ZA3, Mathematics 1B03; Biology 1A06.
- Alternative A: 12 units of Level II German Area courses.
- Alternative B: German 2Y06, 2Z06.

**Level III:** 30 units

- R Arts & Science 2D06, 3B06; 6 units upper-level Inquiry.
- Alternative A: 12 units of Level III or IV German Area courses.
- Alternative B: German 2A03, 2B03, 2E03, 2G03.

**Level IV:** 30 units

- R Arts & Science 3D06; 6 units upper-level Inquiry.
- Alternative A: 12 units of Level III or IV German Area courses.
- Alternative B: 12 units of Level III or IV German Area courses.
- E 6 units.

**Note:** For both Alternative A and B, 6 units taken in Level IV must be approved as substitutes for Arts and Science 4A06/4C06.

**HONOURS ARTS AND SCIENCE AND GERONTOLOGY**

**Admission:**

Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work, including Gerontology 1A06. See “Programme Notes” under Gerontological Studies.

**Area Courses:**

Level II, III and IV Gerontology Area courses, and all designated Gerontology Area courses: Anthropology 3Q03; Health Sciences 3B04, 4C03, 4D03, 4E03, 3E03; Philosophy 3C03; Religious Studies 2A06, 2W03; Social Work 3C03, Sociology 3G03, 3H03, 3J03, 4P03; or other designated and approved Area courses.

**Level I:** 30 units

- R Arts and Science 1A06, 1B06, 1C06, 1D06, Gerontology 1A06.

**Level II:** 30 units

- R Arts and Science 2A06, 2B06; 6 units from: Arts and Science 2B06, Statistics 2D03, 2M03, either Computer Science 1MA3 or 1ZA3, Mathematics 1B03; Biology 1A06; Gerontology 2A03; Gerontology 2B03, or 3D03.

**Level III:** 30 units

- R Arts and Science 3A06, 3B06; 6 units upper-level Inquiry; Gerontology 3B03, 3C03, 6 units Gerontology Area courses.

**Level IV:** 30 units

- R Arts and Science 3D06; 6 units upper-level Inquiry; Gerontology 4A06; 12 units Gerontology Area courses.

**HONOURS ARTS AND SCIENCE AND HISTORY**

**Continuation Beyond Level I:**

Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work including at least 7.0 in any Level I History course.

**Programme Notes:**

1. Completion of the History component of this combined programme requires a minimum of 3 units in each of the following six fields of History: European, Ancient, Asian, Canadian, British, and the Americas (excluding Canada). All Level I, II and III History courses may be towards this requirement. (See listing in the "Department of History" section of this calendar.) Students are permitted a maximum of 18 units of Area work in any one of the preceding fields.

2. No Level IV seminars may be taken before completion of 12 units of History beyond Level I.

**Area Courses:**

All Level II, III, IV History courses.

**Level I:** 30 units

- R Arts and Science 1A06, 1B06, 1C06, 1D06; 6 units of Level I History.

**Level II:** 30 units

- R Arts and Science 2A06, 2D06; 6 units from: Arts and Science 2B06, Statistics 2D03, 2M03, either Computer Science 1MA3 or 1ZA3, Mathematics 1B03; Biology 1A06; 6 units Level II History.

**Level III:** 30 units

- R Arts and Science 3A06, 3B06; 6 units upper-level Inquiry; 6 units Level II History; 6 units Level III History.

**Level IV:** 30 units

- R Arts and Science 3D06; 6 units upper-level Inquiry; 6 units Level III History; 6 units Level IV History approved as substitutes for Arts and Science 4A06/4C06.

**HONOURS ARTS AND SCIENCE AND MATHEMATICS**

**Continuation Beyond Level I:**

Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work including a weighted average of 7.0 in Arts and Science 1A06 or Mathematics 1A06, and Mathematics 1B03.

**Area Courses:**

All Level II, III, IV Mathematics and Statistics courses.

**Level I:** 30-33 units

- R Arts and Science 1A06, 1B06, 1C06, 1D06; Mathematics 1B03; Biology 1A06 (may be taken in Level II).
- E 3 units, if Biology 1A06 not taken in Level I.

**Level II:** 33-36 units

- R Arts and Science 2A06, 2D06; Statistics 2D03 or 2M03 or Arts and Science 2B06 if Biology 1A06 completed in Level I; Mathematics 2A06, 2B06, 2F03; Biology 1A06 (if not completed in Level I).

**Level III:** 35-36 units

- R Arts and Science 3A06, 3B06; 6 units upper-level Inquiry; Mathematics 3A06, 3E03, 3E03, and 3 to 6 units from 2C03, 3B03, 3F03, 3G03, 3H03, 3L06, 3P03, 3Q03, 3R03 Statistics 3D06.

**Level IV:** 30-36 units

- R Arts and Science 3D06; 6 units upper-level Inquiry; one of Arts and Science 4A05 or 4C06; one of Mathematics 2C05, 2B05, 2F03, 3G03, 3H03, 3L06, 3P03, 3Q03, and 9 to 12 additional units of Mathematics or Statistics from Mathematics 4A06, 4B06, 4C06, 4Q03, 4K03, 4Q03, 4R03, 4S03, 4V06, Statistics 4M03.

**HONOURS ARTS AND SCIENCE AND PHILOSOPHY**

**Continuation Beyond Level I:**

Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 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 6 units of work acceptable to the Department of Philosophy.
Programme Note:
Philosophy 2C06 will be included in calculating the Graduation Average.

Area Courses:
All Level II, III, IV Philosophy courses.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Biology 1A06.

Level II: 30 units
R Arts and Science 2A06, 2D06; 6 units from: Arts and Science 2R06, Statistics 2D03, 2M03, either Computer Science 1M03 or 12A3, Mathematics 1B03; Philosophy 2A06; 6 units Level III or IV Philosophy.

Level III: 30 units
R Arts and Science 3A06, 3B06; 6 units upper-level Inquiry; Philosophy 2C06; 6 units Level III or IV Philosophy.

Level IV: 30 units
R Arts and Science 3D06; 6 units upper-level Inquiry; Philosophy 3W03 and 4W03, or 4Z06; 6 units Level III or IV Philosophy.

HONOURS ARTS AND SCIENCE AND PHYSICS

Admission:
Students must achieve a Level I standing of at least 7.0 in the best 80% of the 33 units of Level I work, and at least a 7.0 in Arts and Science 1D06 or Mathematics 1A06.

Programme Note:
Continuation in the programme beyond Level II requires at least 7.0 in Physics 1A06 or 1B06.

Area Courses:
All Level II, III, IV Physics courses and Mathematics 2A06, 2C03, 2S03, 3C03, 3D03.

Level I: 33 units
R Arts and Science 1A06, 1B06, 1C06; Arts and Science 1D06 or Mathematics 1A06; Physics 1A06 or 1B06, or Biology 1A06; Mathematics 1B03.

Level II: 30-33 units
R Arts and Science 2A06, 6 units upper-level Inquiry; Biology 1A06, or Physics 1A06 or 1B06, whichever has not been completed in Level I; Chemistry 1A06; Mathematics 2A06 or 2Q03 and Mathematics 2C03 or 2D03.

Level III: 30 units
R Arts and Science 3B06, and either 3A06 or 3D06; Physics 2B06, 2C03, 2D03, 2H03; Computer Science 1MA3.

Level IV: 29 units
R Arts and Science 3A06 or 3D06 (whichever not completed in Level III); Physics 3H04, 3K04, 3M03, 3MM3 and 3N03; Mathematics 3C03, 3D03.

Level V: 32 units
R Arts and Science 4C06; 6 units upper-level Inquiry; Physics 4B04, 4F03, 4J04; 9 units Level III or IV Physics excluding Physics 4Q04.

HONOURS ARTS AND SCIENCE AND POLITICAL SCIENCE

Admission:
Admission requires a Level II Cumulative Area Average of at least 7.0, with a grade of at least B – in 6 units of Political Science courses.

Programme Notes:
1. Political Science 2F06 and 2O06 will be included in calculating the Graduation Average if taken after Level II. If both 2F06 and 2O06 are taken together in Level II, students may have difficulty with prerequisites in Level III.
2. The second year Arts and Science mathematics requirements may be fulfilled by Political Science 2F06.

Area Courses:
All Level II, III, IV Political Science courses.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Biology 1A06.

Level II: 30 units
R Arts and Science 2A06, 2D06; Political Science 2F06 (or Arts and Science 2R06); 12 units Level II or III Political Science.

Level III: 30 units
R Arts and Science 3A06, 3B06; 6 units upper-level Inquiry; Political Science 2006; 6 units Level III Political Science.

Level IV: 30 units
R Arts and Science 3D06; 6 units upper-level Inquiry; 6 units Level III/IV Political Science; 6 units Level IV Political Science approved to replace Arts and Science 4A06 or 4C06.

E. 6 units.

HONOURS ARTS AND SCIENCE AND PSYCHOLOGY

Continuation Beyond Level I:
Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work including at least B in Psychology 1A06.

Programme Notes:
1. Students must meet a laboratory requirement by completing one of Psychology 3C06, 3E03, 3L03 (formerly 2U03), 3Q03, 3S03, 3V03, 4G03, 4Q03.
2. Arts and Science 2R06 or Psychology 2R03 and 2R83 will be included in the Graduation Average if taken after Level II.

Area Courses:
Psychology 2E03, 2H03, 2R03, 2R83, 2T03 and all Level III and IV Psychology courses.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Psychology 1A06.

Level II: 30 units
R Arts and Science 2A06, 2D06; Biology 1A06; Psychology 2R03 and 2R83 (or Arts and Science 2R06); 6 units from: Psychology 2E03, 2H03, 2T03.

Level III: 30 units
R Arts and Science 3A06, 3B06; 6 units upper-level Inquiry; 3 units from: Psychology 2E03, 2H03, 2T03 (whichever not taken in Level II); 9 units Level III Psychology Area courses.

Level IV: 30 units
R Arts and Science 3D06; 6 units upper-level Inquiry; 6 units Level III or IV Psychology Area courses; Psychology 4D06 or 6 units Level IV Psychology Area courses approved as substitutes for Arts and Science 4A06 or 4C06.

E. 6 units.

HONOURS ARTS AND SCIENCE AND RELIGIOUS STUDIES

Admission:
Level I Standing of at least 7.0 in Arts and Science and at least 7.0 in Arts and Science 1A06.

Programme Note:
1. The computation of the Graduation Average will include all Level II, III and IV Religious Studies courses taken.

Area Courses:
All Level II, III, and IV Religious Studies courses or approved substitutes.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Biology 1A06.

Level II: 30 units
R Arts and Science 2A06, 2D06; 6 units from: Arts and Science 2R06, Statistics 2D03, 2M03, either Computer Science 1M03 or 12A3, Math 1B03; 6 units from Religious Studies 2D06, 2E06, 2FF6, 2I13, 2J13, 2K03, 2R03, 2W06, 2S06; and 6 units from Religious Studies 2J06, 2M06, 2TT3, 3E03, 3H03, 3I03, 3U03, 3U13.

Level III: 30 units
R Arts and Science 3A06, 3B06; 6 units upper-level Inquiry; Religious Studies 3F03; 9 units Level III Religious Studies courses.

Level IV: 30 units
R Arts and Science 3D06; 6 units upper-level Inquiry; Religious Studies 4A06 and 4J06 (one of which will replace Arts and Science 4A06, 4C06.)

E. 6 units.

HONOURS ARTS AND SCIENCE AND SOCIOLOGY

Admission:
Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work; and at least 7.0 in Sociology 1A06.

Area Courses:
All Level II, III, and IV Sociology courses.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Sociology 1A06.

Level II: 30 units
R Arts and Science 2A06, 2D06, Biology 1A06; Sociology 2S06, 6 units Sociology.

Level III: 30 units
R Arts and Science 2R06, 3B06; 6 units upper-level Inquiry; Sociology 3106; 3 units from: Sociology 3A03, 3P03, 3P33; 3 units from: Sociology 3O03, 3W03.

Level IV: 30 units
R Arts and Science 3A06, 3D06; 6 units upper-level Inquiry; 6 units Level IV Sociology; Sociology 4M03 and 4N03 or 4MM6 to replace Arts and Science 4A06, 4C06.

HONOURS ARTS AND SCIENCE AND STATISTICS

Admission:
Students must achieve a Level I standing of at least 7.0 in the best 80% of the 30 units of Level I work, and at least 7.0 in Arts and Science 1D06 and Mathematics 1B03.

Area Courses:
Computer Science 2MC3, 2MD3, 2ME3, 2SB3, 3IA3, 3SC3; Mathematics 2A06, 2B06, 2C03, 2E03, 3A06, 3E03, 3E3, 3F03, 3FF3, 3Q03, 3R03, 3S03, 3T03, 3W03, 3X03, 4A06, 4C06, 4G03, 4J03, 4K03, 4Q03, 4Q3, 4R3, 4W03, 4X03, 4Y03; Mathematics 3006, 3Q03, 3R03, 3S03, 3T03, 3U03, 3V03, 3W03, 3X03, 3Y03, 4A06, 4C06, 4G03, 4.103, 4K03, 4Q03, 4QQ3, 4RR3, 4W03, Statistics 2003, 2M03 and all Level III and IV Statistics courses.

Level I: 30 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Mathematics 1B03.
E 3 units. Computer Science 1ZA3 is suggested.

Level II: 30 units
R Arts and Science 2A06, 2D06, Biology 1A06; Mathematics 2A06, Statistics 2D03 and 2M03.

Level III: 30 units
R Arts and Science 3A06, 3B06; 6 units upper-level Inquiry; Statistics 3D06, Mathematics 3G06.

Level IV: 30 units
R Arts and Science 3D06; 6 units upper-level Inquiry; Arts and Science 4A06 or 4C06; Statistics 3E03, 3S03; Mathematics 3T03, and 3 units of Level IV Statistics.

HONOURS ARTS AND SCIENCE AND SOCIAL WORK (B.ARTS SC/BSW)

Admission:
Completion of Level I, including Psychology 1A06 and Sociology 1A06, with a Level I standing of 7.0. 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 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 Cumulative Area average of at least 6.0 in Social Work courses at each review; students must maintain an Arts and Science Level I standing of 7.0 and a CAA of at least 7.0 at the end of Level II and beyond in order to continue in the programme.

Programme Notes:
1. Courses in Social Work are divided into 3 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.

Area Courses:
All Social Work courses (See Programme Notes in School of Social Work.)

Level I: 36 units
R Arts and Science 1A06, 1B06, 1C06, 1D06; Psychology 1A06; Sociology 1A06.

Level II: 36 units
R Arts and Science 2A06, 2D06; Biology 1A06; Psychology 2A03; Social Work 2B06, 2C03, 2D03, 2E03.

Level III: 36 units
R Arts and Science 3B06, 6 units from Arts and Science 3R06, Statistics 2D03, 2M03, either Computer Science 1MA3 or 1ZA3, Math 1B03; Social Work 3D06, 3D3, and 3N03 or 3R03; 3 units from Social Work practice courses, and 6 units from Social Work policy courses.
E 3 units.

Level IV: 36 units
R 6 units upper-level Inquiry; and Arts and Science 3A06 or 3D06; Social Work 4D06, 4D3, and one of Social Work 4Q03, 4X03 or 4Y03; 3 units from Social Work practice courses, and 6 units from Social Work policy courses.
Faculty of Business

W.G. Truscott/B.Sc., B.B.A., M.B.A., P. Eng., Dean of Business
N.C. Agarwa/B.A., M.A., Ph.D., Associate Dean of Business (Academic)
M.W.L. Char/B.Sc., M.A., Ph.D., Associate Dean of Business (External Relations)
C. Bentzen-Bikusa/B.A., M.A., Administrator, Undergraduate Programmes
B. Pegg, Undergraduate Student Advisor

The Faculty 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 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. This programme combines extensive amounts of work in both Commerce and Economics. The Commerce programme, which leads to the Bachelor of Commerce (B.Com.) degree, contains the essential grounding in business subjects and promotes the broadening of horizons through studies in Social Sciences, Humanities and Science. These three programmes are referred to collectively as the Commerce Programmes.

In addition, the Faculty of Business and 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 Faculty 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, Faculty of Business.

A student must gain admission to Commerce II in order to proceed towards the Honours B.Com., Honours B.Com. & Arts, 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 coursework 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.

PART-TIME STUDIES

The Commerce programmes may be taken through part-time studies. A part-time student is permitted to take a maximum of 18 units in any Winter Session (September to April) and a maximum of 12 units in any Summer term (May to August). 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 three 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) excluding *Commerce 4AC3, 4AH3, 4A43, 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. (see Admission Requirements I: Continuing and Post-Degree Students)

**These courses are available as CCE 500, CCE 503, 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 THE M.B.A. AND PROFESSIONAL DESIGNATIONS

If appropriate academic standing has been attained in undergraduate courses, credit may be given toward the Master of Business Administration degree. This could reduce the M.B.A. programme to one additional academic year beyond the Honours B.Com., Honours B.Com. & Arts, B.Com. and B.Eng.Mgt. degrees.

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 Canada and the Certified General Accountants Association of Ontario, respectively, while the designation C.P.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, Faculty 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 Faculty Regulations:

CUMULATIVE COMMERCE AVERAGE

The Cumulative Area Average for the Commerce programmes is termed the Cumulative Commerce Average (CCA) and is the weighted average of grades in all courses, including non-Commerce courses, attempted subsequent to admission to Commerce Level II or readmission to the Commerce programme, excepting those courses designated at registration as Extra.

CONTINUATION IN PROGRAMME

Continuation in Levels III and IV: The Cumulative Commerce Average for the University, shall be subject to the following Faculty Regulations:

CONTINUATION IN PROGRAMME

Continuation in Levels III and IV: The Cumulative Commerce Average begins with grades attained in Level II.

A student who maintains a Cumulative Commerce Average of at least 7.0, with not more than 6 units of F grades, may continue in the Honours Commerce programme. A student who maintains a CCA of at least 7.0, with not more than 6 units of F grades, and maintains at least
a 7.0 cumulative weighted grade-point average in all Economics courses taken beyond Economics 1A06, may continue in the Honours Commerce and Economics programme. A student who maintains a CCA of at least 4.0, with no more than 6 units of F grades, may continue in the Commerce programme.

A student whose Cumulative Commerce Average is less than 4.0 or who has more than 6 units of F grades in the CCA may not continue in any of the Commerce programmes.

There is no probationary status in any of the Commerce programmes.

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 Faculty 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 Faculty of Business.

WORK LOAD

A full-time student must complete a 30-unit load in each Winter Session. Advance credit and credit earned during Summer Sessions may be used to reduce this load requirement. Such reductions will be applied as late as possible in a student’s programme. In any 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 Commerce Average under 9.0.

REPEATED COURSES

Any failed course (Fall or Winter) 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 CCA. Voluntary repetitions of non-Commerce courses in which passing grades have been previously attained are designated as Extra courses. (See Extra Courses below)

EXTRA COURSES

Courses in addition to those which constitute the student’s programme must be designated Extra at registration and the grades obtained in such courses affect neither eligibility for continuation in the programme nor graduation standing. In addition, the units are not included in those required for graduation. The designation Extra can be neither added nor removed retroactively. 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 6 units of work is incomplete. Work of the next higher Level may be undertaken only when necessary to fill a programme load.

RE-ADMISSION

A student in Level II, III or IV of a Commerce programme who becomes ineligible to continue in the Faculty may apply for re-admission to the Commerce programme in a subsequent calendar year.

Re-admission is not guaranteed.

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

A student who is re-admitted 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 re-admission 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 CCA begins anew at such re-admission.

PREREQUISITES FOR COMMERCE COURSES

Prerequisites for Commerce courses are specified in the course listing. A grade of at least D— must be attained to satisfy any course prerequisite.

COURSE CHANGES

It is the responsibility of the student to ensure that the programme of work undertaken meets the requirements for the degree. All course changes must be made through the Office of the Administrator, Undergraduate Programmes and will be subject to the deadline dates established by the University (see Sessional Dates section of this Calendar).

GRADUATION

The Graduation Average (GA) is the weighted average of all grades in courses taken for Levels III and IV of the programme, excluding Extra courses. A minimum GA of 4.0 is required for graduation from any of the Commerce programmes.

First-class standing requires at least a 9.5 GA.

Second-class standing requires at least a 7.0 GA.

Third-class standing is specified for students with a GA of less than 7.0.

FORMER COMMERCE STUDENTS

If you were previously registered in a 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 Faculty of Business-Continuing Students section of the calendar.

INQUIRIES RE: ACADEMIC REGULATIONS

A student seeking relief from the Faculty 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 (Kenneth Taylor Hall, Room 11B).

Programmes

The chart Structure of Programmes should be used in conjunction with the text description of the programmes that follow.

BUSINESS I: 30 units

R Computer Science 1B03; Economics 1A06; Mathematics 1L03; Mathematics 1M03 or 1A06; Psychology 1A06 or Sociology 1A06.

E Electives to make a total of 30 units (students without OAC Calculus must elect Mathematics 1K03).

COMMERCE

Admission:

Admission to Commerce Level II is by selection on the basis of the overall weighted average attained in the work designated for Level I.

To be considered for Commerce Level II, a Business I student normally must have attained a weighted average of at least 5.0* on the first attempt in the 30 units of Level I with no F grades. In addition, the Business I student normally must have completed the full load (30 units) in a single Winter Session (September to April).

*(NOTE: Last year, a 6.1 average was required).

Enrolment in Commerce Level II is limited to a maximum of 300 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.
Admission to any of the Commerce programmes beyond Commerce Level II is not possible.

**Level II: 30 units**
- R Commerce 2AA3, 2BA3, 2FA3, 2MA3, 2QA3; Economics 2G03 and Economics 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 Economics 2G03 and 2G03, and Economics 2H03 and 2H03. A student who wishes to proceed in the Honours Commerce and Economics programme must take Economics 2G03 and 2G03, and 2H03 and 2H03.

**E Electives from non-Commerce courses to make a total of 30 units.**

- (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 Mathematics 2L03 as preparation for Economics 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**
- R Commerce 3AA3, 3FA3, 3MA3, 3QA3, 3QB3; Commerce 3BA3 or 3BB3; six additional units from among Commerce 3AB3, 3BA3, 3BB3, 3FB3, 3MB3.

**E 6 units of electives from non-Commerce courses.**

**Level IV: 30 units**
- R 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.)

**E 6 or 9 units of electives from non-Commerce courses beyond Level II.**

**Group 1 (Accounting)**
- Commerce 3AB3, 4AA3, 4AB3, 4AC3, 4AD3, 4AE3, 4AF3, 4AG3*, 4AH3*, 4AI3*


**Group 2 (Human Resources and 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 and International Business)**
- Commerce 4FB3, 4PC3, 4PD3, 4PE3.

**Group 6 (Production and Management Science)**
- Commerce 4QB3, 4QC3.

**HONOURS COMMERCE AND ECONOMICS (Honours B.Com. & Arts)**
Requirements for continuation towards the Honours B.Com. & Arts degree are specified above in Academic Regulations.

**Level III: 30 units**
- R Commerce 3AA3, 3FA3, 3MA3, 3QA3, 3QB3; Commerce 3BA3 or 3BB3; Economics 3A03, 3AA3; six additional units in Economics.

**Level IV: 30 units**
- R Commerce 4PA3, 4QA3; six additional units in Commerce; twelve units in economics including one of Economics 2K03, 3K03 or 3R03 if not taken previously.

**E 6 units of 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**
- R Commerce 3AA3, 3FA3, 3MA3, 3QA3, 3QB3; Commerce 3BA3 or 3BB3.

**E 12 units of electives from non-Commerce courses.**

**Level IV: 30 units**
- R Commerce 4PA3, 4QA3; 9 additional units from Groups 1 to 6 above. No more than 6 of these 9 additional units can be taken from any one Group.

**E 15 units of electives from non-Commerce courses beyond Level I.**

See "Structure of Programmes" Chart on next page.
### Structure of Programmes

The Faculty of Business offers three undergraduate programmes each spanning four levels of study.

<table>
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<tr>
<th>Level</th>
<th>Required Courses</th>
<th>Electives</th>
<th>B. Commerce</th>
<th>Honours B. Commerce</th>
<th>Honours B. Commerce &amp; Arts (Economics)</th>
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<tr>
<td>Level I</td>
<td>Introductory courses in computer science, economics, mathematics and sociology or psychology</td>
<td>Humanities, Science and Social Sciences</td>
<td>21</td>
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<td>21</td>
</tr>
<tr>
<td>Level II</td>
<td>Commerce courses in accounting, finance, marketing, organisational behaviour, statistical analysis</td>
<td>Intermediate level courses in Economics</td>
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<td>15</td>
</tr>
<tr>
<td>Level III</td>
<td>Commerce courses in accounting, finance, marketing, managerial decision theory, information systems, and personnel or industrial relations</td>
<td>Non-Commerce courses offered in other Faculties</td>
<td>18</td>
<td>18</td>
<td>18</td>
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<tr>
<td>Level IV</td>
<td>Commerce courses in Business Policy and Production/ Operations</td>
<td>Non-Commerce electives</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Units Required for Graduation:**

- 120 units
- 120 units
- 120 units

* A unit represents one class hour per week per term.
Faculty of Engineering

G.R. Purdy/B.Sc., M.Sc., Ph.D., P.Eng., Dean of Engineering
M.A. Dohanis/B.Sc., M.A.Sc., Ph.D., P.Eng., Associate Dean of Engineering (Academic Programmes)
B.L. Allen/B.Sc., Ph.D., P.Eng., Associate Dean of Engineering (External Relations)
R.C. Hudspith/B.Eng., M.Eng., P.Eng., Director of Engineering I
J. Zywna, Undergraduate Student Advisor

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:

- Chemical Engineering and Society
- Civil 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 Faculty 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. Admission to the Programme is after Level I has been completed successfully. 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 two new programmes in Engineering and Society which will be examined at the next accreditation. Provincial Engineering Associations 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 Economics IAO6 as their elective in Level I. Students interested in one of the Engineering and Society programmes must choose the 6 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 Economics IAO6 for Engineering and Management programmes).
- A total of 21 units of complementary studies electives is required in all B.Eng programmes. Of these, 3 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 from an approved list, published each spring and available from his 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. With appropriate selection of these electives, students may obtain exemption from certain course requirements on subsequent admission to the MBA programme at McMaster University.

- **Engineering and Society Focus Electives** are courses offered by various departments throughout the university. These courses are selected in consultation with the Associate Dean of Engineering (Academic Programmes) office, 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 the 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 University Average (UA) is less than 4.0 is required to withdraw from Engineering.

**ADMISSION TO LEVEL II ENGINEERING PROGRAMMES**

Students who have completed Engineering I and passed the McMaster Test of Writing Competence will, insofar as is possible, be given a free choice of Level II programmes. However, there may be restrictions on enrolments in certain Level II programmes, and both the University Average at the completion of Engineering I, and the number of units attempted before such completion, may be used to determine individual student eligibility for such programmes. Students who achieve a University Average of 4.0 or greater, but have not satisfactorily completed all Engineering I work, may be admissible to a Level II programme, but may be precluded from taking Level II courses for which the missing work is prerequisite.

**CUMULATIVE ENGINEERING AVERAGE**

The Cumulative Average for Engineering programmes is termed the Cumulative Engineering Average (CEA), and is the weighted average of all courses attempted and repeated subsequent to admission to the first Engineering programme, at Level II or above, with the exception that the CEA begins anew at readmission after being ineligible to continue in a programme. Those courses required in Engineering I or designated as Extra are excluded from the CEA.

**CONTINUATION IN PROGRAMME**

A student who obtains a Cumulative Engineering Average of at least 4.0, with no F grades, may continue in an Engineering programme. A student whose Cumulative Engineering Average is at least 4.0 and includes an
F grade in the work of the most recent Reviewing period, and who has not previously been placed on probation, may, at the discretion of the Faculty and subject to the availability of space, continue on Programme Probation.

A student whose Cumulative Engineering Average is less than 4.0 and who has not been granted probation is ineligible to continue in Engineering.

THE MCMASTER TEST OF WRITING COMPETENCE

Students admitted to Engineering I on or after September 1986, must have passed the McMaster Test of Writing Competence before they will be permitted to register in any programme in the Faculty of Engineering other than Engineering I. Students accepted into an Engineering programme above Level I, who were not registered at McMaster University in the previous Session, must pass the Test within one year of that acceptance in order to be eligible to continue in that programme.

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

EXTRA COURSES

Courses in addition to those which constitute the degree programme in which the student is registered may be designated Extra at registration and the grades obtained in such courses will neither be included in the Cumulative Engineering Average nor the units in those required for graduation. The designation Extra cannot be removed retroactively.

LEVEL OF REGISTRATION

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

WINTER SESSION WORK LOAD

The Faculty of Engineering has set a minimum Winter Session work load 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 is ineligible to 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. The computation of the Cumulative Engineering Average begins anew at such readmission.

PROGRAMME CHANGES

It is the responsibility of the student to ensure that the programme of work undertaken meets the degree requirements for that programme. 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 of this Calendar).

GRADUATION

A minimum Graduation Average of 4.0 is required for Graduation from all B.Eng. and B.Eng.Mgt. programmes.

Honours standing at graduation will be granted to a student whose Graduation Average (GA) is based on all Level III, IV, and V courses (i.e. those labelled 3—, 4— or 5—) and not designated Extra, is at least 10.0. This same Graduation Average will be used to determine a Programme Standing for all students fulfilling the graduation requirements in May of each year.

Engineering I: 34 units

Programmes for the B.Eng. and B.Eng.Mgt. Degrees

ADMISSION:

Admission to Level II Engineering programmes is by selection but, as a minimum, requires completion of Engineering I with a University Average of at least 4.0. In addition, admission to any B.Eng.Mgt. programme is by written application and requires the completion of Economics 1A06 with a minimum grade of C. Admission to any B.Eng.Soc. programme requires the submission of a written application and an Engineering and Society Focus Electives form.

CERAMIC ENGINEERING (B.Eng.)

Admission:

See Admission described at the beginning of the programme listing.

Programme 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 Materials 4AO1, 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

R Chemistry 1E03; Engineering 1C04, 1D04; Mathematics 1H05, 1N06; Physics 1D03, 1E03.
E 6 units complementary studies elective.

Programme 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 Engineering and Management 4G01 and 5G01, the voluntary intensive courses offered in the month of May.

**Level II: 39 units**
- **Chemical Engineering and Management (B.Eng.Mgt.)**
  - Admission: See Admission described at the beginning of the programme listing.
  - Process Control: Chemical Engineering 4E03, Electrical Engineering 4CB3.
  - Polymers: Chemical Engineering 3Q03 and 4B03.
  - Environment: Biology 3E03, Chemical Engineering 4Z03, Engineering 4U03, Chemistry 2M05 (for management).
  - Biomedical: Biochemistry 2E03, Chemical Engineering 4T03, Engineering 4X03 or Engineering Physics 3X03.
  - Additional enrichment for all the themes may be possible through senior year thesis (CHE 4V04) or design project (CHE 4W04).

**Level III: 35 units**
- **Chemical Engineering and Management (B.Eng.Mgt.)**
  - Admission: See Admission described at the beginning of the programme listing.
  - Process Control: Chemical Engineering 2A04, 2C02, 2D04, 2F04, 2G02; Chemistry 2D03, 2M05; Mathematics 2M06; 6 units approved complementary studies electives.

**Level IV: 36 units**
- **Chemical Engineering and Management (B.Eng.Mgt.)**
  - Admission: See Admission described at the beginning of the programme listing.
  - Process Control: Chemical Engineering 4A01; 3 units of approved Level III or IV technical electives.

**Chemical Engineering and Society (B.Eng.Soc.)**

**Admission:**
- See Admission described at the beginning of the programme listing.
- Level II: 34 units (1992-93)
  - **Chemical Engineering 2A04, 2C02, 2D04, 2F04, 2G02; Chemistry 2D03, Engineering and Society 2X03 and 2Y03, Mathematics 2M06.
  - E. 3 units of Engineering And Society Focus Electives.
- Level III: 32 units (1993-94)
  - **Chemical Engineering 3D03, 3E03, 3L02, 3M04, 3Q04; Engineering 4B03; Engineering and Society 3X03, 3Y03; Statistics 3Y03.
  - E. 3 units of Engineering and Society Focus Electives.
- Level IV: 33 units (1994-95)
  - **Chemical Engineering 3G03, 3K04, 3P03, 4L02, 4M03; Engineering 4B03; Engineering and Society 3Z03, 4X03.
  - E. 3 units of Engineering and Society Focus Electives.
- Level V: 34 units (1996)
  - **Chemical Engineering 4102, 4N04, and 4W04 or 4Y04; three of Chemical Engineering 4B03, 4C03, 4D03, 4E03, 4K04, 4T03, 4Z03, Electrical Engineering 4CB3, Engineering 4U03, one of which must be Chemical Engineering 4B03 or Engineering 4U03; 3 units approved Level III or IV technical electives; 9 units of Engineering and Society Focus Electives.

**Civil Engineering (B.Eng.)**

**Admission:**
- See Admission described at the beginning of the programme listing.

**Programme 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
R Civil Engineering 2A02, 2C04, 2E03, 2F03, 2J03, 2J03, 2K03; Engineering 2C03, 2P04, 2Q04; Mathematics 2M06.

Level III: 36 units
R Civil Engineering 3B03, 3D03, 3G03, 3J04, 3K03, 3M04, 3Q03, 3S03; Engineering 3P03; Mathematics 3J04; 3 units approved complementary studies electives.

Level IV: 34-36 units
R Civil Engineering 4B03; Engineering 4B03, one of Engineering 4A03, 4H03 or equivalent; 22 to 24 units chosen from Level IV Civil Engineering courses.
E 3 units complementary studies elective.

CIVIL ENGINEERING AND COMPUTER SYSTEMS
(B.Eng.C.S.)

Admission:
See Admission described at the beginning of the programme listing.

Programme 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: 37 units
R Computer Science 1M03, 2M03; Civil Engineering 2A02, 2C04, 2E03, 2J03, 2J03, 2K03; Engineering 2P04; 3 units approved complementary studies electives; Mathematics 2M06.

Level III: 35 units (1991-92 only)
R Computer Science 2M03, 2M03; Civil Engineering 2E03, 2F03, 2J03, 3G03, 3M04; Engineering 2C03, 3P03; Mathematics 3J04, 3Q03; 3 units complementary studies.

Level IV: 35 units (1991-92 only)
R Computer Science 3E03, 3M03, 3S03, 4B03; Civil Engineering 3B03, 3D03, 3J04, 3Q04, 3S03; Civil Engineering 4B03; one of Engineering 4A03, 4H03 or equivalent.

Level V: 34-36 units (1991-92 only)
R Computer Science 4E03, 4M05; 19 to 21 units from Civil Engineering Level IV courses; Engineering 4B03, 4C03.

CIVIL ENGINEERING AND MANAGEMENT (B.Eng.Mgt.)

Admission:
See Admission described at the beginning of the programme listing.

Programme 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 Engineering and Management 4G01 and 5G01, the voluntary intensive courses offered in the month of May.

Level II: 38 units
R Civil Engineering 2A02, 2C04, 2J03, 2J03, 2K03; Commerce 2AA3, 2MA3; Economics 2G03, 2H03; Engineering 2P04; Engineering and Management 2A01; Mathematics 2M06.

Level III: 37 units
R Civil Engineering 2E03, 2F03, 3M04, 3Q03; Commerce 2B03, 2FA3, 3AA3; Engineering 2C03, 2P04; Engineering and Management 3A01; Mathematics 3J04; Statistics 3Y03.

Level IV: 38 units
R Civil Engineering 3B03, 3D03, 3G03, 3J04, 3K03, 3S03, 4B03; Commerce 3F03, 3FA3 or 3B03, 3MA3, 4QA3; Engineering 3P03; Engineering and Management 4A01.

Level V: 37-38 units
R 21 to 22 units of Level IV Civil Engineering; Commerce 4PA3; Engineering and Management 5A01, 5B03.
E 6 units Commerce electives selected from Level III and IV Commerce courses; one of Engineering 4A03, 4H03 or equivalent.

CIVIL ENGINEERING AND SOCIETY (B.Eng.Soc.)

Admission:
See Admission described at the beginning of the programme listing.

Level II: 34 units (1992-93)
R Civil Engineering 2A02, 2C04, 2J03, 2J03, 2K03; Engineering 2P04; Mathematics 2M06; Engineering and Society 2X03, 2Y03.
E 3 units of Engineering and Society Focus Elective.

Level III: 34 units (1993-94)
R Civil Engineering 2E03, 2F03, 3Q03; Engineering 2C03, 2Q04; Mathematics 3J04; Engineering and Society 3X03, 3Y03.
E 3 units of Engineering and Society Focus Elective.

Level IV: 37 units (1994-95)
R Civil Engineering 3B03, 3D03, 3J04, 3K03, 3S03, 4B03; Engineering 3P03; Engineering and Society 3X03, 4X03.
E 3 units of Engineering and Society Focus Elective; 3 units of Level IV Civil Engineering courses.

Level V: 33 units (1995-96)
R Engineering 4B03; Engineering and Society 4Z03.
E 9 units of Engineering and Society Focus Elective; 18 units chosen from Level IV Civil Engineering courses; these courses should be selected to complete the chosen focus.

COMPUTER ENGINEERING (B.Eng.)

Admission:
See Admission described at the beginning of the programme listing.

Level II: 35 units
R Computer Engineering 2HA3, 2KA3, 2VA3; Electrical Engineering 2B03, 2DA3, 2FA3; Engineering 2003; Mathematics 2P04, 2Q04; 6 units approved complementary studies electives.

Level III: 36 units
R Computer Engineering 3HB3, 3KB3, 3VA3; Electrical Engineering 3AA3, 3BB3, 3CA3, 3DB3, 3FB3, 3FC3; Mathematics 3K03; Statistics 3X03.

Level IV: 34 units
R Computer Engineering 4MA3, 4HC3, 4HD3, 4HE3, 4JA4; Electrical Engineering 4QA3; Engineering 4B03, and 4A03 or 4H03 or equivalent.
E 9 units from Computer Science 3MB3, 3S03, 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 described at the beginning of the programme listing.

Programme Notes:
1. Attention is drawn to Engineering and Management 4G01 and 5G01, the voluntary intensive courses offered in the month of May.
2. This programme is in transition to a revised curriculum. Details on the complete revision may be obtained from the Department of Electrical and Computer Engineering.

Level II: 36 units
R Commerce 2AA3, 2MA3; Computer Engineering 2HA3, 2KA3; Economics 2C03, 2H03; Electrical Engineering 2B03, 2DA3, 2FA3; Engineering and Management 2A01; Mathematics 2P04, 2Q04.

Level III: 37 units
R Commerce 2B03, 2FA3, 3AA3; Computer Engineering 2KA3, 3H03, 3S03; Electrical Engineering 3BB3; Engineering 2003; Engineering and Management 3A01; Mathematics 3K03, Statistics 3X03, 3Y03.

Level IV: 37 units
R Commerce 3FA3, 3BA3 or 3BB3, 3MA3; Computer Engineering 3KB3, 4HC3, 4HD3; Electrical Engineering 3AA3, 3CA3, 3DB3, 3FB3, 3FC3; Engineering and Management 4A01.
E 3 units approved technical electives.
FACULTY OF ENGINEERING

Level V: 35 units (1991-92 only)
R Commerce 3MA3, 4PA3, 4QA3; Computer Engineering 4MA3, 4MD3, 4HE3, 4JA4; Engineering and Management 5A01, 5B03.
E 6 units Commerce electives selected from Level III and IV Commerce courses; 3 units approved electives from Computer Science 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 described at the beginning of the programme listing.

Level II: 35 units
R Computer Engineering 2HA3, 2KA3; Electrical Engineering 2BA3, 2DA3, 2FA3; Engineering 2003, 2503; Mathematics 2P04, 2Q04.
E 6 units approved complementary studies elective.

Level III: 36 units
R Computer Engineering 3HB3, 3KB3; Electrical Engineering 3AA3, 3BB3, 3CA3, 3DB3, 3FB3, 3FC3, 3NA3, 3SA3; Mathematics 3K03, Statistics 3X03.

Level IV: 34 units
R Electrical Engineering 4JA3, 4QA3; Engineering 4A03 or 4H03 or equivalent, 4B03; 12 units of Electrical Engineering Level IV or Computer Engineering Level III or IV courses.
E 9 units Level III or IV approved technical electives.

ELECTRICAL ENGINEERING AND MANAGEMENT (B.Eng.Mgt.)
Admission:
See Admission described at the beginning of the programme listing.

Programme Note:
1. Attention is drawn to Engineering and Management 4G01 and 5G01, the voluntary intensive courses offered in the month of May.
2. This programme is in transition to a revised curriculum. Details on the complete revision may be obtained from the Department of Electrical and Computer Engineering.

Level II: 36 units
R Commerce 2A03, 2MA3; Computer Engineering 2HA3, 2KA3; Economics 2G03, 2H03; Electrical Engineering 2BA3, 2DA3, 2FA3; Engineering and Management 2A01; Mathematics 2P04, 2Q04.

Level III: 37 units
R Commerce 2BA3, 2FA3, 3MA3; Computer Engineering 2KB3; Electrical Engineering 3CA3, 3FB3, 3FC3; Engineering 2003, 2503; Engineering and Management 3A01; Mathematics 3K03; Statistics 3X03, 3Y03.

Level IV: 34 units (1991-92 only)
R Commerce 3BA3 or 3BB3, 3FA3, 3MA3; Computer Engineering 3KB3; Electrical Engineering 3AA3, 3BB3, 3CA3, 3SA3; Engineering 4A03 or 4H03 or equivalent; Engineering and Management 4A01; Statistics 3Y03.
E 3 units approved Level III or IV technical electives.

Level V: 35 units (1991-92 only)
R Commerce 3MA3, 4PA3, 4QA3; Electrical Engineering 4JA4; Engineering and Management 5A01, 5B03.
E 6 units Commerce electives selected from Level III and IV Commerce courses; 12 units Level III or IV approved technical electives, of which at least 9 units must be selected from Electrical Engineering Level IV or Computer Engineering Level III or IV courses.

ENGINEERING PHYSICS (B.Eng.)
Admission:
See Admission described at the beginning of the programme listing.

Programme Note:
The following areas and courses are suggested as technical electives for Level IV:

Computer Systems
Physics 4D06.
Lasers and Electro-Optics
Engineering Physics 4G03, 4K03, 4S04.
Nuclear Engineering
Engineering Physics 4D03, 4L03, 4N03.
Solid State Electronics
Engineering Physics 4E03, 4F03, 4Z03.

Level II: 38 units
R Computer Engineering 2HA3; Engineering 2F03, 2P04, 2V04; Engineering Physics 2A03, 2E04; Mathematics 2P04, 2Q04; Physics 2D03; 6 units approved English literature.

Level III: 37 units
R Engineering 3D03, 3E03, 3F03, 3O3, 3W04; Mathematics 3C03, 3D03, 4Q03; Physics 3B06, 3M03.
E Complementary studies elective (which may be deferred to Level IV), or approved technical electives to make a total of 37 units.

Level IV: 36-38 units
R Engineering 4A03 or 4H03 or equivalent, 4B03; Engineering Physics 4A04, 4C02, 4W04; Physics 4B04; at least 10 units selected from Engineering Physics 4D03, 4E03, 4F03, 4G03, 4N03, 4S04, Physics 4D06.
E 3 units complementary studies elective (if not completed in Level III); approved Level III or IV technical electives to make a total of 36 to 38 units.

ENGINEERING PHYSICS AND MANAGEMENT (B.Eng.Mgt.)
Admission:
See Admission described at the beginning of the programme listing.

Programme Note:
Attention is drawn to Engineering and Management 4G01 and 5G01, the voluntary intensive courses offered in the month of May.

Level II: 39 units
R Commerce 2A03, 2MA3; Economics 2G03, 2H03; Engineering 2003, 2P04, 2V04; Engineering and Management 2A01; Engineering Physics 2A03, 2E04; Mathematics 2P04, 2Q04.

Level III: 37 units
R Commerce 2HA3, 2FA3, 3AA3; Computer Engineering 2HA3; Engineering and Management 3A01; Engineering Physics 3E03, 3F03; Mathematics 3C03, 3D03; Physics 2D03, 3B06; Statistics 3Y03.

Level IV: 37 units
R Commerce 3FA, 3MA3, 4QA3, and 3BA3 or 3BB3; Engineering and Management 4A01; Engineering Physics 3D03, 3O3, 3W04, 4U04; Mathematics 4Q03; Physics 3M03, 4B04.

Level V: 36 units
R Engineering 4PA3; Engineering and Management 5A01, 5B03; Engineering Physics 4A04, 4C02; Physics 4B04; at least 10 units selected from Engineering Physics 4D03, 4E03, 4F03, 4G03, 4N03, 4S04, Physics 4D06.
E 6 units Commerce electives selected from Level III and IV Commerce courses; 3 units approved Level III or IV technical elective.

MANUFACTURING ENGINEERING (B.Eng.)
Admission:
See Admission described at the beginning of the programme listing.

Level II: 37 units
R Engineering 2M04, 2C03, 2P04, 2Q04, 2W04; Manufacturing Engineering 2C03; Mathematics 2M06; Mechanical Engineering 2A03; 6 units approved English literature.

Level III: 37 units
R Engineering 3M03, 3N03, 3R03; Manufacturing Engineering 3M02; Mathematics 3V06; Mechanical Engineering 3A03, 3C03, 3E04, 3O04, 3R03, 4D03.

Level IV: 39 units
R Engineering 4A03 or 4H03 or equivalent, 4B03, 4C03, 4J03; Manufacturing Engineering 4A03, 4M04, 4P02; Mechanical Engineering 4C03, 4K03, 4Q03, 4R03, 4Z03.
E 3 units complementary studies elective.

MATERIALS ENGINEERING (B.Eng.)
Admission:
See Admission described at the beginning of the programme listings.
Programme Notes:

1. This programme is designed to permit choices of electives in Level IV which will allow study in depth 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 Materials 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

R Chemistry 2P06; Engineering 2M04, 2P04; Materials 2C04, 2G04, 2H02; Mathematics 2P04 and 2Q04 or Mathematics 2M06; 6 units approved complementary studies elective (see Note 4, above).

Level III: 34 units

R Chemistry 2W03; Engineering 3Q03; Materials 3B04, 3D06, 3E06; Mathematics 3C03 and 3D03, or 3V06; Chemistry 3B03 and 3 units approved technical elective, or Physics 3M03, 3M03.

Level IV: 36 units

R Engineering 4A03 or 4H03 or equivalent, 4B03; Materials 3P03, 4A01, 4E03, 4K04, 4L04.

E 3 units approved complementary studies electives (see Note 4, above); 12 units approved Level III or IV technical electives.

MATERIALS ENGINEERING AND MANAGEMENT

(B.Eng.Mgt.)

Admission:

See Admission described at the beginning of the programme listing.

Programme 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 Engineering and Management 4G01 and 5G01, the voluntary intensive courses offered in the month of May.

Level II: 35 - 37 units

R Chemistry 2P06; Commerce 2AA3, 2MA3; Economics 2G03, 2H03; Engineering and Management 2A01; Mathematics 2P04 and 2Q04 or Mathematics 2M06; Materials 2C04, 2G04, 2H02.

Level III: 37 units

R Commerce 2B03, 2FA3; Engineering and Management 3A01; Engineering 2M04, 2P04, 3Q03; Materials 3B04, 3D06; Mathematics 3C03 and 3D03, or 3V06; Statistics 3Y03.

Level IV: 37 units

R Chemistry 2W03; Chemistry 3B03 and 3 units approved technical elective or Physics 3M03, 3M03; Commerce 3AA3, 3B03 or 3BB3, 3FA3, 3MA3; Engineering and Management 4A01; Materials 3E06, 3P03; 6 units approved complementary studies elective (see Note 1, above).

Level V: 36 units

R Commerce 4PA3, 4QA3; Engineering 4A03 or 4H03 or equivalent; Engineering and Management 5A01, 5B03; Materials 4E03, 4K04, 4L04.

E 6 units of Commerce selected from Level III and IV Commerce courses; 6 units approved technical elective.

MECHANICAL ENGINEERING (B.Eng.)

Admission:

See Admission described at the beginning of the programme listing.

Level II: 37 units

R Engineering 2M04, 2P04, 2Q04, 2W04; Mathematics 2M06; Mechanical Engineering 2A03, 2B03, 2C03; 6 units approved English literature.

Level III: 37 units

R Engineering 2O03, 3M03, 3N03; Mathematics 3V06; Mechanical Engineering 3A03, 3C03, 3D03, 3E04, 3M02, 3O04, 3P03.

Level IV: 36 units

R Mechanical Engineering 4G03, 4M04, 4P02, 4Q03, 4R03, 4S03; Engineering 3R03, 4A03 or 4H03 or equivalent, 4B03.

E 3 units complementary studies elective; two of the following courses: Chemical Engineering 4T03, Civil Engineering 3K03, Electrical Engineering 3SA3, Engineering 3P03, 3Q03, 4A03, 4X03, Engineering Physics 4D03, 3X03, Mechanical Engineering 4A03, 4C03, 4D03, 4F03, 4G03, 4H03, 4I03, 4J03, 4K03, 4L03, 4M03, 4N03, 4O03, 4P03, 4Q03, 4R03, 4S03, 4T03, 4U03, 4V03, 4W03, 4X03, 4Y03, 4Z03. Manufacturing Engineering 4A03 may be substituted, with the permission of the Department.

E 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 described at the beginning of the programme listing.

Programme Note:

Attention is drawn to Engineering and Management 4G01 and 5G01, the voluntary intensive courses offered in the month of May.

Level II: 37 units

R Commerce 2AA3, 2BA3, 2MA3; Economics 2G03, 2H03; Engineering 2M04, 2P04, 2W04; Mathematics 2M06; Mechanical Engineering 2A03, and Engineering and Management 2A01.

Level III: 38 units

R Commerce 2FA3, 3A03, 3B03, and 3BB3; Engineering and Management 4A01; Mechanical Engineering 3A03, 3C03, 3E04, 4P02, 4R03, 4S03; Statistics 3Y03.

Level IV: 34 units (1991-92 only)

R Commerce 2MA3, 3FA3, and 3B03 or 3BB3; Engineering and Management 4A01; Mechanical Engineering 3A03, 3C03, 3E04, 4P02, 4R03, 4S03; Statistics 3Y03.

E 3 units Level III or IV approved technical electives.

Level V: 38 units (1991-92 only)

R Commerce 3MA3, 4PA3; Engineering 3M03; Engineering and Management 5A01, 5B03; Mechanical Engineering 4C03, 4D03, 4G03, 4Q03; Engineering 4A03 or 4H03 or equivalent.

E 6 units Commerce electives selected from Level III and IV Commerce courses; one of the following courses: Chemical Engineering 4T03, Civil Engineering 3B03, Electrical Engineering 3SA3, Engineering 3P03, 3Q03, 3R03, 4I03, 4X03, Engineering Physics 3X03, 4D03, Mechanical Engineering 4A03, 4D03, 4F03, 4K03, 4L03, 4T03, 4U03, 4V03, 4X03, 4Y03, 4Z03.

METALLURGICAL ENGINEERING (B.Eng.)

Admission:

See Admission described at the beginning of the programme listing.

Programme 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.

2. Attention is drawn to Materials 4A01, which requires a report based on experience in the summer before entering Level IV.
FACULTY OF ENGINEERING

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
R Chemistry 2P06; Engineering 2M04, 2P04; Materials 2C04, 2G04, 2H02; Mathematics 2M06; 6 units approved complementary studies elective (see Note 3, above).

Level III: 35 units
R Chemical Engineering 3004 or Mechanical Engineering 3004; Chemistry 2W03; Materials 3B04, 3D06, 3E06, 3P03; Mathematics 3V06; Metallurgy 3C03.

Level IV: 37 units
R Engineering 3M03 or 3N03, 4A03 or 4H03 or equivalent, 4B03; Materials 4A01, 4E03, 4K04; Metallurgy 4C04, 4L04.
E 3 units complementary studies elective (see Note 3, above); 9 units Level III or IV approved technical electives.

METALLURGICAL ENGINEERING AND MANAGEMENT (B.Eng.Mgt.)

Admission:
See Admission described at the beginning of the programme listing.

Programme 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 Engineering and Management 4G01 and 5G01, the voluntary intensive courses offered in the month of May.

Level II: 39 units
R Chemistry 2P06; Commerce 2AA3, 2MA3; Economics 2G03, 2H03; Engineering and Management 2A01; Engineering 2M04; Mathematics 2M06; Materials 2C04, 2G04, 2H02.

Level III: 36 units
R Commerce 2BA3, 2FA3; Engineering and Management 3A01; Engineering 2P04, 3M03 or 3N03; Materials 3B04, 3D06; Mathematics 3V06; Metallurgy 3C03; Statistics 3Y03.

Level IV: 35 units
R Chemical Engineering 3004 or Mechanical Engineering 3004; Chemistry 2W03; Commerce 3AA3, 3BA3 or 3BB3, 3FA3, 3MA3; Engineering and Management 4A01; Materials 3E06, 3P03; 6 units approved complementary studies elective (see Note 1, above)

Level V: 37 units
R Commerce 4PA3, 4QA3; Engineering 4A03 or 4H03 or equivalent; Engineering and Management 5A01, 5K03; Materials 4E03, 4K04; Metallurgy 4C04, 4L04.
E 6 units of Commerce selected from Level III and IV Commerce courses; 3 units approved technical electives.
Faculty of Health Sciences

J. Bienenstock, M.B., B.S., M.R.C.P., F.R.C.P.,(C), F.R.C.P., Vice-President (Health Sciences)
S. M. MacLeod, B.Sc., M.D., Ph.D., F.R.C.P.(C), Dean (Health Sciences)
E.R.M. Smith, B.A., M.D., Associate Dean (Education)
A. Baumann, B.Sc.N., M.Sc.N., Ph.D./Associate Dean (Nursing)
B. Cooper, Dip.P.O.T., B.A., M.H.Sc., Associate Dean (Occupational Therapy and Physiotherapy)
M. Cohen, M.D./Associate Dean (Health Services)
B. Underdown, Ph.D., Associate Dean (Research Services)

For information concerning Health Sciences programmes and admission requirements, contact
Laurel Stuart, Associate Registrar, Health Science Centre, Room 187, 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 training 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.) (Occupational Therapy or Physiotherapy).

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 co-ordinate 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 in 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 adhered to.

Deadline dates are for consideration of admission to a programme in the following September.

Programme

<table>
<thead>
<tr>
<th>Programme</th>
<th>Deadline</th>
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<tbody>
<tr>
<td>Medicine (M.D.)</td>
<td>November 1</td>
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<tr>
<td>Nursing (B.Sc.N.)</td>
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<tr>
<td>Applicants directly from Ontario Secondary Schools</td>
<td>May 1</td>
</tr>
<tr>
<td>Diploma Registered Nurses</td>
<td>February 15</td>
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<tr>
<td>Applicants with Other Qualifications</td>
<td>February 15</td>
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<tr>
<td>Transfers from other degree nursing programmes</td>
<td>March 15</td>
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<tr>
<td>Occupational Therapy and Physiotherapy</td>
<td>January 15</td>
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<tr>
<td>(Second Degree Programme)</td>
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<tr>
<td>Occupational Therapy/Physiotherapy</td>
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<td>(Degree Completion programme)</td>
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<tr>
<td>(B.H.Sc.)</td>
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<tr>
<td>Last time offered 1991-92</td>
<td>April 1</td>
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</table>

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, at its option, because of the Unsatisfactory evaluation, 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.
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 of 1972. At present, 100 students are admitted to the programme each year. The academic programme operates on an eleven months-a-year basis. During the summer months, a select group of 30 students are involved in an intensive research-oriented programme. There are 100 students admitted to the programme each year. The academic programme operates on an eleven months-a-year basis. More detailed medical information will be required upon acceptance into the programme.

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.

Personal Qualities: To recognize, develop and maintain the personal 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 cooperation 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 with health problems 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

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.

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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 resource personnel or guides to learning in the particular parts of the programme. Learning by a process of inquiry is stressed.

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.

Students admitted to the undergraduate medical programme have the responsibility and privilege of taking an active role in the planning and evaluation of the educational programme. Through representation on most policy-making and implementing committees, students can influence decision-making 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.

The Curriculum Plan

The curriculum of the undergraduate medical programme comprises 6 Units, an Elective Programme and Revision Time. The Curriculum Plan showing the relative proportion of time accorded to these units is illustrated below.

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.

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 both 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.

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 genitourinary 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 Gynaecology, and elective in time 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 two 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 (6 weeks), after Unit 4 (4 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 6 to 12 months) to the pursuit of special academic experiences. The intent is to encourage students to explore possible careers in specialized "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 the province regarding registration.

The College of Physicians and Surgeons of Ontario does not conduct a licence examination. The Medical Council of Canada however, con-
ACADEMIC ELIGIBILITY

Applicants must report on the Academic Record Form to a cancellation of the application. All grades are converted by the applicant on the transcripts. Further information is available from the Office of the Associate Registrar (Health Sciences).

ADMISSION POLICY FOR THE MEDICAL PROGRAMME

The following are the requirements for admission in September 1992. 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 1, 1991, 12:00 noon E.S.T. 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.

Application Procedure

By November 1, 1991, 12:00 noon E.S.T., the applicant must submit to the Ontario Medical School Application Service (OMSAS):
1. a completed application and the application fee, and
2. the Autobiographical Sketch on page 4 of the OMSAS Application (the original and 3 copies), and
3. the Autobiographical Submission (the original and 3 copies) as described in this Admission Policy Statement under Autobiographical Submission.

Early in the fall, applicants should order two transcripts from all post-secondary institutions that have been attended. One must be sent by the institution directly to and be received by OMSAS by December 13, 1991. The second copy should be sent to the applicant, to ensure that the request has been fulfilled. If the university programme required work terms, the employers' evaluation of work terms must be included with the transcripts.

The applicant must also ensure that the three Confidential Assessment Forms from the referees are received at OMSAS by December 13, 1991.

Failure by the applicant to comply with the instructions or to meet the deadlines will result in cancellation 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 cancellation 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).

a) By September 1, 1992 applicants must have completed a minimum of 3 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 one. 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, 1992 at least 2 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 one.

Applicants who have satisfactorily completed the requirements for a baccalaureate degree in less than three years by November 1, 1991 are also eligible.

b) By November 1, 1991 applicants must have achieved an overall simple average of at least second-class ("B") standing in their academic work to date.

Two averages will be considered for purposes of Academic Assessment. The higher of the two averages will be used. The averages are calculated as follows:
1. a simple average in which the work of different years is treated equally. (This average is calculated by the applicant on the Academic Record Form and verified on the OMSAS Verification Report which is sent to applicants.)
2. a weighted average in which the last reported undergraduate academic year is given a weight of three, the next to last reported undergraduate academic year is given a weight of two, and all other years are given a weight of one.

The calculation of the weighted average and the other calculations which follow are made by the Office of the Associate Registrar (Health Sciences) on receipt of the applicant's transcript package from OMSAS. Supplementary courses will be included in the average of the academic level at which the work was taken. Both the simple and the weighted overall averages will be recalculated.

Academic work which cannot be converted to the OMSAS values by using the OMSAS Conversion Table will be examined individually.

Applicants who have completed satisfactorily the requirements for a graduate degree will be assigned the median grade point average of the eligible applicant pool for this work. A second set of simple and weighted averages including the completed graduate work will be calculated. The best of the four averages will be used for academic assessment.

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 form for the Autobiographical Submission is available on request directly from McMaster University, Admissions and Records Office, HSC Room 1B7.

The description must be completed exactly as described on the front page of the Autobiographical Submission form and is in addition to the OMSAS Application. Only Autobiographical Submissions prepared on this form will be accepted.
Applicants to the McMaster Undergraduate Medical Programme must ensure that their application package includes the completed OMSAS Application and four copies of the Autobiographical Sketch (page 4 of the Application). The four copies of the Autobiographical Sketch are to be attached to the front of the four sets of the Autobiographical Submissions. Neither OMSAS nor McMaster will accept responsibility to make copies if the complete sets are not submitted.

To prepare the Submission correctly, with the required copies, will result in cancellation of the application. Only Autobiographical Submissions that are received at OMSAS by 12:00 noon E.S.T. November 1, 1991 will be considered.

The Autobiographical Submission including the Autobiographical Sketch (page 4 of the OMSAS Application) will be assessed by a team normally composed of a faculty member, a student and a member of the community.

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 bono 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 be a Canadian citizen or permanent resident by November 1, 1991 and have resided for at least 3 years in the area since the age of 14. Attendance at a university in the area for at least 3 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 Geographical 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 discusses a health problem/situation. The discussion is observed by assessors normally representing the faculty, the medical student body, and the community. Applicants are assessed on their group and problem-exploration skills.

In the Personal Interview, the applicant is interviewed by a team of four people normally consisting of a faculty member, a medical student, a member of the community and a physician. These people are 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 solving ability, self-appraisal ability, ability to relate, motivation for medicine 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, 1992.

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 form for the new admission selection cycle.

If an unsuccessful applicant wishes to inquire about the application for the current year, the applicant must make the request in writing to the Chair of the Admissions Committee of the McMaster Undergraduate Medical Programme and/or the Associate Registrar (Health Sciences). Normally no inquiries will be considered after July 31 of the year of application.

Application for Deferral of Registration

Application for 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. The application must be submitted by deadlines, determined from year-to-year (normally within 2 weeks of the offer of admission).

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. All relevant information and documentation must be provided by October 1 to be considered for 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 4 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 7 years since leaving high school.
3. be a resident of Ontario.
4. 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, applicants must have:
1. successfully completed three years of university education at the time of application;
2. 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 1990-91, the academic fees (tuition and student supplementary fees) for a student in the McMaster Undergraduate Medical Programme were:

<table>
<thead>
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<th>Programme</th>
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<tr>
<td>Canadian Citizens and Landed Immigrants</td>
<td>$3408.</td>
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<tr>
<td>Year I and II</td>
<td>2346.</td>
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<tr>
<td>Year III</td>
<td>13641.</td>
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<tr>
<td>Year IV</td>
<td>9170.</td>
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In addition, the cost of books and diagnostic equipment for a Year 1 student was approximately $1500. 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 3J7.

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 enrollment 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 $4,500 to each student, payable in 24 biweekly instalments, for educational development within a teaching hospital.

In relation to the Ontario Student Assistance Program, the O.H.S.C. 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 loan 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 St. Memorial Fund; and the Ripley Estate Bursary and Loan Fund.

For further information, contact Susan Clue, extn. 2141.

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 Student Affairs Office, outlining the nature of their work and the need for funds. For further information, contact Anita Riddell, at extn. 2141.

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. There has been a high demand for admission to this Stream. In response, a Collaborative Category has been added to the existing Open Category. This second category of admission is available to provide expanded opportunities for Diploma Registered Nurses. The Collaborative Category has been designed with the active support and involvement of health-care agencies in the Hamilton-Wentworth Region.

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 with the Associate Registrar (Health Sciences) or the Admissions Co-ordinator, Nursing by calling (416) 525-9140, extn. 2231, or writing directly to Admission and Records, FHC 187.

THE B.Sc.N. PROGRAMME
The School of Nursing is committed to education, research, and service. As students progress in the B.Sc.N. programme, they will find an ever 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 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 problem-solving 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 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.

Objectives of the B.Sc.N. Programme
The aim of the B.Sc.N. programme is to provide students with a broad university education as nurses which will enable them to function as professional beginning practitioners in primary, secondary and tertiary health care settings. The programme will enable graduates to respond to the existing and changing nursing and health needs of society.

The central competence to be achieved is the ability to use systematically, biologically and psychosocial knowledge in the understanding and nursing management of patients’ health and health care problems.

In order to achieve this goal, the following will be demonstrated.

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Knowledge:
1. Identify the important influences on the health status of individuals and groups;
2. Identify and implement practices which promote improved health;
3. Identify and define health/illness problems at the individual, family and community level;
4. Understand the underlying biophysical and psychosocial mechanisms of health/illness problems;
5. Define the physical, emotional and/or social aspects of health problems and provide nursing care of patients and/or families;
6. Understand major influences on the health care system, most specifically on the provision of nursing services throughout that system.

Skills:
1. Critically appraise information from a variety of sources: health care research, humanities, behavioural and biological sciences; and integrate this information and evidence with the theories and practice of nursing;
2. Provide nursing care in a variety of health care settings;
3. Continue to recognize personal learning needs, select appropriate learning resources and evaluate personal progress.

Personal Qualities:
1. Maintain and further develop such personal characteristics as:
   a. Awareness of personal assets, potential and limitations;
   b. Awareness of own and others contributions to patient care;
   c. Responsibility for effecting change;
   d. Ability to relate to and show concern for other individuals;
   e. Demonstration of ethical behaviour and professional accountability in health care practice;
2. Function as a contributing member of multidisciplinary groups in the identification, resolution and management of health problems.

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/grade 13 credits and applicants with other qualifications including mature students and university students.

The Diploma R.N. (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:
The major portion of places in Level 1 are held by students with OACs/grade 13 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 R.N.'s:
The selection method is based on academic qualifications, and a personal qualities' score which includes references, a questionnaire and an interview score.

The response to the questionnaire is assessed by teams of assessors normally representing the faculty, the students or alumni, and the community. Those applicants with the highest academic assessment scores, questionnaire scores, and reference scores are invited to an interview in early May.

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.

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/Grade 13 credits 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 1st.

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 R.N. Applicants: Such applicants should write to the Associate Registrar (Health Sciences) for an application package. Transcripts of courses either completed or in progress, the questionnaire response and reference forms must be included with the application by February 15th. Diploma R.N. applicants must also include their Certificate of Competence and the statement(s) of their nursing practice in the last five years.

Applications for all studies beginning in September must be received by the Associate Registrar (Health Sciences) no later than February 15th at:

Faculty of Health Sciences (Admissions & Records)
McMaster University
HSC Room 1B7
1200 Main St. West
Hamilton, Ontario L8N 3S2

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 15th.

ADMISSION REQUIREMENTS
If you plan to enter a nursing programme, you 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 English II or OAC English III;
2. OAC Chemistry;
3. One of OAC Calculus, OAC Algebra and Geometry, OAC Finite Mathematics, OAC Functions and Relations;
4. 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/Grade 13 subjects, including the four required subjects.

Applicants with Qualifications Equivalent to OAC/Grade 13:
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. Be currently enrolled in first year of a University programme and a university admission average of at least 75%; or
1. 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.)
2. submit a completed original and three (3) copies of their response to the questionnaire provided in the application package;
3. submit three (3) completed reference forms from non-relatives, including one person qualified to address the applicant's academic capabilities. Reference forms will be provided in the application package.

Applicants will be evaluated on the basis of the material submitted in 1, 2 and 3 above. Those ranked highest 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 (3) 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. Interviews are held in early May. Applicants are responsible for their own travel expenses.

Applicants for transfer to studies above Level I beginning in September must be received by the Associate Registrar (Health Sciences) no later than March 15.

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 R.N. (B) Stream of the Undergraduate Bachelor of Science in Nursing programme.

Applicants currently enrolled in a diploma nursing programme will be considered in Category B above.

The University does not grant advance credit for diploma nursing courses, but those offered admission to this two-year programme, enter at Level III.

There are two categories of admission within the Diploma R.N. (B) Stream.

I. The Open Category: The Open Category is open to all diploma registered nurses who meet the following conditions.

Applicants in this category normally should:
.i. 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.
.ii. provide evidence (transcripts) of a minimum of a B— grade in at least 6 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.

Submit a completed original and three (3) copies of their response to the questionnaire provided in the application package;

iv. submit three (3) completed reference forms provided in the application packet. References should be from non-relatives, and should include at least one person who is qualified to address the applicant’s professional and academic capabilities.

Applicants will be evaluated on the basis of the material submitted in i, ii, iii, and iv above. Those ranked highest 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.

2. The Collaborative Category: The Collaborative Category was developed in conjunction with specific health care institutions in Hamilton-Wentworth. Further information about this Collaborative Category is available from the Admissions Co-ordinator - Nursing or the Post RN Co-ordinator in the School of Nursing.

Candidates wishing to apply to the Collaborative Category should satisfy all those conditions listed above in the Open Category. In addition they must provide a letter from their Director of Nursing.

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. Independent study packages are also being developed.

Guidelines have been established for part-time study. Applicants are advised to seek counselling from the School of Nursing before engaging in part-time study.

Level I Nursing

A student in Level I must:
1. achieve a University Average (UA) of at least 2.5; and
2. achieve an average of at least 4.0 in the Nursing and required Health Science courses; and
3. achieve a grade of at least C— in the Nursing and required Health Science courses with the exception that a grade of D—, D, or D+ is permissible in one Health Science course.

A student who fails to meet these requirements may not continue in the programme but may seek readmission by writing to the B.Sc.N. Programme Chair.

Area Courses:
The Area courses consist of all the Nursing and Health Science courses above Level I.

The following courses are designated clinical courses:
Basic (A) Stream Nursing 2L06, 2H04, 3K07, 3Y07, 4J07, 4K07.
Diploma Registered Nurses (B) Stream Nursing 3L05, 3M05, 3N08, 4S06, 4T06.
A grade of at least C— is required in all Area courses with the excep-
A student may normally repeat a course attempted and repeated beyond Level I, and is used to determine the minimum grade requirements after repeating the course, he or she may not continue in the Nursing programme.

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.

**Cumulative Area Average (CAA)**
The Cumulative Area Average (CAA) for the B.Sc.N. programme is the weighted average of all the Nursing and required Health Sciences courses attempted and repeated beyond Level I, and is used to determine whether a student may continue in the programme, may continue on Programme Probation, or may not continue in the programme.

**Continuation in the Programme**
To continue in the B.Sc.N. programme a student must obtain a University Average (UA) of at least 2.5, a Cumulative Area Average of at least 4.0, and meet the minimum requirements of the Programme. A student whose CAA is less than 3.5 may, at the discretion of the Faculty, 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 Cumulative Area Average is less than 3.5, or whose CAA is less than 4.0, and who has not been granted Programme Probation, may not continue in the programme. A student who fails to obtain a Cumulative Area Average of 4.0 at the completion of the period on Programme Probation, may not continue in the B.Sc.N. programme. A student may normally repeat a Level of work only once.

**Extra Courses**
Courses in addition to those which constitute the B.Sc.N. programme may be designated Extra at registration. The grades obtained in such courses will not be included in the CAA nor will the units be included in those required for graduation. The designation Extra cannot be added or removed retroactively.

**Level of Registration**
Level describes where a student is placed in the programme. A student is required to register in that Level for which more than 6 units of work is incomplete. Work of a higher Level may be undertaken, if prerequisites are met, with the permission of the Programme Chair or the Co-ordinator of Studies (Nursing).

**Selection of Electives**
After a student has completed Level I he or she may take no more than 18 units of courses beginning with the digit 1.

**Graduation Average (GA)**
The Graduation Average (GA) for the B.Sc.N. programme is based on the best 36 units or best 80% of all Level III and Level IV Area courses, whichever is greater. The GA is used to determine whether a student may graduate from the programme.

**CURRICULUM FOR THE B.SCN. 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.

**Level I: 32 units**
- R Health Sciences 1A06, 1B07; Nursing 1F07; Psychology 1A06.
- E 6 units.

**Level II: 38 units**
- Terms 1 and 2: 34 units
- R Health Sciences 2B08; Nursing 2106, 2M05;
- E 15 units.
- Term 3: 4 units
- R Nursing 2H04.

**Level III: 33 units**
- R Health Sciences 3A04, 3B04; Nursing 3S08, 3X07, 3Y07.
- E 3 units.

**Level IV: 32 units**
- R Health Sciences 4L04; Nursing 4A02, 4E06, 4J07, 4K07.
- E 6 units.

**Diploma R.N. (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 in the Open Category to complete the programme requirements. Students in the Collaborative Category must elect to take their programme in either four years or five years and indicate their preferred choice at the time of acceptance into the programme.

Each level of the programme will consist of eight months of academic study with concurrent clinical practice. Level III is followed by 6 to 8 weeks of concentrated clinical practice in one setting (normally a community health care setting). The concentrated experience is designed to provide the student with the opportunity to develop expanded role skills and to demonstrate independent decision-making capacity.

**Electives:** Thirty (30) 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.

**Level III: 55 units**
- Terms 1 and 2: 35 units
- R Health Sciences 1A06, 1B07, 3A04; Nursing 3L05, 3M05, 3S08.
- Term 3: 14 units
- R Nursing 3N08.
- E 6 units.
- Summer Term
- E 6 units.

**Level IV: 54 units**
- Terms 1 and 2: 36 units
- R Health Sciences 2B08, 3B04, 4L04; Nursing 4A02, 4E06, 4S06, 4T06.
- Term 3: 6 units
- E 6 units.
- Summer Term: 6 units
- E 6 units.
- Additional Electives: 6 units
- E 6 units.

**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.

For one more academic year (1991/92) McMaster will also 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 new 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 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 behaviours in order to analyze and manage health problems.

Programme Goals
The graduates of the B.H.Sc. programmes in Occupational Therapy and Physiotherapy will be able:

Knowledge:
1. to understand and apply the theoretical and scientific bases of Occupational Therapy and Physiotherapy;
2. to understand the interrelationship of the biological, psychological, social and behavioural determinants of health;
3. to understand the basic principles and methods of scientific inquiry and critical appraisal;
4. to understand the importance of prevention, health maintenance, health promotion and treatment;
5. to understand the factors which affect health policy and the delivery of health care;
6. to understand change.

Skills:
1. to demonstrate clinical reasoning skills for the management of health care problems;
2. to demonstrate competence in assessment and treatment techniques in Occupational Therapy or Physiotherapy;
3. to demonstrate effective oral and written communication skills;
4. to function as members of an interdisciplinary health-care team;
5. to implement programmes for prevention, health maintenance and health promotion;
6. to function in advocacy roles in order to enhance quality of life;
7. to demonstrate teaching and supervisory skills in professional practice;
8. to demonstrate critical thinking skills;
9. to assess effectiveness of professional practice;
10. to adapt to and initiate change.

Personal Qualities:
1. to 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. to function as self-directed, life-long learners and leaders in the profession.

Curriculum Design

Curriculum
The curriculum is divided into seven blocks of full-time study over a period of twenty-four months. The content of each block is profession specific; however, there are occasions for Occupational Therapy and Physiotherapy students to study together. The total programme consists of 100 units of credit: 70 units of academic study and 30 units (30 weeks) of clinical practice.

Northern Studies Stream
One of the unique features of these new programmes is the collaboration between Lakehead and McMaster Universities. One complete fourteen week block in each programme is presented in Northwestern Ontario. The eight-week academic component, which is offered at Lakehead University, is followed by a six-week clinical education component. Clinical placements are arranged in Thunder Bay and surrounding communities. Special seminars and projects enable students to develop an awareness and appreciation of northern health issues. Lakehead University's involvement in the international group of circumpolar universities and the presence of a strong Centre for Northern Studies provide exceptional resources for learning.

The northern studies stream is limited to approximately fifty percent of each class. Funding for travel to and from, as well as accommodation in, Northwestern Ontario is provided.

Teaching/Learning Philosophy
Using the problem-based learning approach developed by the Faculty of Health Sciences at McMaster University, the curriculum has been designed to accommodate students who come from a variety of academic and experiential backgrounds. One of the basic objectives of this approach is to develop in graduates the skills to become life long learners and leaders in their profession.

Teaching/Learning Methods
The curriculum of each programme emphasizes that the process of learning is equal in importance to the content. To support this belief a variety of educational methods are used including the following:

- Problem-Based Tutorials
  In small group tutorials, students are presented with health care problems carefully designed and selected for each learning block. These problems promote the exploration of the underlying psychological, biological and behavioural principles. The tutor in these groups functions as a facilitator of the student's learning.

- Clinical Skills Laboratories
  Faculty who are clinical specialists in Occupational Therapy and Physiotherapy use a variety of educational methods to enhance the students' acquisition of therapeutic skills. These methods include classroom demonstrations, experiential learning laboratories, standardized patients, and/or role playing.

- Inquiriy Seminars
  Seminars focus on issues of importance to the professions. Themes encompass concepts such as professionalization, wellness, disability, pain, work, and leisure.

Clinical Education
Integrated with the academic component of the programmes, students spend a total of 30 weeks in full-time clinical placements (five blocks of six weeks). These placements are arranged in a variety of clinical facilities such as teaching hospitals, community hospitals, health care agencies, specialized centres, and community programmes in Southern and Northwestern Ontario.

Independent Study
The independent study 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 and a faculty member during Block 5. The project is completed during Block 6.

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 University. The admis-
Application Procedure

Application packages with detailed instructions are available from:
Office of the Associate Registrar
(Health Sciences)
McMaster University, HSC-IB7
Office of the Registrar, Lakehead University

All application packages must be submitted directly to Admissions and Records (Health Sciences, Room IB7) McMaster University. Deadlines will be strictly enforced.

The applicant is responsible to ensure that the following is received:

1. application form;
2. academic record;
3. autobiographical sketch;
4. letter of application. This letter should address the applicant's motivation to enter either programme, knowledge of the chosen profession and suitability for the programme;
5. transcripts for all degree credit courses and any other post-secondary courses or programmes undertaken.

Applicants may also be required to obtain references.

Selected applicants are invited to a personal interview. Interviews will be conducted between April 1 and May 15 in Hamilton and Thunder Bay. Applicants invited to interview will be notified in advance.

All applicants will be notified of the admission decision by June 1.

Applicants may also be required to obtain references.

Financial Information

In 1990-91 the academic fees (tuition and supplementary fees) for a student in the McMaster Undergraduate Occupational Therapy or Physiotherapy Second-Degree Programmes (3 terms, September 1990 to August 1991) was $2871.45. It is estimated that books and supplies cost an additional $750.

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 completion 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.

Area Courses

All courses are area courses.

Graduation Average

The Graduation Average is computed using the best 80% of all area courses, in Blocks I through VII.

Graduation standing is assigned on the basis of the Graduation Average. First-class standing is given to those with averages of 9.5 or higher, second-class for averages of 7.0 to 9.4, and third class for averages of 4.0 to 6.9.

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 VI). Students must achieve a grade of at least 4.0 (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 4.0, 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 4.0 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 4.0, 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 re-admission 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 re-admission. Normally, a student who is re-admitted 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 re-apply only through the regular admissions process.

The latest possible date for re-admission is two years from the beginning of the block from which the student withdrew.

PROGRAMMES

B.H.Sc.(OT)

Year I: 47 units

R Block I: Physiother 1T15, 1L17, 1S13
    B Block I: Physiother 1T23, 1L24, 1S23, 1C26
    C Block I: Physiother 1T33, 1L34, 1S33, 1C36

Year II: 53 units

R Block IV: Physiother 2T43, 2L44, 2S43, 2C46
    B Block V: Physiother 2T53, 2L54, 2S53, 2C56
    C Block VI: Physiother 2T64, 2L63, 2S65, 2C63
    B Block VII: Physiother 2C76

B.H.Sc.(PT)

Year I: 47 units

R Block I: Physiother 1T15, 1L17, 1S13
    B Block II: Physiother 1T23, 1L24, 1S23, 1C26
    C Block III: Physiother 1T33, 1L34, 1S33, 1C36

Year II: 53 units

R Block IV: Physiother 2T43, 2L44, 2S43, 2C46
    B Block V: Physiother 2T53, 2L54, 2S53, 2C56
    C Block VI: Physiother 2T64, 2L63, 2S65, 2C63
    B Block VII: Physiother 2C76
LECTURE PROGRAMME

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.

The Physiotherapy programme at McMaster will undergo accreditation by the Canadian Physiotherapy Association previous to the graduation of the first class. After programme accreditation the graduates will be eligible for membership in the Canadian Physiotherapy Association and to seek licensure in most provinces until the time that the National Examination process is finalized.

Details regarding eligibility for practice in any province in Canada may be obtained by writing to:

Canadian Physiotherapy Association
890 Yonge Street, 5th Floor
Toronto, Ontario M4W 3P4

Occupational Therapy

The Occupational Therapy programme at McMaster will undergo accreditation previous to the graduation of the first class. All graduates from accredited Occupational Therapy programmes in Canada must pass a national certification exam in order to be eligible for membership in the Canadian Association of Occupational Therapy.

Some provinces in Canada require a licence to practice Occupational Therapy. The question of licensing in Ontario is currently being explored by the Health Legislation Review Board and the Ontario College of Occupational Therapy.

Details regarding eligibility for practice in any province in Canada may be obtained by writing to:

Canadian Association of Occupational Therapists
3rd Floor, 110 Eglinton Avenue West
Toronto, Ontario M4R 1A3

B.H.Sc. (OT/PT) DEGREE COMPLETION PROGRAMME

The Bachelor of Health Sciences Degree Completion Programme is available to diploma graduates of the Mohawk College programmes in Occupational Therapy or Physiotherapy. Due to the implementation of the B.H.Sc.(OT) and B.H.Sc.(PT) - Second Degree programmes described previously, the last intake into the degree completion programme from the Mohawk College programmes in Occupational Therapy or Physiotherapy will be in September 1991. (Note: The Pre-Programme Phase for those who hold diplomas from institutions other than Mohawk College is no longer available).

Through an emphasis on the synthesis of the theoretical and clinical components of practice, the programme provides an opportunity for increased academic and scholarly preparation. In this way, the student will acquire an improved understanding of the health care problems of clients.

Further professional development is offered through the various Master and Doctoral programmes in the Faculty of Health Sciences.

ACADMIC REGULATIONS - DEGREE COMPLETION

Registration in the Bachelor of Health Sciences Programme implies acceptance on the part of the student of the objectives of that programme, the methods by which progress toward the achievement of those objectives is evaluated. The University reserves the right to cancel the academic privileges of any student at any time that the student's scholastic record or conduct warrant doing so. Where, in the opinion of the faculty, the performance of the student in a clinical setting may jeopardize or endanger the welfare or safety of the patient or the patient's family, the student may be removed from the clinical setting at any time during the academic year, until continuation in the course is reviewed.

OBJECTIVES OF THE B.H.Sc. PROGRAMME

The Programme is designed to further the development of an occupational therapist or physiotherapist who will be able to:

1. Understand the physical, biological and behavioural mechanisms of health problems including aspects such as molecular, individual, family and community.
2. Understand the political, economical, sociocultural and epidemiological factors which influence health policies and the systems and models of health care delivery.
3. Examine in depth, issues related to the responsibilities of the professions of Occupational Therapy and Physiotherapy in the delivery of health services.
4. Analyze and critique the scientific bases of the professions of Occupational Therapy and Physiotherapy, and critically evaluate emerging data related to these professions.
5. Plan and complete an investigation into a specific area of clinical practice. Principles of scientific inquiry and clinical reasoning will be emphasized.
7. Develop scholarly writing skills.

ADMISSION POLICY AND PROCEDURE

Note: The B.H.Sc. Degree Completion Programme will be offered for the last time in the 1991-92 academic session. Therefore, the Level IV Required courses (Health Sciences 4A03, 4B04, 4C03 and 4D03) will be offered for the last time in Term 1, September to December 1991. All students in the B.H.Sc. Degree Completion programme must satisfactorily complete all the required and the elective courses during the 1991-92 academic session, for convocation in May 1992.

Applicants from Mohawk College Programmes in Occupational Therapy and Physiotherapy

The Faculty of Health Sciences, McMaster University, participates with the Faculty of Health Sciences at Mohawk College in the diploma programmes of Mohawk College in Occupational Therapy and Physiotherapy. To be considered for admission to the B.H.Sc. Programme, graduates from the Mohawk programmes should present:

1. Mohawk College Diploma of Occupational Therapy or Physiotherapy with the certificate from McMaster University.
2. Official transcripts from Mohawk College.
3. All transcripts from other post-secondary institutions attended.
4. A personal interview may also be required.

Applicants currently in Year III of the Occupational Therapy or Physiotherapy Programmes at Mohawk College should present:

1. Official transcript of marks of work completed (to date) at Mohawk.
2. A letter from the Programme Chair assessing the student's potential to graduate.
3. All transcripts from other post-secondary institutions attended.
4. A personal interview may also be required.

Admission Procedures

Application packages, including the application form and guidelines for the applicant's letter, are available from the Associate Registrar (Liaison and Admissions), Gilmour Hall, Room 120, McMaster University. These should be completed and forwarded to McMaster University in accordance with the instructions. Official transcripts of marks from Mohawk College must be provided by the student.

Applications must be postmarked no later than April 1 for the classes beginning in September. It is the applicant's responsibility to ensure that all application documentation is received by April 1. The B.H.Sc Programme will not normally consider applications for admission after the April 1 deadline, unless written documentation is provided showing good cause, as determined by the B.H.Sc. Admissions Committee.

All applicants will be informed of the admission decision by June 1.

Graduation

In order to graduate, a student must obtain a Cumulative Average of at least 4.0 in all courses taken. Graduation standing will be determined on the basis of the C.A.A.
Dean's Honour List

The requirements for being named to the Dean's Honour List are as follows:

i. for graduates of the Mohawk College programme, a Graduation Average of at least 9.5 in the programme phase, and where named to the Dean's Honour List in the final year of the occupational therapy or physiotherapy diploma programme at Mohawk College; or

ii. for students who entered the Pre-programme Phase on or before September 1989, a university average of at least 9.5 on at least 30 units of work; or

iii. for graduating students who completed the Pre-programme Phase, an average of at least 9.5 on the 19 units of degree work, and an average of at least 9.5 in the Pre-programme Phase on previous session(s) sufficient to include at least 11 units.

Occasional Students

Applicants holding a diploma in occupational therapy or physiotherapy may register as Occasional students in Health Sciences and take up to six/seven units of core courses in the B.H.Sc. degree completion Programme.

Preference in required courses will be given first to students in the B.H.Sc. degree completion Programme and then to Occasional and Continuing students if space is available.

To be considered for admission as an Occasional student in Health Sciences, applicants must present the following documentation to the Associate Registrar (Liaison and Admissions), Gilmour Hall, Room 120, McMaster University:

1. Diploma of occupational therapy and/or physiotherapy, including an official transcript of marks;
2. All other official transcripts from post-secondary institutions attended; and
3. A letter outlining the applicant's academic plans and reasons for applying as an Occasional student to the Faculty of Health Sciences.

Continuing Students

Continuing students are those who hold a university degree in occupational therapy or physiotherapy, and who are not proceeding to an advanced degree, but wish to take one or more undergraduate courses.

Continuing students may take Health Sciences courses at the discretion of the B.H.Sc. Degree Completion Student Studies Coordinator and the instructor(s) concerned.

Preference in required courses will be given first to students in the B.H.Sc. Degree Completion Programme and then to Continuing and Occasional students if space is available. To be considered for admission as a Continuing student in Health Sciences, applicants must present the following documentation to the Associate Registrar (Liaison and Admissions), Gilmour Hall, Room 120, McMaster University:

1. Degree of occupational therapy and/or physiotherapy, including an official transcript of marks;
2. All other official transcripts from post-secondary institutions attended; and
3. A letter outlining the applicant's academic plans and reasons for applying as a Continuing student to the Faculty of Health Sciences.

For further information please refer to the more detailed section on Occasional and Continuing students in the section Admission Requirements, in this Calendar.

THE B.H.Sc. DEGREE COMPLETION PROGRAMME REQUIREMENTS AND CURRICULUM

The Programme consists of 19 units of study completed entirely at McMaster University, to include four Level IV required courses, and one or more undergraduate elective courses designated as Level III or Level IV.

Note: The B.H.Sc. Degree Completion Programme will be offered for the last time in the 1991-92 academic session. Therefore, the Level IV Required courses (Health Sciences 4A03, 4B04, 4C03 and 4D03) will be offered for the last time in Term 1, September to December 1991. All students in the B.H.Sc. Degree Completion programme must satisfactorily complete all the required and the elective courses during the 1991-92 academic session, for completion in May 1992.

All courses required for the 19 units of credit in the programme are Area courses.

The student must attain a Cumulative Area Average (CAA) of at least 4.0. A minimum C - is required in each course in the programme.

A student who fails to obtain a CAA of at least 4.0 may not continue in the programme.

Course Load

- Full-time: Students must complete the required Health Sciences courses between September and December. The remaining course work may be completed in the subsequent term, but by no later than April 1992: Full-load students are advised not to carry a course load of greater than 16 units in one term. Written permission from the Student Studies Coordinator is required to take a course load greater than 16 units in one term.

- Part-time: Students may have completed some of the requirements for the B.H.Sc. degree prior to September 1991 by being able to complete the balance of the requirements by April 1992. Such students must contact the Student Studies Coordinator before April 1, 1991.

Repetition of a Course: To repeat a course for which credit has been obtained, approval of the Student Studies Coordinator is required. Any course in which less than C - standing is achieved may be repeated only once and must be completed by December 1991 for required courses and April 1992 for elective courses. The grades of all attempts appear on the transcript and enter into the computation of the Cumulative Area Average.

Sequence of Courses: For students who request to study Health Sciences 4C03/4D03, priority will be given as follows:

a. B.H.Sc. students who have completed Health Sciences 4A03 and/or Health Sciences 4B04.
b. B.H.Sc. students
c. Other students

Enrolment in these courses is limited and where numbers warrant, a special allocation process will be implemented. Students who are not placed in their first choice will be offered a place in those courses that are not full.

The same clinical study area must be selected for Health Sciences 4C03 and Health Sciences 4D03. Permission of the instructor is required to register in Health Sciences 4D03 in a different term from Health Sciences 4C03.

Cancellation of a Required Course: The B.H.Sc. Degree Completion Programme offers all required courses within one academic year. Wherever possible, the Programme offers all the listed areas of clinical study (Health Sciences 4C03/4D03). If there is insufficient enrolment in any of the required courses of the required courses (minimum of 5) the Programme reserves the right to withdraw the course.

B.H.Sc. Degree Completion Programme - Level IV: 19 units

- Health Sciences 4A03, 4B04, 4C03, 4D03
- 6 units of Level III or IV courses chosen from Faculties within McMaster University. The student must meet the prerequisite requirements for the elective courses.
Faculty of Humanities

D.P. Gagan/B.A., M.A., Ph.D., Dean of Humanities
F.A. Hall/B.Sc., M.A., Ph.D., Associate Dean of Humanities (Studies)
P.A. Rahal/B.A., Assistant to the Associate Dean
S.A. Richard/Student Advisor

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.

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 (Greek, Latin, Classical Civilization)
- 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 two interdepartmental programmes:

- Honours Comparative Literature
- Honours Modern Languages and Linguistics.

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:
R: 18 units representing three (3) of the following four (4) areas of study:

1. Literary Studies/Linguistics
   - Classical Civilization IB06
   - Comparative Literature IA06
   - English ID06
   - Linguistics IA06

2. Historical and Philosophical Studies
   - Classical Civilization II06
   - History LC06, ID06, IL06
   - Philosophy IB06, ID06

3. Languages other than English
   - Chinese IC06, IZ26
   - French IA06, IB06, IC06
   - German IA06, IC06, ZZ26
   - Greek IC06, ZA03*
   - Hispanic Studies IA06, IC06
   - Italian IC06, IZ06, IZ26
   - Japanese IC06
   - Latin IC06, ZA03*
   - Russian IC06

4. The Arts
   - Art IA06
   - Art History IA06
   - Drama IA06
   - Music IA06, IB06, IC06, ID03**

E. 12 units elective of which at least 6 should be selected from courses offered by a Faculty other than Humanities.

No Humanities I student may take more than 6 units of work in any single subject, except in the case of Classical Civilization IB06 and II06.

* Students choosing Greek or Latin IA03 will also register for an additional 3 units of Level II Greek or Latin to be taken in Term 2.

Portfolio Required: If you intend to take Art IA06 you should present a portfolio and be interviewed by the Department of Art and Art History by the end of April. The portfolio should contain a variety of original works in different media including works derived from both first-hand observation and the imagination. Aptitude in art and ability in academic subjects are both considered in our selection process. Personal interviews and portfolio reviews are conducted on weekends in April and the first selection for admission is made in early May. You should contact the Department of Art and Art History to arrange for a time for your interview. In exceptional circumstances, portfolios may be submitted in the form of colour slides. Late applications will be considered subject to space availability and merit after our first allocation have been confirmed. This final selection may not occur, depending on demand, until the beginning of classes in September.

** Students wishing to take Music courses other than Music IA06 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:
R: Music IB06, IC03, ID03, IE03 (or IE06), IG03. (Permission of the Department is required for Music IE06.)

E. 12 units normally representing two (2) of the four (4) 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 four ways to complete a Bachelor’s degree in the Faculty of Humanities.

1. 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.

3. Combined honours programme: three years of study, beyond Level I, concentrated in the work of two disciplines (e.g. French and German, 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 and Women’s Studies.

4. 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 farther 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 an open prerequisite, 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 prerequisites 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-graduate 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 during the Winter Evening Session:

- Art History
- Drama
- English
- History
- Philosophy

For part-time students who are only able to attend during the Winter Evening Session, the following B.A. programmes are available:

- Art History
- Classical Studies
- 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 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. Students completing McMaster Level I programmes may be given preference for admission to limited enrolment programmes over students from other programmes or other universities.

Admission as a Second Bachelor’s Degree student or as a Continuing Student is by selection and may be limited. Admission is not guaranteed.

McMaster Test of Writing Competence

Students are urged to take the McMaster Test of Writing Competence at the time of their first registration. They are expected to pass the test before proceeding beyond the first 30 units of work. Those who have failed to do so at this point will be required to consult the Associate Dean (Studies), in person, for appropriate counselling. Those who fail or do not meet the test will have a transcript notation stating that they have not passed the McMaster Test of Writing Competence. This will be removed after the Test is passed.

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 Winter Session. When registering or making changes to course selection, students must seek the written approval of the appropriate Departmental Counsellor and the Dean of 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

Any student for whom a cross-listed course is an Area course under one of its listings must register for it under that listing. For example, Art History 2B03 is cross-listed as Classical Civilization 2B03, so students in an Art History programme wishing to register for this course must register for it under the label Art History 2B03. Such courses will then be used in calculating the student’s Cumulative Area Average and possibly the Graduation Average.

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.

Letters of Permission

If you wish to attend another university to take courses which will carry credit toward a McMaster degree, you must obtain permission ahead of time. To do this you must seek a Letter of Permission from the Associate Dean (Studies) and pay the appropriate fee. You should take note of any conditions on the Letter of Permission that might apply, including the requirement of a grade of at least C− for transfer credit. Courses taken at another university cannot be used to satisfy the university’s minimum residence requirements, will not be included in the calculation of McMaster averages, and, therefore, cannot be used to raise standing.

No transfer credit will be given for work taken at another institution for which a student did not receive prior approval from the Associate Dean’s Office.

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.

Withdrawal

Students who wish to withdraw from the University are required to advise the Dean of Studies Office in writing. Students must surrender their identity cards to the Dean of Studies to ensure the processing of any fee refunds. Students who fail to withdraw formally from any course(s) by the stated deadlines will remain registered whether or not they attend classes and will be assigned a grade.

Readmission

A student who May Not Continue Without Permission may apply for readmission. 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/February 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. Students will not be considered for readmission to Humanities I from other Faculties unless their pre-University work meets the current admission requirements of the Faculty of Humanities.

The computation of Cumulative Area Averages begins anew at readmission.

Academic Regulations Pertaining to the Department of Music
The Cumulative Area Average for the Honours Music programmes and for the music portion of the Combined Honours programmes is termed the Cumulative Music Average and is the weighted average of grades in all Area courses attempted. To continue in an Honours Music programme, a student must maintain a CMA of at least 7.0.

The Graduation Average will be computed on a minimum of 41 units of Area courses for the B.Mus. degrees in Education and in History and Theory, as well as a minimum of 40 units of Area courses for the B.Mus. degrees in Education and Performance and in History/Theory and Performance.

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
Students enrolled in Honours Programmes, single or combined, involving Comparative Literature, French, German, Hispanic Studies, Italian or Linguistics may apply to take part in McMaster University's Third Year Study Elsewhere programme at an appropriate university in France, Germany, Italy, Spain or the province of Quebec. Students may choose to spend one or two terms in this programme. The programmes at the host universities are specially designed to suit students at the Third Year Level, and consist principally of advanced and intensive language studies, with a high cultural and literary content.

To be eligible to take part in this programme, students are expected to complete Level II with a weighted average of at least 8.0 in their language component. No fees are payable to McMaster University for the Third Year Study Elsewhere Programme, but students must pay all travel, study and living expenses. For students who may be in need of financial assistance, O.S.A.P. (The Ontario Student Aid Programme) grants and O.S.A.P. loans are available for this programme. Furthermore, McMaster University offers some bursaries to those in need of help with travel expenses to Europe.

Students must maintain links through correspondence with their departmental advisors at McMaster University while they are engaged in study elsewhere, and all credit for work completed is confirmed after the host departments have reviewed the student's academic achievement following their return and entry into their final year of study. The maximum credit available in this way is fifteen units per term or thirty units for a full year of study, equivalent to Level III. In certain cases, students may be recommended for the Deans' Honour List on the basis of work undertaken in the programme.

Note: Students who are enrolled in a Combined Honours Programme involving a language and a non-language component (such as History or Political Science) can usually be granted permission to take part in Third Year Study Elsewhere for at least one term by special arrangement, provided they make early application.

Programmes for the B.A., B.A. (Honours) and B.Mus. Degrees

APPLIED STUDIES MINOR
Beginning in September 1991, the Faculty will be offering a Minor in Applied Studies which will be available only to students who are registered in a Single Honours programme in the Faculty of Humanities and have completed Economics 1A06. The basic model for this option will be as follows:

- 54 units of prescribed Area requirements for the Single Honours degree programme;
- 24 units of courses designated for the Applied Studies minor; and
- 12 units of elective.

Minor in Applied Studies: (24 units)

- Humanities 2C03 and 2CC3; and 18 units from Humanities 2D03, 3A06, 3D03, Health Sciences 3G06, Engineering 4A03, and 4H03.

Students may substitute up to 6 units of the following courses to fulfill the 18-unit requirement above: Gerontology 1A06, Philosophy 2D03, 2N03, Science 2A03, 2L03.

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 weighted average attained in the Level I programme, (b) a weighted average of at least 7.0 in Art IF06 and Art History IA06, and (c) a grade of at least B— in Art IF06.

Programme Notes:
1. Students in Honours Art must complete Art 2A04, 2B04, 2C03, 2F04 before registering in Level III or IV Art courses.
2. Level II Art History courses are grouped into the following Fields:
   - I Ancient and Medieval: Art History 2B03, 2C03, 2G03
   - II Renaissance and Baroque: Art History 2M03, 2N03, 2R03
   - III Modern: Art History 2P03, 2X03

Area Courses:
All Level II, III and IV Art courses except Art 4C06, all Level III and IV Art History courses.

Levels II, III and IV: 90 units
R 48 units of Art including Art 2A04, 2B04, 2C03, 2F04, 3C03; 3G06, and 24 units of Level III or IV Art courses; including 4B12; 18 units of Art History, including at least 3 units of Level II from each Field and at least 6 units from Levels III or IV.
E 24 units, 12 of which may be from Art and Art History.

COMBINED HONOURS IN ART AND ANOTHER SUBJECT

Admission:
Enrolment is limited and admission is by selection on the basis of: (a) the overall weighted average attained in the Level I programme, (b) a weighted average of at least 7.0 in 12 units of Level I work, and (c) a grade of at least B— in Art IF06 and the successful completion of Art History IA06.

Area Courses:
All Level II, III and IV Art courses except Art 4B12.

Levels II, III and IV: 90 units minimum
R 42 units of Art including Art 2A04, 2B04, 2C03, 2F04; 3C03; 3G05, and 18 units of Level III or IV Art, including 4C06.
E To the combined total of a minimum of 78 units of Area work beyond Level I, the student must add elective work to make up an overall total of at least 90 units.

HONOURS ART HISTORY

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 Art History IA06.

Programme Note:
Level II Art History courses are grouped into the following Fields:
I Ancient and Medieval: Art History 2B03, 2C03, 2G03
II Renaissance and Baroque: Art History 2M03, 2N03, 2R03
III Modern: Art History 2P03, 2X03

Area Courses:
All Level II, III and IV Art History courses.
Levels II, III and IV: 90 units
R 54 units of Art History, including 18 units of Level II (6 units from each Field), and 36 units of Levels III and IV Art History including 6 units of seminar courses.
12 units Humanities, excluding Art History, or other non-Art History offerings, approved by the Chair of the Department and the Associate Dean of Humanities.
E 24 units, 12 of which may be Art History.

COMBINED HONOURS IN ART HISTORY AND ANOTHER SUBJECT

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 Art History IA06.

Programme Note:
Level II Art History courses are grouped into the following Fields:
I Ancient and Medieval: Art History 2B03, 2C03, 2G03
II Renaissance and Baroque: Art History 2M03, 2N03, 2R03
III Modern: Art History 2O03, 2P03, 2X06

Area Courses:
All Level II, III and IV Art History courses

Levels II, III and IV: 90 units minimum
R 36 units of Art History including 12 units of Level II (at least 3 units from each Field), and 24 units of Levels III or IV (at least one seminar course and 3 additional units from Level IV).
E To the combined total of a minimum of 72 units of Area work beyond Level I, the student must add elective work to make up an overall total of at least 90 units.

B.A. IN ART HISTORY

Admission:
Completion of any Level I programme with a weighted average of at least 4.0 in 12 units of Level I work including a grade of at least C- in Art History IA06.

Programme Note:
Level II Art History courses are grouped into the following Fields:
I Ancient and Medieval: Art History 2B03, 2C03, 2G03
II Renaissance and Baroque: Art History 2M03, 2N03, 2R03
III Modern: Art History 2O03, 2P03, 2X06

Area Courses:
All Level II, III and IV Art History courses.

Levels II and III: 60 units
R 30 units of Art History including 18 units of Level II (6 units from each Field), and 12 units from Levels III or IV; 6 units Humanities (excluding Art History).
E 24 units, 12 of which may be Art History.

Department of Classics

Department Notes:
1. The Department of Classics offers two types of programmes: Classical Studies and Classics. Classical Studies programmes are studies of sub-fields of Greek and Roman culture in various combinations individually arranged to meet the student's interests and needs. Classics programmes are primarily studies of Greek and Latin language and literature with additional study of other sub-fields of Greek and Roman culture.
2. Courses in the five sub-fields listed below are available to students in the Classical Studies and Classics programmes:
   a. Classical Archaeology and Art History
      Classical Civilization 2A03, 2B03, 2C03, 2F03, 3G03, 3H03, 3R03, 3S03, 3X03, 4Y03, 4Y6.
   b. Ancient History and Society
      Classical Civilization 2G06, 2U03, 2V03, 2Z03, 3LL3, 3MM3, 3UU3, 3V03, 3WW3, 4D06, 4I16, 4Z03, 4ZZ6.
   c. Classical Literature in Translation
      Classical Civilization 2D03, 2H03, 2HH3, 3C03, 3I03
   d. Greek Studies
      Greek 1Z06, 2A03, 2F03, 2G03, 2F03, 3A03, 3BB3, 3R03, 4AA3, 4K03, 4R03; Classical Civilization 4K03, 4XX6.
   e. Latin Studies
      Latin 1Z06, 2A03, 2F03, 2G03, 2R03, 3AA3, 3BB3, 3R03, 4AA3, 4K03, 4K03, 4R03; Classical Civilization 4K03, 4XX6.
3. Courses in Ancient Philosophy and Ancient Religious studies offered by other departments are also available to students in the Classical Studies and Classics programmes.

HONOURS CLASSICAL STUDIES

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 one of any Level I Classical Civilization course, Greek 1Z06, or Latin 1Z06. (Students with Grade 13 or OAC Greek may substitute Greek 2A03 and 3 additional units of Level II Greek; students with Grade 13 or OAC Latin may substitute Latin 2A03 and 3 additional units of Level II Latin.)

Programme Notes:
1. Students entering the programme with 6 units of Greek or Latin who have not also completed Classical Civilization IA06 or IL06 are strongly encouraged to include Classical Civilization 2G06 in their Level II programme.
2. Students intending to do graduate work in the field of Classical Studies should note that most universities offering such programmes require some 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.
3. All Level II Classical Civilization, Greek, and Latin courses will be included in calculating the Graduation Average.

Area Courses:
All Level II, III and IV Classical Civilization, Greek and Latin courses; Greek 1Z06 and Latin 1Z06, if not completed in the Level I programme.

Levels II, III and IV: 90 units minimum
R 54 units as follows: 48 units of Classical Civilization, Greek and Latin including at least 24 units of Level III and IV courses; one of Classical Civilization 4XX6, 4Y6, 4Z03 or one of Classical Civilization 4X03, 4Y03, 4Z03 and 3 additional units of Level III or IV Area courses.
12 units Humanities, excluding Classical Civilization, Greek and Latin courses;
2A03, 2F03, 2G03, 2R03, 3I03, 3M3, 3BB3, 3YY6, 3R03, 4X03, 4Y6, 4Z03, 4ZZ6.

COMBINED HONOURS IN CLASSICAL STUDIES AND ANOTHER SUBJECT

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 one of any Level I Classical Civilization course, Greek 1Z06, or Latin 1Z06. (Students with Grade 13 or OAC Greek may substitute Greek 2A03 and 3 additional units of Level II Greek; students with Grade 13 or OAC Latin may substitute Latin 2A03 and 3 additional units of Level II Latin.)

Programme Notes:
1. Students entering the programme with 6 units of Greek or Latin who have not also completed Classical Civilization IA06 or IL06 are strongly encouraged to include Classical Civilization 2G06 in their Level II programme.
2. Students intending to do graduate work in the field of Classical Studies should note that most universities offering such programmes require some 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.
3. All Level II Classical Civilization, Greek, and Latin courses will be included in calculating the Graduation Average.

Area Courses:
All Level II, III and IV Classical Civilization, Greek and Latin courses; Greek 1Z06 and Latin 1Z06, if not completed in the Level I programme.
Levels II, III and IV: 90 units minimum
R 36 units as follows: 30 units of Classical Civilization, Greek and Latin including at least 12 units of Level III and IV courses; one of Classical Civilization 4X06, 4Y06, 4Z06 or one of Classical Civilization 4X03, 4Y03, 4Z03 and 3 additional units of Level III or IV Area courses.

E To the minimum total of 72 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

B.A. IN CLASSICAL STUDIES
Admission:
Completion of any Level I programme with a weighted 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 Classical Civilization course, Greek IZ06, or Latin IZ06. (Students with Grade 13 or OAC Greek may substitute Greek 2A03 and 3 additional units of Level II Greek; students with Grade 13 or OAC Latin may substitute Latin 2A03 and 3 additional units of Level II Latin.)

Programme Notes:
1. Students entering the programme with 6 units of Greek or Latin who have not also completed Classical Civilization 1A06 or IL06 are strongly encouraged to include Classical Civilization 2G06 in their Level II programme.
2. Students are encouraged to include at least 6 units of Greek or Latin in their programme. Greek IZ06 and Latin IZ06, if not completed in the Level I programme, may be taken as Faculty of Humanities required courses or as elective courses.
3. Students in the B.A. programme in Classical Studies who achieve a weighted average of at least 7.0 in 12 units of Level II Area Courses may be admitted to Honours Classical Studies in Level III.

Area Courses:
All Level II, III, and IV Classical Civilization, Greek, and Latin courses.

Levels II and III: 60 units
R 24 units of Classical Civilization, Greek and Latin, including at least 9 units of Level III and IV courses.

E 12 units from the Faculty of Humanities.

E 24 units, 12 of which may be from Classical Civilization.

HONOURS CLASSICS
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 Greek IZ06 and/or a grade of at least B — in Latin IZ06. (Students with Grade 13 or OAC Greek may substitute Greek 2A03 and 3 additional units of Level II Greek; students with Grade 13 or OAC Latin may substitute Latin 2A03 and 3 additional units of Level II Latin.) Students are encouraged to include a Level I Classical Civilization course in their Level I programme.

Programme Notes:
1. Students will choose one of the following options:
   a. for students entering with both Greek and Latin
      Greek 2A03, 2F03, 2G03, 2R03, 3AA3, 3BB3, 3R03, 4AA3, 4R03; Latin 2A03, 2F03, 2G03, 2R03, 3AA3, 3BB3, 3R03, 3AA3, 3BB3, 4R03
   b. for students entering with Greek only
      Greek 2A03, 2F03, 2G03, 2R03, 3AA3, 3BB3, 3R03, 4AA3, 4R03; Latin IZ06, 2A03, 2F03, 2G03, 2R03, 3AA3 or 4AA3, 3R03 or 4R03
   c. for students entering with Latin only
      Latin 2A03, 2F03, 2G03, 2R03, 3AA3, 3BB3, 3R03, 4AA3, 4R03; Greek IZ06, 2A03, 2F03, 2G03, 2R03, 3AA3 or 4AA3, 3R03 or 4R03
2. Greek 2F03 and 2G03 and Latin 2F03 and 2G03 will be included in calculating the Graduation Average.

Area Courses:
All Level II, III and IV Greek, Latin and Classical Civilization courses.

Levels II, III and IV: 90-92 units minimum
R 72 units total: one of options a-c, listed above under Programme Notes; 12 to 15 additional units of Area courses including Classical Civilization 2G06, Classical Civilization 4X06 or Classical Civilization 4X03 and 3 additional units of Level III or IV Area courses.

E 18 units, 9 of which may be from Greek and Latin.

Department of Drama

Department Notes:
1. Courses are grouped into four fields: theatre crafts, film studies, theatre history, dramatic literature and theory. While students are encouraged to pursue a broadly-based programme of study, a limited amount of specialization is possible through a careful selection of courses.

2. Students wishing to graduate in Drama programmes must complete a minimum of three units of work from at least 4 of the 4 Fields of Study indicated below. (Courses which appear in two fields can only satisfy one Field requirement.)
   1. Theatre Crafts
      Drama 2A06, 3A06, 3D03, 3E03, 4A06
   2. Film Studies
      Drama 2M06, 3R03, 3R03, 3T03, 3T34, 4H03, 4S03
   3. Theatre History
      Drama 2F03, 2H03, 2H03, 2M06, 3F03, 3F03, 3M03, 3M03, 3N03, 3P06, 4D03, 4F03, 4M03, 4N03.
   4. Dramatic Literature and Theory
      Drama 2B06, 2H03, 2H03, 3B03, 3C03, 3D03, 3J06, 3K06, 3P03, 3Q03, 4D03, 4E03

2. Students registered in Honours Drama are strongly urged to complete 6 units of non-introductory work in a language other than English. Students in Combined Honours are strongly urged to complete a language other than English (OAC level or equivalent).

3. Students who meet the prerequisites for courses in drama in languages other than English, offered by the Departments of Classics, French or Modern Languages, may take up to 6 units of such courses as a part of their Drama R-group, with the approval of the Chair of the Department.

4. Practicum Courses: Practicum courses are open only to students registered in Drama programmes. Each practicum course carries one unit of academic credit, and requires twenty-four hours of instruction over a six-week or a twelve-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 will be classified as "Area" courses, but 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 3G01/Mime (Same as PR 27)
   Drama 3G01/Jazz Dance I (Same as PR 25)
   Drama 3H01/Dance Exercise (Same as PR 28)
   Drama 3H01/Social Dance (Same as PR 22)
   Drama 3I01/Folk Dance (Same as PR 20)

HONOURS ARTS AND SCIENCE AND DRAMA
(B. Arts Sc.)
(See Arts and Science Programme).

HONOURS DRAMA
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 Drama IAZ06.

Area Courses:
All Level II, III and IV Drama courses.
Levels II, III and IV: 90 units
R 18 units of Level II Drama; 36 units of Level III or IV Drama, including at least one Level IV course.

Area Courses:

R 12 units Humanities, excluding Drama, or other non-Drama courses approved by the Drama Chair and the Associate Dean of Humanities.

E 24 units, 12 of which may be from Drama.  

COMBINED HONOURS IN DRAMA AND ANOTHER SUBJECT

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 Drama IAO6.

Area Courses:
All Level II, III and IV Drama courses.

Levels II, III and IV: 90 units minimum

R 12 units of Level II Drama; 24 units of Level III or IV Drama, including at least one Level IV Drama course.

E To the minimum total of 72 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

B.A. IN DRAMA

Admission:
Completion of any Level I programme including 12 units from the Faculty of Humanities and a weighted average of at least 4.0 in 12 units of Level I work including a grade of at least C – in Drama IAO6.  

Area Courses:
All Level II, III and IV Drama courses.

Levels II and III: 60 units
R 12 units Level II Drama; 12 units Level II/IV Drama; 12 units from the Faculty of Humanities.

E 24 units, 12 of which may be Drama.

Department of English

Department 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.

- Medieval
  - English 3C06, 3D03, 3DD3
- Renaissance
  - English 3I03, 3K06, 3T03
- 17th and 18th Centuries
  - English 3G06, 3V06
- 19th and 20th Centuries
  - English 3H06, 3M03, 3MM3
- North American
  - English 2G06, 2H06
- Studies in Language, Criticism and Genre
  - English: 2B06, 3J06, 3N06, 3Q03, 3Q0Q

3. Beginning in September 1992, the Department will make available 54 units of seminars for Level IV students in Honours English and Combined Honours in English and another subject.

HONOURS ARTS AND SCIENCE AND ENGLISH (B.Arts Sc.)  
(See Arts and Science Programme).  

HONOURS ENGLISH

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

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 ID06, and (b) a weighted average of at least 7.0 in 18 units of Level I courses including English ID06 and 6 additional units of Humanities.

Programme Notes:
1. Students should plan their programmes in consultation with the Departmental Counsellor. A minimum of 6 units of work from Field I and from four of the other five fields in Department Note #2 (listed above under Department Notes) 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 Area work

   Level III
   - 18 units of Level III Area work

   Level IV
   - 6 units of Level III Area work; 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 Area courses, students must successfully complete 6 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 fulfill this requirement before Level III.

4. With special permission, students may substitute English 4X03 for 3 units for Level IV seminars work in the second term.

Area Courses:
English 2A06, 2B06, 2C06, 2I06, 2M06, 3D03, 3D03, 3G06, 3H06, 3I06, 3J06, 3K06, 3M03, 3MM3, 3N06, 3Q03, 3Q0Q, 3Q0Q, 3T03, 3V06, 4X03, and all Level IV seminar courses.

Levels II, III, and IV: 90 units
R 54 units of English Area work as follows: English 2A06; 12 units of Level II Area courses; 24 units of Level III Area courses; and 12 units of Level IV seminars.

12 units Humanities (excluding English) or other non-English courses approved by the Chair of the Department and the Associate Dean of Humanities. This should include 6 units of non-introductory work in a language other than English if not completed in Level I.

E 24 units, 12 of which may be from English.

COMBINED HONOURS IN ENGLISH AND ANOTHER SUBJECT

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

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 ID06, and (b) a weighted average of at least 7.0 in 18 units of Level I courses including English ID06 and 6 additional units of Humanities.

Programme Notes:
1. Students should plan their programmes in consultation with the Departmental Counsellor. A minimum of 6 units of work from four of the six fields in Department Note #2 (listed above under Department Notes) 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; 6 additional units of Level II Area work

   Level III
   - 12 units of Level III Area work

   Level IV
   - 6 units of Level III Area work and 6 units of Level IV seminars (No student may take more than 6 units of Level IV seminars.)
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3. In addition to the 36 units of English Area courses, students combining with a subject other than a language must successfully complete 6 units of a language other than English, if this was not completed in Level I. The Department strongly advises students to fulfill this requirement before Level III.

4. With special permission, students may substitute English 4X03 for 3 units of Level IV seminar work in the second term.

Area Courses:
English 2A06, 2B06, 2G06, 2H06, 3C06, 3D03, 3D03, 3G06, 3H06, 3I03, 3J06, 3K06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3, 3T03, 3V06, 4X03 and all Level IV seminar courses.

The English component of a Combined Honours programme will be as follows:

Levels II, III and IV: 90 units minimum
R English 2A06: 6 units from 2B06, 2G06, 2H06; 18 units of Level III Area courses; and 6 units of Level IV seminars.
6 units of a language other than English, if not completed in Level I.
E To the minimum total of 72 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond their Level I programme.

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

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 weighted average of at least 7.0 in Level I work, including a grade of at least B- in French 1A06. (Students may also be admitted into the programme if they have successfully completed both French 1N06 (or 2NN6) and French 2M06, the latter with a grade of at least B-).

Programme Notes:
1. 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.

Area Courses:
All Level II, III and IV courses in French, except 3Y03.

Levels II, III and IV: 90 units
R 15 units of French Language Practice courses, including French 2A03, 2C03, 2A06, 2V03, 2NN6, 3C03, 3CC3, 4A03, 4BB3; 24 units of French/Francophone Literature and Civilization courses, including one of French 2B03, 2JJ3, one of French 2W03, 2W33, one of French 3K03, 3K33, one of French 3E03, 3Q03, 3QQ3, 9 units of Level IV French courses; 15 additional units of French (The overall total must include a minimum of 36 units of Level IV and French Area Courses.)
12 units Humanities, excluding French, or other non-French courses approved by the Chair of the Department and the Associate Dean of Humanities.

E 24 units elective, 12 of which may be French.

Programme B: Language and Linguistics
Admission:
Completion of any Level I programme (including a Level I English course) 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. (Students may also be admitted into the programme if they have successfully completed both French 1N06 (or 2NN6) and French 2M06, the latter with a grade of at least B-.)
Students who are interested in entering this programme are advised to take Linguistics 1A06; those who lack a Level I English course should consult the Department for ways of meeting the programme requirements.

Programme Notes:
1. French 2G03 and 2H03 will be included in calculating the Graduation Average.
2. 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.

Area Courses:
All Level II, III and IV courses in French, except French 3Y03.

Levels II, III and IV: 90 units
R 54 units of French as follows: French 2A03, 2G03, 2H03, 3C03, 3CC3, 4A03, 4BB3; 3 units from French 2B03, 2JJ3; 3 units from French 2W03, 2W33; 12 units of Level III or IV French/Francophone Literature or Civilization courses; 15 units of French 3B03, 3E03, 3G03, 3H03, 3R03, 4C03, 4H03, 4X03, 4Y03; 12 units of English and/or Linguistics beyond Level I (to be determined in consultation with the Departmental Counsellor).

E 24 units, 12 of which may be French.

COMBINED HONOURS IN FRENCH AND ANOTHER SUBJECT
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 French 1A06. (Students may also be admitted into the programme if they have successfully completed both French 1N06 (or 2NN6) and French 2M06, the latter with a grade of at least B-.)

Programme Notes:
Upon completion of 60 units of work (including at least 12 units of required Level II French Area 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.

Department of French

HONOURS ARTS AND SCIENCE AND FRENCH (B.Arts Sc.)
(See Arts and Science Programme)

HONOURS FRENCH
Programme A: Language and Literature
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 French 1A06. (Students may also be admitted into the programme if they have successfully completed both French 1N06 (or 2NN6) and French 2M06, the latter with a grade of at least B-.)
**Area Courses:**
The French component of a Combined Honours Programme will be as follows: all Level II, III and IV courses in French, except 3Y03.

**Levels II, III and IV: 90 units minimum**
R 12 units of French Language Practice courses, including French 2A03, 3C03, 4A03; 18 units of French/Francophone Literature courses, including one of French 2J03, 2J13, one of French 2W03, 2WW3, one of French 3K03, 3K13, one of French 3Q03, 3Q13, 6 units of Level IV French courses; 6 additional units of French. (The overall total must include a minimum of 24 units of Level III and IV French Area courses.)

E To the minimum total of 72 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

**B.A. IN FRENCH**

**Admission:**
Completion of any Level I programme with a weighted average of at least 4.0 in 12 units of Level I work including a grade of at least C— in French 1A06. (Students may also be admitted into the programme if they have successfully completed both French 1N0S or 2NN6 and French 2M06, the latter with a grade of at least C—.)

**Area Courses:**
All Level II, III and IV French courses, except 3Y03.

**Levels II and III: 60 units**
R 33 units of French as follows: French 2A03, 3C03 and two from French 2C03, 2G03, 3C03 and 3F03; 9 units of French/Francophone Literature and Civilization courses, including one of French 2J03, 2J13, one of French 2W03, 2WW3, one of French 3K03, 3K13, 3Q03, 3Q13; 12 additional units of French; 3 units from the Faculty of Humanities which may be French.

E 24 units elective, 12 of which may be from French.

**Department of History**

**Department Note:**
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, 2B06, 2C06, 2D06, 3D03, 3F03, 3H13, 3H23, 3I03, 3I16, 3J03, 3K03, 3W03
- **Ancient:** 2L06, 2L13, 3M13/3, 3M03, 3W13, 3W13
- **Asian:** 2S06, 3B03, 3D03
- **Canadian:** 2J06, 3E03, 3L03, 3M03, 3N03, 3P03, 3U03, 3V06
- **British:** 2N06, 3J13, 3N03, 3Q03, 3Q13, 3R03, 3S03, 3T13
- **The Americas:** 2H06, 3B03, 3E06, 3S03, 3X03, 3X06, 3Y03

**HONOURS ARTS AND SCIENCE AND HISTORY (B.Arts Sc.)**
(See Arts and Science Programme)

**HONOURS HISTORY**

**Admission:**
Completion of any Level I programme with a weighted average of at least 7.0 in 12 units of Level I work acceptable to the Department, including a grade of at least B— in any Level I History course.

**Programme Notes:**
1. In selecting courses, students must ensure that they take a minimum of 6 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 18 units of Area 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 C.A.A. of at least 8.0 is required before exceptions will be considered.)
3. In fulfilling the 12 units of Humanities requirement for the Honours History degree, students may not select history courses cross-listed in other departments. For example, Classical Civilization 2G05 cannot be used to meet the Humanities requirement, as it is also offered as History 2I06.

**Area Courses:**
All Level II, III and IV History courses.

**Levels II, III and IV: 90 units**
R 18 additional units of Level II History, 18 units of Level III History, and 18 units of Level IV History.

E 24 units, unless History, or other non-History courses approved by the Chair of the Department and the Associate Dean of Humanities.

**COMBINED HONOURS IN HISTORY AND ANOTHER SUBJECT**

**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 any Level I History course.

**Programme Notes:**
1. In selecting courses, students must ensure that they take a minimum of 3 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 18 units of Area 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.

**Area Courses:**
All Level II, III and IV History courses.

**Levels II, III and IV: 90 units**
R 12 units of Level II History, 12 units of Level III History, and 12 units of Level IV History.

E To the minimum total of 72 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond the Level I programme.

**B.A. IN HISTORY**

**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 C— in any Level I History course.

**Programme Notes:**
1. History students who achieve a Cumulative Area Average of at least 7.0 in their Level II History courses in the B.A. programme may be admitted to Honours History in Level III.
2. In selecting courses, students must ensure that they take a minimum of 3 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 Area work in any one of the preceding fields. Additional History courses may be taken as electives.
3. With the approval of the Departmental Counsellor, 6 units of Level III History may be replaced by Level IV History if the student has completed at least 12 units of History beyond Level I and has a minimum C.A.A. of 7.0.
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4. In fulfilling the 12 units of Humanities requirement for the B.A. History degree, students may not select history courses cross-listed in other departments. For example, Classical Civilization 2G06 cannot be used to meet the Humanities requirement, as it is also offered as History 2106.

Area Courses:
All Level II, III and IV History courses.

Levels II and III: 60 units
R 12 additional units of Level II History; 12 units of Level III History; 12 units from the Faculty of Humanities, excluding History.
E 24 units elective, 12 of which may be History courses above Level I.

Japanese Studies

Subject to the approval of the Ontario Council on University Affairs, a new Combined Honours degree in Japanese Studies and another subject will be available in September 1991.

COMBINED HONOURS IN JAPANESE STUDIES AND ANOTHER SUBJECT

Admission: Completion of any Level I programme with a weighted average of at least 7.0 in 12 units of Level I work acceptable to the Dean of Studies. Students are strongly urged to complete Japanese 1Z06 in their Level I programme. If not, Japanese 1206 must be included in Level II of their programme.

Area Courses:
All Level II, III and 1V Japanese courses, Art History 3J03, Geography 3J13, History 3B03, 4B86, Political Science 4M6, Religious Studies 2P06, 3JU3.

Levels II, III, IV: 90 units minimum
R 42 units of Japanese Studies including: Japanese 2206, 3206, 4L03, 4Z03, Religious Studies 2P06, and 18 units from: Art History 3J03, Geography 3J13, History 3B03, History 4B86, Japanese 4G06, Political Science 4M6, Religious Studies 3JU3.
E To the minimum total of 78 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

Department of Modern Languages

The Department of Modern Languages offers Single Honours programmes in Comparative Literature and Modern Languages and Linguistics. The Department also offers Combined Honours programmes in Comparative Literature, German, Hispanic Studies, Italian and Russian.

HONOURS COMPARATIVE LITERATURE

The three programme options in Comparative Literature provide students with a study of specially designed courses in Comparative Literature taught in English in conjunction with the study of one or two national literatures normally taught in the original language.

With the approval of the Programme Coordinator and of the Associate Dean of Humanities (Studies), Level III of this programme may be replaced by courses of study at a university or universities where one or more language of the student's modern language is spoken.

Programme A (With One Language Other Than English)

Admission:
Completion of any Level I programme, including Comparative Literature 1A06 with a grade of at least B --, and 6 units from French 1A06, 1B06, 2G06; German 1A06, 1Z06, Greek 1Z06, Italian 1A06, 1Z06, Latin 1Z06, Russian 1Z06 with a grade of at least B --. Students who wish to enter this programme, but have not fulfilled the requirements, should consult the Associate Dean (Studies) of the Faculty of Humanities.

Programme Note:
Students must maintain averages of at least 7.0 on two Cumulative Area Averages, one in Comparative Literature courses and the other in the language courses selected. This programme, however, has unified Area courses; therefore, only a single Graduation Average will be computed on the Level III and IV Area courses.

Area Courses:
All Level II, III and IV courses in Comparative Literature, and approved Level II, III, and IV courses in the language and literature other than English.

Levels II, III, and IV: 90 units
R Comparative Literature 2A03, 2AA3, 3D03, 3D03, 3QQ3; two of Comparative Literature 4AA3, 4B03, 4C03, 4E03, 4F03; 15 units of Comparative Literature courses; 36 units of courses in the language and literature other than English as specified in the description in the Combined Honours component of the language selected. (The overall total must include at least 36 units of Level III and IV work.)
E 18 units elective.

Programme B (With Two Languages Other Than English)

Admission:
Completion of any Level I programme, including Comparative Literature 1A06 with a grade of at least B --; 12 units covering two different languages from French 1A06, 1B06, 2G06, German 1A06, 1Z06, Greek 1Z06, Italian 1A06, 1Z06, Latin 1Z06, Russian 1Z06 with grades of at least B --. Students who wish to enter this programme, but have not fulfilled the requirements, should consult the Associate Dean (Studies) of the Faculty of Humanities.

Programme Notes:
1. Students must maintain averages of at least 7.0 on two Cumulative Area Averages, one in Comparative Literature courses and the other in the language courses selected. This programme, however, has unified Area courses; therefore, only a single Graduation Average will be computed on the Level III and IV Area courses.
2. Students selecting this option have no free elective choice in the programme.

Area Courses:
All Level II, III and IV courses in Comparative Literature, and approved Level II, III, and IV courses in the two languages and literatures other than English.

Levels II, III, and IV: 93 units
R Comparative Literature 2A03, 2AA3, 3D03, 3D03, 3QQ3; two of Comparative Literature 4AA3, 4B03, 4C03, 4E03, 4F03; 36 units each in the languages and literature other than English as specified in the description in the Combined Honours component of the languages selected, for a total of 72 units. (The overall total must include at least 36 units of Level III and IV work.)

Programme C (With English and Another Language)

Admission:
Completion of any Level I programme, including Comparative Literature 1A06 and English 1D06 with grades of at least B --; 6 units from French 1A06, 1B06, 2G06, German 1A06, 1Z06, Greek 1Z06, Italian 1A06, 1Z06, Latin 1Z06, Russian 1Z06 with a grade of at least B --. Students who wish to enter this programme, but have not fulfilled the requirements, should consult the Associate Dean (Studies) of the Faculty of Humanities.

Programme Notes:
1. Students must maintain averages of at least 7.0 on two Cumulative Area Averages, one in Comparative Literature courses and the other in the language courses selected. This programme, however, has unified Area courses; therefore, only a single Graduation Average will be computed on the Level III and IV Area courses.
2. Students selecting this option have no free elective choice in the programme.

Area Courses:
All Level II, III and IV courses in Comparative Literature and approved Level II, III, and IV courses in a language and literature other than English; English 2A06, 2B06, 2G06, 2H06, 3C06, 3D03, 3D03, 3G06, 3H06, 3I03, 3J06, 3K06, 3M03, 3MM3, 3N06, 3Q03, 3QQ3, 3T03, 3V06, 4X03 and all Level IV seminar courses.

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Levels II, III, and IV: 93 units

R Comparative Literature 2A03, 2AA3, 3D03, 3DD3, 3QQ3; two of Comparative Literature 4A03, 4B03, 4C03, 4E03; 36 units of English Area Courses (2A06, 6 additional units from Level II; 18 units from Level III and 6 units from Level IV English seminars); 36 units of a language and literature other than English as specified in the description in the Combined Honours component of the language selected. (The overall total must include at least 36 units of Level III and IV work.)

COMBINED HONOURS IN COMPARATIVE LITERATURE AND ANOTHER SUBJECT OTHER THAN A LANGUAGE

Admission:
Completion of any Level I programme, including Comparative Literature 1A06 with grade of at least B--; 6 units from French 1A06, 1B06, 2M06, German 1A06, 1Z06, Greek 1Z06, Hispanic Studies 1A06, 1Z06, Italian 1A06, 1Z26, 1Z25, Latin 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. Students who wish to enter this programme, but have not fulfilled the requirements, should consult the Associate Dean (Studies) of the Faculty of Humanities.

Programme Notes:
1. Students who wish to pursue the study of Comparative Literature in combination with either English or a language other than English should select one of Programmes A, B, or C in Honours Comparative Literature.
2. There will be two Cumulative Area Averages calculated, one in Comparative Literature and one in the Other Subject. The Comparative Literature component is made up of a total of 57 units of work as outlined below.
3. Students selecting this option have no free elective choice in the programme.

Area Courses:
All Level II, III, and IV courses in Comparative Literature and approved Level II, III and IV courses in the language other than English.

Levels II, III, IV: 93 units minimum
R 57 units of work consisting of: Comparative Literature 2A03, 2AA3, 3D03, 3DD3, 3QQ3; two of Comparative Literature 4A03, 4B03, 4C03, 4E03; 36 units in the language and literature other than English as specified in the description in the Combined Honours component of the language selected. (The overall total must include at least 36 units of Level III and IV work.)

To the total of 57 units of Area work, students must add at least 36 units of Area work in the other component to make a minimum overall total of 93 units beyond Level I.

HONOURS MODERN LANGUAGES AND LINGUISTICS

This programme combines the study of two or more modern languages (French, German, Italian, 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, German 1A06 or 1Z06 or 1Z26, Hispanic Studies 1A06 or 1Z06, Italian 1A06 or 1Z06 or 1Z26, Russian 1Z06 with grades of at least B--; Students are strongly urged to complete Linguistics 1A06 in their Level I programmes. If not, Linguistics 1A06 must be included in Level II of their programme.

Programme Notes:
1. Students must maintain averages of at least 7.0 on two Cumulative Area Averages, one in Linguistics courses, and the other in the Modern Language courses selected. This programme, however, has unified Area courses. Therefore, only a single Graduation Average will be computed on the Level III and IV Area courses.
2. With the approval of the Programme Co-ordinator and of the Associate Dean of Humanities (Studies), 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.

Area Courses:
All Level II, III, and IV courses in Linguistics, French, German, Hispanic Studies, Italian, and Russian except literature courses taught in translation. Those courses listed as Other Related Courses and Language Study under Linguistics in the section Courses by Department in this Calendar may be considered as Area courses, with the permission of the Department.

Levels II, III, and IV: 90 units
R Linguistics 3A06, 3B03, 3Y03, 4B03, 4C03; 18 units of a language other than English above Level I; 18 units of a second language other than English above Level I; 21 units of Area courses. (The overall total must include a minimum of 36 units of Level III and IV Area courses).
E 15 units elective.

MODERN LANGUAGES - GERMAN

COMBINED HONOURS IN GERMAN AND ANOTHER SUBJECT

Alternative A (for students entering with German 1A06)
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 German 1A06.

Programme Notes:
1. With the approval of the Department of Modern Languages, and of the Associate Dean of Humanities (Studies), Level III of Honours German may be replaced by courses of study at a university in a German-speaking country.
2. Students are strongly advised to take History 3J06 as an elective.

Area Courses:
All Level II, III and IV German courses, excluding 2206.

Levels II, III, and IV: 90 units minimum
R 36 units of German which must include at least 24 units of Level III and IV German courses.
E To the minimum total of 72 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

Alternative B (for students entering with German 1206)
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 German 1206.

Programme Notes:
1. German 2A03, 2B03, 2E03, and 2G03 will be included in calculating the Graduation Average.
2. Students are strongly advised to take History 3J06 as an elective.
3. With the approval of the Department of Modern Languages, and of the Associate Dean of Humanities (Studies), Level III of Honours German may be replaced by courses of study at a university in a German-speaking country.

Area Courses:
All Level II, III and IV German courses.

Levels II, III, and IV: 90 units minimum
R German 2A03, 2B03, 2E03, 2G03, 2Y06, 2206, 12A06, 12B06, 1226, 1Z06, Latin 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. Students who wish to enter this programme, but have not fulfilled the requirements, should consult the Associate Dean (Studies) of the Faculty of Humanities.

Programme Notes:
1. With the approval of the Department of Modern Languages, and of the Associate Deans of Humanities and Social Sciences, Level III of Honours German and Political Science may be
FACULTY OF HUMANITIES

replaced by courses of study at a university in a German-speaking country. Students who plan to spend their third year abroad must have a minimum Cumulative Area Average of 8.0 in each of German and Political Science in their second year.

Area Courses:
History 3J06 and all Level II, III and IV German courses, excluding 2206; all Level II, III and IV Political Science courses.

Levels II, III and IV: 90 units
R 36 units of German, 24 of which must include Level III and IV German courses; History 3J06; Political Science 2P06, 9 to 12 units from Political Science 2E06, 3M06, 3PP3, 3QQ3, 3RR3; at least 6 units of Level IV Political Science; 6 to 9 additional units of Political Science, to make a total of 36 units of Area courses in Political Science, only 12 of which may be from Level II courses.

Alternative B (for students entering with German 1206)
Admission:
Completion of any Level I programme with a grade of at least B – in German 1206 and B in Political Science 1A06.

Programme Notes:
1. German 2A03, 2B03, 2E03, and 2G03 will be included in calculating the Graduation Average.
2. With the approval of the Departments of Modern Languages and Political Science, and of the Associate Deans of Humanities and Social Sciences, Level III of Honours German and Political Science may be replaced by courses of study at a university in a German-speaking country. Students who plan to spend their third year abroad must have a minimum Cumulative Area Average of 8.0 in each of German and Political Science in their second year.

Area Courses:
History 3J06 and all Level II, III and IV German courses; all Level II, III and IV Political Science courses.

Levels II, III and IV: 90 units
R German 2A03, 2B03, 2E03, 2G03, 2Y06, 2Z06; 12 additional units of Level III and IV German; History 3J06; Political Science 2P06, 9 to 12 units from Political Science 2E06, 3M06, 3PP3, 3QQ3, 3RR3; at least 6 units of Level IV Political Science; 6 to 9 additional units of Political Science, to make a total of 36 units of Area courses in Political Science, only 12 of which may be from Level II courses.

MODERN LANGUAGES - HISPANIC STUDIES

COMBINED HONOURS IN HISPANIC STUDIES AND ANOTHER SUBJECT

Alternative A (for students entering with Hispanic Studies 1A06)
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 Hispanic Studies 1A06.

Programme Note:
1. The following is a recommended distribution of Hispanic Area courses:
   Level II: Hispanic Studies 2A03, 2B03, 2C03, 2E03
   Level III: Hispanic Studies 3D03, 3D3D and 6 units of Hispanic Literature
   Level IV: Hispanic Studies 4D03 and 9 units of Hispanic Literature

2. Upon completion of all Level II Hispanic Studies Area courses, with the approval of the Department of Modern Languages, and the Associate Dean of Humanities (Studies), up to 15 units of Level III credit may be replaced by courses of study at a university abroad.

Area Courses:
All Level II, III and IV Hispanic Studies courses.

Levels II, III and IV: 90 units minimum
R Hispanic Studies 2A03, 2B03, 2C03, 2E03, 3D03, 3D3D, 4D03 and 15 additional units of Level IV Hispanic Literature.

E. To the minimum total of 72 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

Alternative B (for students entering with Hispanic Studies 1206)
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 Hispanic Studies 1206.

Programme Notes:
1. The following is a recommended distribution of Hispanic Area courses:
   Level II: Hispanic Studies 2206, 2A03, 2B03 or 2C03, 2E03.
   Level III: Hispanic Studies 3D03, 3D3D and 6 units of Hispanic Literature.
   Level IV: Hispanic Studies 4D03 and 9 units of Hispanic Literature.

2. Upon completion of all Level II Hispanic Studies courses, with the approval of the Department of Modern Languages, and the Associate Dean of Humanities (Studies), up to 15 units of Level III credit may be replaced by courses of study at a university abroad.

Area Courses:
All Level II, III and IV Hispanic Studies courses.

Levels II, III and IV: 90 units minimum
R Hispanic Studies 2206; 2B03 or 2C03; 2A03, 2E03, 3D03, 3D3D, 4D03 and 15 units of Level IV Hispanic Literature.

E. To the minimum total of 75 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

MODERN LANGUAGES - ITALIAN

COMBINED HONOURS IN ITALIAN AND ANOTHER SUBJECT

Students who entered any programme in Italian before September 1988 must consult the academic counsellor of Italian to discuss ways of meeting their programme requirements.

Alternative A (for students entering with Italian 1A06)
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 Italian 1A06.

Programme Notes:
1. Recommended Distribution of Italian Area Courses for students following Alternative A:
   Level II: Italian 2A03, 2D03, 2E03, 2EE3
   Level III: Italian 3D03, 3D3D, 3R03, 3RR3; and 3 units of Level III or IV Italian.
   Level IV: Italian 4R03 or 4R03; 4M03 and 6 units of Level III or IV Italian.

2. Upon completion of 60 units of work (including 12 units of Level II Italian 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 Italian work may be replaced by courses of study at an Italian university.

Area Courses:
All Level II, III and IV Italian courses.

Levels II, III and IV: 90 units minimum
R Italian 2A03, 2D03, 2E03, 2EE3, 3D03, 3D3D, 3R03, 3RR3, 4M03, 4H03 or 4R03; 9 units of Level III or IV Italian.
Alternative B (for students entering with Italian 1206 or 1226)

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 Italian 1206 or 1226.

Programme Notes:
1. Recommended Distribution of Italian Area Courses for students following Alternative B:
   Level II: Italian 2E03, 2EE3, 2206.
   Level III: Italian 2A03, 2D03, 3R03, 3RR3; and 3 units of Level III or IV Italian.
   Level IV: Italian 3D03, 3DD3, 3H03 or 4R03; 6 units of Level III or IV Italian.

2. Upon completion of 60 units of work (including 12 units of Level II Italian 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 Italian work may be replaced by courses of study at an Italian university.

Area Courses:
All Level II, III and IV Italian courses.

Levels II, III and IV: 90 units minimum
R Italian 2A03, 2D03, 2EE3, 2206, 3D03, 3DD3, 3R03, 3RR3; 4H03 or 4R03; 9 units of Level III or IV Italian.
E To the minimum total of 78 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

MODERN LANGUAGES - RUSSIAN

COMBINED HONOURS IN RUSSIAN AND ANOTHER SUBJECT

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 Russian 1206.

Programme Note:
Russian 2A03 and 2AA3 (or 2A06) will be included in calculating the Graduation Average.

Area Courses:
All Level II, III and IV Russian courses.

Levels II, III and IV: 90 units minimum
R Russian 2A03, 2AA3, 2C06, 3C06, 3R03, 3KK3, 4C06, and 6 units from 4G03, 4H03, 4R03, 4J03.
E To the minimum total of 72 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

HONOURS RUSSIAN AND POLITICAL SCIENCE

Admission:
Completion of Humanities I or Social Sciences I with a weighted average of at least 7.0 in Russian 1206 and Political Science 1A06, including a grade of at least B in each of Russian 1206 and Political Science 1A06.

Programme Note:
Russian 2A03 and 2AA3 (or 2A06) will be included in calculating the Graduation Average.

Area Courses:
All Level II, III and IV Russian and Political Science courses.

Levels II, III and IV: 90 units
R Russian 2A03, 2AA3, 2C06, 3C06, 3R03, 3KK3, 4C06; and 6 units from 4G03, 4H03, 4R03, 4J03; Political Science 2K06, 3M06, 4J06 and 6 additional units of Level II and 12 additional units beyond Level II in Political Science.
E 18 units.

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 a weighted average of at least 7.0 in Music 1B06, 1CC3 or 1CC2, 1D03 (or 1D02 and 1D02); one of 1E03, 1E04, 1E05; and 1G03.

Programme Notes:
1. The Cumulative Area Average for the Honours Music programmes and for the music portion of the Combined Honours programmes is termed the Cumulative Music Average and is the weighted average of grades in all Area courses attempted. To continue in an Honours Music Programme, a student must maintain a CMA of at least 7.0.
2. Students must complete the minimum of 24 units of non-Music electives as follows:
   12 units by the end of Level I
   18 units by the end of Level II
   24 units by the end of Level III

Area Courses:
Music 2BB3, 2BB6, 2BB3, 2C03, 2CC3, 2D02, 2D03, 2D22, 2E03, 2E04, 2G03, 2H03, 2H04, 3AA3, 3E03, 3E04, 3G03, 3J03, 3J04, 3K03, 3L03, 3M03, 3N03, 3O03, 3T03, 3U03, 3V03, 4E03, 4E04, 4G03, 4K03, 4L03, 4M03, 4M04, 4N03, 4O03, 4P03, 4Q03, 4U03, 4X03.

Levels II, III and IV: 90 units
R Music 2B06, 2BB3, 2C03, 2CC3, 2D02, 2D03, 2E03, 2H03, 2H03, 3E03, 3G03, 3J03; and 24 units from Music 3A03, 3K03, 3L03, 3M03, 3N03, 3O03, 3T03, 3U03, 3V03, 4K03, 4L03, 4M03, 4M04, 4N03, 4O03, 4P03, 4Q03, 4U03, 4X03 (only two of 3T03, 3U03, 4X03 may be taken for R-credit); 3 units of Level III or IV Area courses, and 3 additional units of any Level III or IV Music. (The overall total must include a minimum of 12 units of Level IV Music Area courses.)
E 24 units, 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 a weighted average of at least 7.0 in Music 1B06, 1CC3 or 1CC2, 1D03 (or 1D02 and 1D02); 1E06, 1G03. Under exceptional circumstances, students may use Music 1E03 or 1E04 in place of 1E06 as a prerequisite for Music 2E06. Students interested in this option should consult the Department Counsellor before March Preregistration.

Programme Notes:
1. The Cumulative Area Average for the Honours Music programmes and for the music portion of the Combined Honours programmes is termed the Cumulative Music Average and is the weighted average of grades in all Area courses attempted. To continue in an Honours Music Programme, a student must maintain a CMA of at least 7.0.
FACULTY OF HUMANITIES

2. Students must complete the minimum of 24 units of non-Music electives as follows:
   12 units by the end of Level I
   18 units by the end of Level II
   24 units by the end of Level III

Area Courses:
Music 2B03, 2B06, 2BB3, 2CC3, 2D02, 2D03, 2D02, 2E06, 2G03, 2H03, 2H04, 3AA3, 3E06, 3G03, 3J03, 3L04, 3R03, 3L03, 3M03, 3M04, 3N03, 3O03, 3P03, 3Q03, 3R03, 3S03, 3T03, 3U03, 4E06, 4G03, 4K03, 4L03, 4M03, 4N03, 4O03, 4P03, 4Q03, 4R03, 4U03, 4X03.

Levels II, III, IV: 93 units
R Music 2B06, 2BB3, 2CC3, 2D03, 2E05, 2G03, 3O03, 3P03, 3Q03, 3R03, 3S03, 3T03, 3U03, 3V03, 4E03, 4G03, 4H03, 4I03, 4J03, 4K03, 4L03, 4M03. (Only two of 3T03, 3U03, 4X03 may be taken for R-credit.) The overall total must include a minimum of 12 units of Level IV Music Area courses.

E 18 units, 6 of which may be from Music.

Programme B - Alternative 1: Music History and Theory
Admission:
Completion of Music I with a weighted average of at least 7.0 in Music 1B06, 1CC3 or 1CC2, 1D03 (or 1D02 and 1DD2); one of 1E03, 1E04, 1E06, and 1G03.

Programme Notes:
1. The Cumulative Area Average for the Honours Music programmes and for the music portion of the Combined Honours programmes is termed the Cumulative Music Average and is the weighted average of grades in all Area courses attempted. To continue in an Honours Music Programme, a student must maintain a CMA of at least 7.0.
2. Students must complete the minimum of 24 units of non-Music electives as follows:
   12 units by the end of Level I
   18 units by the end of Level II
   24 units by the end of Level III

Area Courses:
Music 2B03, 2B06, 2BB3, 2CC3, 2D02, 2D03, 2D02, 2E06, 2G03, 2H03, 2H04, 3AA3, 3E06, 3G03, 3J03, 3L04, 3R03, 3L03, 3M03, 3M04, 3N03, 3O03, 3P03, 3Q03, 3R03, 3S03, 3T03, 3U03, 4E06, 4G03, 4K03, 4L03, 4M03, 4N03, 4O03, 4P03, 4Q03, 4R03, 4U03, 4X03. (Only two of 3T03, 3U03, 4X03 may be taken for R-credit.) The overall total must include a minimum of 12 units of Level IV Music Area courses.

E 18 units, 6 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 a weighted average of at least 7.0 in Music 1B06, 1CC3 or 1CC2, 1D03 (or 1D02 and 1DD2), 1E06, 1G03. Under exceptional circumstances, students may use Music 1E03 or 1E04 in place of 1E06 as a prerequisite for Music 2E06. Students interested in this option should consult the Departmental Counsellor before March Pre-registration.

Programme Notes:
1. The Cumulative Area Average for the Honours Music programmes and for the music portion of the Combined Honours programmes is termed the Cumulative Music Average and is the weighted average of grades in all Area courses attempted. To continue in an Honours Music Programme, a student must maintain a CMA of at least 7.0.
2. Students must complete the minimum of 24 units of non-Music electives as follows:
   12 units by the end of Level I
   18 units by the end of Level II
   24 units by the end of Level III

Area Courses:
Music 2B03, 2B06, 2BB3, 2CC3, 2D02, 2D03, 2D02, 2E06, 2G03, 2H03, 2H04, 3AA3, 3E06, 3G03, 3J03, 3L04, 3R03, 3L03, 3M03, 3M04, 3N03, 3O03, 3P03, 3Q03, 3R03, 3S03, 3T03, 3U03, 4E06, 4G03, 4H03, 4I03, 4J03, 4K03, 4L03, 4M03, 4N03, 4O03, 4P03, 4Q03, 4R03, 4U03, 4X03.
FACULTY OF HUMANITIES

PROGRAMME NOTE:
Students must complete the minimum of 24 units of non-Music electives as follows:
- 12 units by the end of Level I
- 18 units by the end of Level II
- 24 units by the end of Level III

AREA COURSES:
All Level II, III and IV Music courses, except Music 2E03, 2E04, 2G03, 3E03, 3E04, 3G03, 4E03, 4E04, 4G03.

LEVELS II AND III: 60 UNITS
R Music 2B06, 2BB3, 2C03, 2H03; 12 additional units of Area courses, including at least 6 units beyond Level II; 9 units from the Faculty of Humanities, which may include Music.
E 24 units, 12 of which may be from Music.

DEPARTMENT OF PHILOSOPHY

HONOURS ARTS AND 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 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 6 units of work acceptable to the Department of Philosophy.

Area Courses:
All Level II, III and IV Philosophy courses.

Levels II, III and IV: 90 UNITS
R Philosophy 2A06, 2C06, 3A06, 3G03, 3C03, 4H03; one of 2B03, 2R03; and 24 additional units of Philosophy, at least 21 units of which must be Level III or IV Philosophy courses and at least 6 units of which must be Level IV Philosophy courses.
12 units Humanities excluding Philosophy or other non-Philosophy courses approved by the Chair of the Department and the Associate Dean of Humanities.
E 24 units, 12 of which may be from Philosophy beyond Level I.

COMBINED HONOURS IN PHILOSOPHY AND ANOTHER SUBJECT
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 any Level I Philosophy course or, if no such course was taken, in 6 units of work acceptable to the Department of Philosophy.

Programme Note:
Philosophy 2C06 will be included in calculating the Graduation Average.

Area Courses:
All Level II, III and IV Philosophy courses.

Levels II, III and IV: 90 UNITS MINIMUM
R Philosophy 2A06, 2C06; one of 2B03, 2R03; and 21 units of Level III and IV Philosophy (including at least 6 units of Level IV Philosophy).

E To the minimum total of 72 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

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 6 units of work acceptable to the Department of Philosophy and Biology 1A06 or 1G06 with a grade of at least B- and 6 units of Level I Mathematics. Students are cautioned to observe that Chemistry 1A06 is the normal prerequisite for Biology 2B03 and Biology 2C03, which are required courses in the programme.

Programme Note:
The degree programme has unified Area courses; therefore, only a single Cumulative Area Average and Graduation Average is calculated. Students are advised to note carefully the prerequisites for all courses listed in this programme.

Area Courses:
All Level II, III and IV Philosophy courses; all Level II, III and IV Biology courses; Chemistry 2006.

Levels II, III and IV: 90 UNITS
R Biology 2B03, 2C03, 2E03, 2F03; 24 units from Level III and IV Biology Area courses (Chemistry 2006 may replace 6 units of the above Biology courses).
Philosophy 2A06; 2C06; 2M03; 3M03; 4W03; 4WW3; one of 2B03, 2R03; one of 2D03, 2F03, 2G03; one of 3G03, 3N06.
E To the minimum total of 72 units of work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond Level I.

HONOURS PHILOSOPHY AND MATHEMATICS (B.A.)
Admission:
Completion of any Level I programme with a weighted average of at least 7.0 in Mathematics 1A06 and Mathematics 1B03, and a grade of at least B- in any Level I Philosophy course or, if no such course was taken, in 6 units of work acceptable to the Department of Philosophy.

Programme Note:
The degree programme has unified Area courses; therefore, only a single Cumulative Area Average and Graduation Average is calculated.

Area Courses:
All Level II, III and IV Mathematics and Philosophy courses.

Levels II, III and IV: 90 UNITS
R Mathematics 2A06, 2B06, 2F03, 3A06, 3E03, 3EE3; 9 units from Mathematics 2C03, 3B03, 3L06, 3P03, 4B03, 4BB3; 6 units from Mathematics 4A06, 4E03, 4K03, 4103;
Philosophy 2A06; 2C06; one of Philosophy 2B03, 2R03; 24 units of Level III or Level IV Philosophy (including at least one Level IV Philosophy course).
E 9 units elective.

B.A. IN PHILOSOPHY
Admission:
Completion of any Level I programme with a weighted 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.

Area Courses:
All Level II, III and IV Philosophy courses.

Levels II and III: 60 UNITS
R Philosophy 2A06, 2C06; one of Philosophy 2B03, 2R03; 9 units of Philosophy, including at least 6 units of Level III or IV Philosophy; 12 units from the Faculty of Humanities, or 12 units approved by the Department.
E 24 units, 12 of which may be from Philosophy.
Faculty of Science

R.H. McNutt/B.Sc., Ph.D., Dean of Science
D.E.N. Jensen/M.A., Ph.D., Associate Dean of Science (Studies)
K.A. Reddish/B.Sc., Associate Dean of Science (Studies), Acting
A.J. Yarwood/B.Sc., Ph.D., Associate Dean of Science (Studies)
E. Calligan/Student Advisor
P.G. Hensley/B.Sc./Student Advisor
N. Lazannato, Programmes Assistant

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
- Psychology

All Departments offer four-level Honours B.Sc. programmes which prepare students for graduate studies, Ontario Teacher's Certificate, and industry. A number of Departments offer Combined Honours degrees. An Honours Degree in Molecular Biology and Biotechnology is organized by a Committee of Instruction involving the Faculties of Health Sciences and Science.

Three-level B.Sc. programmes, which provide a science education, but are less extensive and less demanding than the Honours programmes, are also offered by all Departments except Biochemistry, and Materials Science and Engineering. A three-level B.Sc. in Science programme is also available.

Some Departments offer Major programmes as well (which are indicated in the list above by a star). Major programmes require four levels and offer in-depth studies suitable for students who will be seeking employment immediately upon graduation. Some of the Major programmes can also lead to an Ontario Teacher's Certificate. Major programmes are also distinguished from Honours programmes by being less specialized and somewhat less demanding.

Academic Regulations

The programmes of the Faculty are set out by Level, and the Academic Regulations of the University specify that courses must be taken in the sequence specified in the programmes. This means that students in the Faculty of Science must have completed or be registered in the remaining courses for one Level before they may register in courses for the next Level.

For all Honours and Major programmes in the Faculty of Science, which combine the work of two disciplines, a single Cumulative Area Average and a single Graduation Average will be computed.

Students enrolled in a programme in the Faculty of Science, in addition to meeting the General Academic Regulations, shall be subject to the following Faculty of Science Regulations.

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 mark of at least D-

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 Major, and Major and Honours, programmes, on the recommendation of the Department concerned and with the approval of an Associate Dean (Studies).

EXTRA COURSES

Extra courses are courses taken in addition to those required for the degree programme in which the student is registered. Permission to take Extra courses must be obtained from the Office of the Deans of Science (Studies) and such courses must be designated Extra at the time of registration. The grades obtained in Extra courses will be included in neither the Cumulative Area Average nor the number of units required for graduation.

MAJOR PROGRAMMES

The following describes the change in regulations for Major programmes in the Faculty of Science. (Students in Honours, Combined Honours, and B.Sc. programmes should note the appropriate University-wide regulations in the section Academic Regulations.)

Admission: Students seeking admission after August 1987, will require a weighted average of 5.0 in Level I courses, or a grade of at least C in a specified course. The relevant courses are specified, under Admission, in each programme description.

Continuation in a Major Programme:

For students admitted to a Major programme after August 1987: If you obtain a Cumulative Area Average of 5.0, you may continue in a Major programme. If you fail to obtain a Cumulative Area Average of 5.0, but have an average of at least 4.5, you may continue on Programme Probation for one reviewing period. You may be on Programme Probation only once. If you fail to obtain a Cumulative Area Average of 4.5 you may not continue in the programme and must seek entry to another programme.

For students admitted to a Major programme before September 1987: If you obtain a Cumulative Area Average of 4.0, you may continue in a Major programme. If you fail to obtain a Cumulative Area Average of 4.0, but have an average of at least 3.5, you may continue on Programme Probation for one reviewing period. You may be on Programme Probation only once. If you fail to obtain a Cumulative Area Average of 3.5 you may not continue in the programme and must seek entry to another programme.

Graduation: Graduation standing in Major degree programmes is awarded in three classes. For first-class standing, a minimum Graduation Average of 9.5 is required; for second-class standing 7.0; and for third-class standing 5.0 for those who enter a Major programme after August 1987, and 4.0 for those who were admitted to a Major programme before September 1987.

THIRD YEAR STUDY ELSEWHERE PROGRAMME

Students registered in Single or Combined Honours or Major 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 University Average of at least 7.0. 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 O.S.A.P. (The 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 their Associate Dean 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 the programme. Alpe (France), Baden-Wurttemberg (Germany), Lombardy (Italy) and elsewhere. All credit for work completed may only be confirmed after their return and entry into their final year of study. The maximum credit available in this way is normally thirty 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.

**LIMITED ENRLMENT**

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.

**SECOND BACHELOR’S DEGREE PROGRAMMES**

In addition to the regulations stated in the section Academic Regulations, Second Bachelor’s Degree Programmes in this Calendar, the following Faculty regulations will apply, effective September 1987.

Students will be admitted to Second Degree studies only if the second degree studies involve a significant component of work in the Area courses of a programme. Accordingly, permission will not be granted to take Second Degrees in the following cases or subject combinations:
1. in a subject which 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 or Major 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 a holder of a Major degree in the same subject.
4. in B.Sc. Science to a holder of another B.Sc. degree (either three- or four-year) in a programme given by a department.
5. in three-year departmental B.Sc. programmes requiring courses which constitute a significant component of an initial B.Sc. Science degree.
6. in the B.Sc. degree to a holder of the B.A. degree in the same subject.

**Level I Programme**

**NATURAL SCIENCES I: 30 UNITS**

Mathematics 1A06 or 1C06
- One or two of a) or b):
  a. Chemistry 1A06
  b. Physics 1A06 or 1B06 or 1C06
- Additional selections from c) to j) to make a total of 30 units:
  c. Biology 1A06
  d. Computer Science 1MA3, or 1ZA3, or 1MA3 and 1MB3
  e. Geography 1A06
  f. Geology 1A03 and/or 1C03
  g. Materials Science 1A03, or 1A03 and 1B03
  h. Mathematics 1B03
  i. Psychology 1A06
  j. 3 or 6 units of Level I Humanities and/or Social Sciences.

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.

The choice in the programme that a first level student may elect is considerable and should be made carefully with the Level II admission requirements of a specific programme in mind. 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 Mathematics 1B03 must register in Mathematics 1A06 rather than Mathematics 1C06.

Students who have completed Mathematics 1C06 and later complete Mathematics 1B03 are eligible to take upper level Mathematics courses.

Students who complete Natural Sciences I with high standing but who lack a Level I course required for entry into the desired Level II programme may be permitted entry to that programme after consultation with an Associate Dean (Studies) and the appropriate Departmental Chair.

**Faculty of Science**

**Department of Biochemistry**

**HONOURS ARTS AND SCIENCE AND BIOCHEMISTRY (B.Arts Sc.)**

(See Arts and Science Programme)

**HONOURS BIOCHEMISTRY**

This programme fulfils the academic requirements for membership in the Chemical Institute of Canada.

General Biochemistry and Biotechnology and Genetic options are available at Level IV.

**Admission:**

Completion of Natural Sciences I, with an average of at least 7.0 in Biology 1A06, Chemistry 1A06, and one of Mathematics 1A06, 1C06, Physics 1A06, 1B06, 1C06. The election of one of Physics 1A06, 1B06, 1C06 in Level I or II is recommended.

**Programme Note:**

Biochemistry 2A03 or 2A06 will be included in calculating the Graduation Average.

**Area Courses:**

- Biochemistry 2A03, 2A06, 3A06, 3B03, 3C03, 3L06, 3N03, 3A03, 4A03, 4B06, 4D03, 4E03, 4F03, 4G03, 4H03, 4L03, 4M03, 4P03, 4Q03; Biology 2B03, 2C03, 3C03, 4D03, 4F03; Chemistry 2N03, 2P06, 2Q06, 2R03, 3D03, 3F03.

**Level II: 30 units**

R Biochemistry 2A06; Chemistry 2N03, 2P06; and one of Chemistry 2R03, 2P06; Biology 2B03 and 2C03.

E 3 to 6 units. Chemistry 2C03, Computer Science 1ZA3 (or 1MA3) and Statistics 2M03 are suggested.

**Level III: 30 units**

R Biochemistry 3A06 and 3L06; Chemistry 3F03; Biology 3C03; 6 units from Level III or IV Biochemistry, Biology or Chemistry courses.

E 6 units, excluding Biochemistry.

**Level IV (General Biochemistry Option): 30 units**

R One of Biochemistry 4B06, 4L03, 4G03, 4P03; Biochemistry 4E03, 4R03, 4M03; 6 to 9 units of Level III and IV Biochemistry courses to make a total of 21 units (maximum of 6 units from Biochemistry 4B06, 4L03, 4G03, 4P03, 4R03, 4M03; 3 units of Level III and IV courses from any Science discipline other than Biochemistry.

E 6 units.

**Level IV (Biotechnology and Genetic Engineering Option): 30 units**

A CAA of at least 7.0 on completion of Level III is required for admission.
R One of Biochemistry 4B06, 4G03, 4P03; Biochemistry 4D03, 4E03, 4I03, 4M03; 3 to 6 units of Level III and IV Biochemistry courses to make a total of 21 units (maximum of 5 units from Biochemistry 4L03, 4P03, 4B06), 3 units of Level III and IV courses from any Science discipline other than Biochemistry (Biology 4I03 and 4V03 are recommended).

E 6 units.

HONOURS BIOCHEMISTRY AND CHEMISTRY

This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.

Admission:
Completion of Natural Sciences I, including Biology 1A06, Chemistry 1A06, Mathematics 1B03, 1A06 (or 1C06) and one of Physics 1A06, 1B06, 1C06, with an average of at least 7.0 in Chemistry 1A06 and Mathematics 1A06 (or 1C06).

Area Courses:
Biochemistry 2A03, 2A06, 3A06, 3B03, 3C03, 3L03, 3L06, 4A03, 4B06, 4D03, 4E03, 4I03, 4M03, 4Q03, 4U06; Chemistry 2A03, 2B06, 2C03, 2Q06, 2P06, 3A03, 3B03, 3C03, 3D03, 3E06, 3K06, 3L03, 3Q03, 3L03, 4A03, 4D03, 4G06, 4L03, 4U06.

Level II: 30 units
R Biochemistry 2A06; Chemistry 2A03, 2B06, 2C03, 2P06; Mathematics 2N03;
E 3 units. Students considering Level III Honours Biochemistry should elect Biology 2C03. Students considering Level III Honours Chemistry should elect Physics 2A03.

Level III: 30 units
R Biochemistry 3A06; one of Biochemistry 3L03, 3L06; Chemistry 3B03, 3D03; one of Chemistry 3A03, 3Q03, or 3E06.
E Electives to make a total of 30 units.

Level IV: 30 units
R Biochemistry 4E03, 4I03 and 4M03, and one of Biochemistry 4D03, 4Q03; Biochemistry 4B06, or 4U06 (same as Chemistry 4U06), or Chemistry 4G06; one of Chemistry 4A03, 4D03, 4C03 or 3K06; 3 units of Level III or IV Chemistry.
E Electives to make a total of 30 units.

BIOCHEMISTRY MAJOR

Admission:
Completion of Natural Sciences I, with an average of at least 5.0 in Biology 1A06, Chemistry 1A06, and one of Mathematics 1A06, 1C06, Physics 1A06, 1B06, 1C06. The elective of one of Physics 1A06, 1B06, 1C06 in Level I or II is recommended.

Programme Note:
Biochemistry 2A03 or 2A06 will be included in calculating the Graduation Average.

Area Courses:
Biochemistry 2A03, 2A06, 3A06, 3B03, 3C03, 3L03, 3L06, 3N03, 4B06, 4D03, 4E03, 4F03, 4G03, 4H03, 4I03, 4M03, 4P03, 4Q03; Biology 2B03, 2C03, 3C03, 4I03, 4V03; Chemistry 2B06, 2N03, 2P06, 2Q06, 2R03, 3D03, 3F03.

Level II: 30 units
R Biochemistry 2A06; Chemistry 2N03, 2P06, 2R03; Biology 2B03 and 2C03.
E 6 units.

Level III: 30 units
R Biochemistry 3A06 and 3L06; Chemistry 3F03; 3 units of Level III or IV Biochemistry or Biology Area courses; and 6 units from any Science discipline.
E 6 units.

Level IV: 30 units
R Biochemistry 4L03; one of Biochemistry 4E03, 4I03, 4M03, and 9 units of Level III and IV Biochemistry Area courses (maximum of 6 units from Biochemistry 4B06, 4G03, 4L03, 4P03) and 9 units of courses from any Science discipline.
E 6 units.

Department of Biology

HONOURS PHILOSOPHY AND BIOLOGY (B.A.)
(see Faculty of Humanities, Department of Philosophy)

HONOURS ARTS AND SCIENCE AND BIOLOGY (B.Arts Sc.)
(see Arts and Science Programme)

HONOURS BIOLOGY

Admission:
Completion of Natural Sciences I, including Chemistry 1A06, and one of Computer Science 1ZA3 (or 1MA3); one of Physics 1A06, 1B06, 1C06 with at least B in Biology 1A06 and at least B in one of Mathematics 1A06, 1C06, Chemistry 1A06, Physics 1A06, 1B06, 1C06.

Programme Notes:
1. Students are advised to note carefully the prerequisites for all Levels III and IV courses listed in the following programme, particularly Biochemistry 3G06.
2. Students interested in Honours Biology and Pharmacology must elect Chemistry 2Q06 or 2B03 in Level II.

Area Courses:
All levels (II, III and IV) Biology courses: Biochemistry 3A06, 3G05, 4B06, 4D03, 4E03, 4G03; Engineering 4K03; Geography 3P03, 4P03; Geology 2Q03, 3D06, 3G03, 4D03, 4F03; Molecular Biology 4H03; Pharmacology 4B03; Psychology 3F06, 3R03, 3S03, 3T03.

Level II: 30 units
R Biology 2B03, 2C03, 2D03, 2E03, 2F03; Chemistry 2P06; Computer Science 1ZA3 (or 1MA3), if not completed. Chemistry 2Q06, 2B03 or Statistics 2B03 is recommended.
E Electives, excluding Biology and Biochemistry, to make a total of 30 units.

Level III: 30 units
R 18 units from Levels III and IV Area courses in Biology; 6 units of Area courses.
E 6 units, at least 3 of which must not be from Biology or Biochemistry.

Level IV: 31-32 units
R 19 to 20 units of Levels III and IV Area courses in Biology, including Biology 4F04 or 4C08; 6 units of Area courses.
E 6 units.

HONOURS BIOLOGY AND PHARMACOLOGY

Admission:
Completion of Level II Honours Biology with a weighted average of at least 7.0 in Biology 2B03, 2D03, 2E03, 2F03, Chemistry 2D06 and 2Q06 (or 2B03). Computer Science 1ZA3 (or 1MA3) is required.

These are the minimal academic requirements. 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.

Programme Note:
This is a five year Co-op programme, three terms of which must be spent off-campus in work related to pharmacology, toxicology or pharmaceutical. 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. Pharmacology courses with the exception of Pharmacology 4B03 will be taught using a problem-based, self-directed learning approach. Pharmacology 4B03 may be taught in a lecture format in some years.
Area Courses:
- Biochemistry 3G06; Biology 2B03, 2C03, 2D03, 2E03, 2F03, 3A06, 3C03, 3E03, 3H03, 3H13, 3I06, 3N06, 3O03, 3P03, 3U06, 4D03, 4E03, 4I03, 4I13, 4L09, 4M03, 4M33, 4N03, 4V03, 4X03; Chemistry 2C06, 2Q06, 2R03; Pharmacology 3A06, 3B06, 4A03, 4A33, 4B03, 4C03, 4D03, 4F09.

Level III: 30 units
- R Biology 3P03, 3U06; Biochemistry 3G06; Pharmacology 3A06, 3B06.
- E 3 units. Biochemistry 3H03; Biology 3O03; Chemistry 2N03 or Statistics 2R06 are recommended.

Level IV: 39 units
- R One of Pharmacology 4F09 or Biology 4L09 to be taken in the summer term; Biology 4I03; one of Biology 4N03, 4M03 or 4N03; 6 units from Level III or IV Areas of Science or Biochemistry 4A03, 4A33 and two of Pharmacology 4B03, 4C03, 4D03.
- E 6 units. Statistics 2R06 is recommended (if not completed).

HONOURS BIOLOGY AND PHILOSOPHY

Admission:
Completion of Natural Sciences I, including Chemistry 1A06 with at least B+ in Biology 1A06 and at least B in a course acceptable to the Department of Philosophy.

Programme Notes:
Students are advised to note carefully the prerequisites for all courses listed in this programme. No student may register in any level of this programme without the approval of the Chair of the Department of Philosophy.

Area Courses:
- All Levels II, III and IV Biology courses except Biology 4L09; Biochemistry 3G06, 3G06; all Levels II, III and IV Philosophy courses.

Levels II, III and IV: 93 units
- R Biology 2B03, 2C03, 2E03, 2F03; 12 units from Biology 3F06, 3H03, 3H13, 3I03, 3I03, 3N06, 3O03, 3Q03, Biochemistry 3G06; 12 additional units from Levels III and IV Biology Area courses; Chemistry 2B06 or both Chemistry 2B03 and Biochemistry 2E03; Philosophy 2A06; one of Philosophy 2B03, 2R03; Philosophy 2C06; one of Philosophy 2D03, 2F03, 2G03; Philosophy 2N03; one of Philosophy 3G03, 3N06; Philosophy 3M03, 3O03; 3W03; 4W03.
- E 12 to 15 units to make a total of 93 units (Chemistry 2R03 is recommended).

HONOURS BIOLOGY AND PSYCHOLOGY

Admission:
Completion of Natural Sciences I, including one of Physics 1A06, 1B06, 1C06, with at least B in each of Biology 1A06, Chemistry 1A06 and Psychology 1A06.

Programme Notes:
1. Students must complete a minimum of one laboratory course in Levels II or IV Biology, and at least one of Psychology 3E03, 3L03, 3Q03, 3S03, 3V03, 4E03 or 4Q03. A minimum of 21 units from Psychology and a minimum of 21 units from Biology must be included in the total required courses for Levels III and IV combined.
2. Enrolment is limited for the Psychology laboratory courses. Permission of the department must be obtained by March 1.
3. Biology 2E03 and 2F03 will be included in calculating the Graduation Average.

Area Courses:
- Biology 2B03, 2C03, 2E03, 2F03, 3A03, 3F06, 3H03, 3H13, 3I03, 3I03, 3N06, 3O03, 3P03, 3Q03, 3S03, 3U06, 4B03, 4C08, 4E03, 4F04, 4G06, 4I03, 4I13, 4J03, 4M03, 4M33, 4N03, 4V03; Pharmacology 4B03; Psychology 2E03, 2H03, 2R06, 2T03, 3A03, 3B03, 3E03, 3F06, 3G03, 3H03, 3I03, 3L03, 3N06, 3P03, 3Q03, 3Q03, 3R03, 3S03, 3T03, 3U03, 3V03, 3W06, 3X03, 3Y03, 3Z03.
- E 9 units. Students are advised to take English 3A03 and Chemistry 2Q06 or 2R03 as electives in Levels II and III.

Level III: 33 units
- R 12 units from Biochemistry 3G06; Biology 2F03, 2G03, 3A03, 3F06, 3H03, 3H13, 3I03, 3J03, 3K03, 3N06, 3O03, 3P03, 3U06; 12 units from Psychology 4A03, 2B03, 2H03, 2T03, 3A03, 3E03, 3F06, 3G03, 3H03, 3K03, 3L03, 3N06, 3P03, 3Q03, 3Q03, 3R03, 3S03, 3T03, 3U03, 3V03, 3W06, 3X03, 3Y03, 3Z03.
- E 3 units, excluding Biology or Psychology.

Level IV: 31-33 units
- R At least 9 units of biology area courses and at least 9 units of Psychology area courses from Levels III and IV. Additional Biology and/or Psychology Level III and IV area courses to make a total of 24-26 units. One of Biology 4CO8, 4F04 or Psychology 4D06 is strongly recommended.
- E Electives to make a total of 31 to 33 units.

BIOLOGY MAJOR

Admission:
Completion of Natural Sciences I, including Chemistry 1A06, with at least C in Biology 1A06, and at least C in one of Mathematics 1A06, 1C06, Chemistry 1A06, Physics 1A06, 1B06, 1C06. One of Physics 1A06, 1B06, 1C06, is strongly recommended in Level I.

Programme Notes:
1. Students in Levels III and IV of this programme should select Area courses in consultation with the Chair of the Department of Biology.
2. Computer Science 1Z2A3 is recommended.

Area Courses:
- All Levels II, III and IV Biology courses, except Biology 4L09; Biochemistry 3A06, 3B06, 3G06, 4D03, 4E03, 4M03; Engineering 4X03; Geography 3P03, 4P03; Geology 2J03, 3J03, 4D03, 4F03; Psychology 3F06, 3R03, 3S03, 3T03.

Level II: 30 units
- R Biology 2B03, 2C03, 2D03, 2E03, 2F03; Chemistry 2006; Computer Science 1Z2A3 (or 1M2A3) if not completed.
- E 6-9 units to make a total of 30 units, 3 units of which may not be from Biology or Biochemistry.

Level III: 30 units
- R 18 units of Area courses, of which 12 units must be Biology courses.
- E 12 units, at least 3 units of which may not be from Biology or Biochemistry.

Level IV: 30-31 units
- R 18 to 19 units of Area courses, of which 12-13 units must be Biology courses.
- E 12 units, at least 3 units of which may not be from Biology or Biochemistry.

B.Sc. IN BIOLOGY

Admission:
Completion of Natural Sciences I, including Chemistry 1A06, and at least a grade of C– in Biology 1A06. One of Physics 1A06, 1B06, 1C06, and Computer Science 1Z2A3 (or 1M2A3), is strongly recommended in Level I.

Area Courses:
- All Levels II and III Biology courses; Geography 3P03; Geology 2J03, 3J03, Psychology 3F06, 3T03.

Level II: 30 units
- R Biology 2B03, 2C03, 2D03, 2E03, 2F03; Chemistry 2D03; Biochemistry 2E03; Computer Science 1Z2A3 (or 1M2A3), if not completed.
- E 6 to 9 units, of which 6 may not be from Biology.

Level III: 30 units
- R 18 units of Level III Area courses, of which at least 12 units must be from Biology.
- E 12 units, of which 6 may not be from Biology.
FACULTY OF SCIENCE

Department of Chemistry

HONOURS BIOCHEMISTRY AND CHEMISTRY
(See Department of Biochemistry)

HONOURS APPLIED CHEMISTRY
This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.

Admission:
Completion of Natural Sciences I, including Chemistry 1A06, and Mathematics 1A06 and 1B03. A grade of at least B- must be achieved in Chemistry 1A06 and one of Mathematics 1A06, 1B03, Physics 1A06, 1B06, 1C06. One of Physics 1A06, 1B06, 1C06 must be taken before entry into Level III; its election in Natural Sciences I is strongly recommended.

Programme Note:
Recommended electives throughout the programme include Engineering 2C03; Materials 2D04, 4E03; Metallurgy 3C03, 4C04, 4N03; Chemical Engineering 3D03, 3P03, 4K03, 4V04; Business 3W06, 3X03, 3V03, 3Z03, Physics 2A03.

Area Courses:
Chemistry 2A03, 2B06, 3A03, 3B03, 3C03, 3D03, 3E06, 3J03, 3K03, 3L03, 3M03, 3N03; Physics 1A03, 1B03, 1C06, 1D06, 1E06.

Level II: 32 units
R Chemistry 2A03, 2B06, 2C03; Chemical Engineering 2D04, 2F04; Computer Science 1MA3 or 1ZA3; if Computer Science 1MA3 is not completed in Level I; Mathematics 2N03.
E 6 to 9 units, excluding Chemistry.

Level III: 31 units
R Chemistry 3A03, 3D03, 3E06, 3I03 and 3C03 or 3KK6; Chemical Engineering 3M04.
E 6 to 9 units, excluding Chemistry.

Level IV: 30-31 units
R Chemistry 3A03, 4G06 or 4T06; either Chemistry 4L03 or Chemical Engineering 3K04; 6 units of Level IV Area courses; an additional 3 units from Level III or IV Science or Engineering courses.
E 9 units.

HONOURS BIOLOGICAL CHEMISTRY
This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.

Admission:
Completion of Natural Sciences I, including Chemistry 1A06, Biology 1A06, and Mathematics 1A06 and 1B03. A grade of at least B- must be achieved in Chemistry 1A06 and one of Mathematics 1A06, 1B03, Biology 1A06. One of Physics 1A06, 1B06, 1C06 and Computer Science 1MA3 (1ZA3) must be taken before entry into Level III; election in Natural Sciences I is strongly recommended.

Area Courses:
Chemistry 2A03, 2B06, 2C03, 2P06, 3A03, 3B03, 3C03, 3D03, 3E06, 3J03, 3L03, 3M03, 3K03, 4A03, 4B03, 4C03, 4D03, 4D04, 4G06, 4L03, 4P03, 4Q03, 4R03, 4S03, 4TA3, 4TB3, 4T06, 4Y03; Biochemistry 2A03, 3A06, 3G06, 3L03, 4D03, 4E03, 4I03, 4M03, 4Q03; Biology 2B03, 2C03, 3C03, 3E03, 3J03, 3Q03, 3P03, 3Q03.

Level II: 30 units
R Chemistry 2A03, 2B06, 2C03, 2P06; Biology 2B03; Mathematics 2N03, one of Physics 1A06, 1B06, 1C06 if not completed in Level I; Computer Science 1MA3, if Computer Science 1MA3 or 1ZA3 not completed in Level I.
E Electives, excluding Chemistry, to make a total of 30 units. [Students considering Biochemistry 3A06 in Level III should take Biochemistry 2A03.]

Level III: 30 units
R Chemistry 3A03, 3B03 or 3C03, 3E06 or 3Q03, 3F03 or 3D03; Biochemistry 3A06 or 3G06; Biology 2C03.

Level IV: 30-31 units
R Chemistry 3A06 or 3C03, 4D03, 4DD3, 4G06; Biochemistry 4K03; 3 additional units from Level IV Biochemistry; 3 units from Level III or IV Biology.
E 6 units.

HONOURS CHEMISTRY
This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.

Admission:
Completion of Natural Sciences I, including Chemistry 1A06, and Mathematics 1A06 and 1B03. A grade of at least B- must be achieved in Chemistry 1A06 and one of Mathematics 1A06, 1B03, Physics 1A06, 1B06 (or 1C06). One of Physics 1A06, 1B06, 1C06 must be taken before entry into Level III; its election in Natural Sciences I is strongly recommended. Students will also be considered for admission to Level II if they have completed Mathematics 1B03 and 1C06. However, Mathematics 1A06 is strongly recommended over Mathematics 1C06.

Programme Note:
For students interested in physical chemistry, recommended electives throughout the programme include Statistics 2M03 and Mathematics 3C03, 3D03 (if Mathematics 2G03 and 2P03 were taken instead of Mathematics 2M03).

Area Courses:
Chemistry 2A03, 2B06, 2C03, 2P06, 2T06, 3A03, 3B03. 3D03, 3E06, 3J03, 3L03, 3M03, 3G06, 3J03, 4A03, 4B03, 4C03, 4D03, 4D04, 4G06, 4K06, 4L03, 4P03, 4Q03, 4R03, 4S03, 4TA3, 4TB3, 4T06, 4Y03.

Level II: 30 units
R Chemistry 2A03, 2B06, 2C03, 2P06; Mathematics 2N03; Physics 2A03; Computer Science 1MA3, if Computer Science 1MA3 or 1ZA3 not completed in Level I.
E 3 to 6 units excluding Chemistry.

Level III: 30 units
R Chemistry 3A03, 3B03, 3D03, 3E06, 3K06.
E 9 units, 6 of which may not be Chemistry.

Level IV: 30 units
R Chemistry 4G06, 4L03, and 9 units of Level IV Area courses; an additional 6 units from Level III or IV Science or Engineering courses.
E 6 units.

HONOURS CHEMISTRY AND GEOLOGY
This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.

Admission:
Completion of Natural Sciences I, including Chemistry 1A06, Geology 1A03 or 1C03, Mathematics 1A06 and 1B03, with a grade of at least B- in each of Chemistry 1A06 and Geology 1A03 or 1C03. The election of Physics 1A06 is recommended. Students will also be considered for admission to Level II if they have completed Mathematics 1B03 and 1C06. However, Mathematics 1A06 is strongly recommended over Mathematics 1C06.

Programme Notes:
1. Geology 2D06 will be included in calculating the Graduation Average.
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.

Area Courses:
Chemistry 2A03, 2B06, 2C03, 2P06, 2T06, 3A03, 3B03, 3E06, 3L03, 3M03, 4C03, 4P03, 4R03, 4S03 4TA3, 4TB3, 4T06; all Geology courses above Level I except Geology 3E02 and 2E01.

Level II: 34 units
R Chemistry 2B06, 2C03, 2P06; Geology 2E01, 2B06, 2C03, 2D03; Mathematics 2N03.
E 3 units, excluding Chemistry and Geology.
Level III: 32 units
R Chemistry 2A03, 3B03, 3E06; Geology 3C06, 3E02, 3G03, 3Q03; one of Geology 2103, 2D03, or 3D03.
E 3 units.

Level IV: 30 units
R 21 units selected as follows: Chemistry 3A03; 18 units of Levels III and IV Chemistry and Geology to include at least 6 units of Area courses from each. Note that Geology 3C06, 2D06 and 3Q04 will not be available after 1990-91.
E 9 units.

HONOURS CHEMISTRY AND PHYSICS
This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.

Admission:
Completion of Natural Sciences I, including Mathematics 1A06 and 1B03, Chemistry 1A06 and Physics 1A05, with a grade of at least B in Chemistry 1A06, Physics 1A06, and one of Mathematics 1A06 or 1B03. Students will also be considered for admission if they have completed Physics 1B06 or 1C06, instead of 1A06. However, Physics 1A06 is strongly recommended. Students will also be considered for admission (to Level II) if they have completed Mathematics 1B03 and 1C06. However, Mathematics 1A06 is strongly recommended over Mathematics 1B06.

Programme Note:
Chemistry 2A03 will be included in calculating the Graduation Average.

Area Courses:
Chemistry 2A03, 2B06, 2C03, 2P06, 2T06, 3C03, 3E06, 3K06, 3Q03, 4B03, 4C06, 4G06, 4J04, 4TA3, 4TB3, 4T06, 4Y03; Physics 2A03, 2B06, 3B06, 3K04, 3M06, 3M03, 3MM3, 3N03, 4F03, 4J04, 4K03, 4Q04.

Level II: 33 units
R Chemistry 2B06, 3C03, 3E06, 3Q03; Physics 2B06, 2D03; Mathematics 2G03, 2Z03.
E 3 units. Computer Science 1MA3 is recommended (if not taken in Level I).

Level III: 33-34 units
R Chemistry 2A03, 3Q03, 3C03 or 3K06; Physics 3M03, 3M03, 6 to 10 units from Physics 3B06, 3K04, 3N03; Mathematics 3C03, 3D03.
E Electives to make a total of 33 to 34 units. (Courses which are prerequisites for desired Level IV courses should be considered.)

Level IV: 31-34 units
R At least 25 units of Level III and Level IV Chemistry and Physics, which must include: Chemistry 4G06 or Physics 4J04 or Physics 4Q04; Physics 4F03; Chemistry 4L03, 4MB3; Chemistry 4Y03 or Physics 3K04, if not taken in Level III.
E 6 to 9 units.

CHEMISTRY MAJOR
This programme fulfills the academic requirements for membership in the Chemical Institute of Canada.

Admission:
Completion of Natural Sciences I, including Chemistry 1A06 and Mathematics 1A06 and 1B03. A grade of at least C must be achieved in Chemistry 1A06 and one of Mathematics 1A06, 1B06, 1C06, 1D06. One of Physics 1A06, 1B06, 1C06 must be taken before entry into Level III; its election in Natural Sciences I is strongly recommended. Students will also be considered for admission (to Level II) if they have completed Mathematics 1B03 and 1C06. However, Mathematics 1A06 is strongly recommended over Mathematics 1C06.

Programme Notes:
1. Recommended electives throughout the programme include Computer Science 2MF3.
2. With Departmental permission, Chemistry 4G06 can be substituted for Chemistry 4T06. Only Level IV students with a CAA of at least 8.5 will be considered, and only if sufficient projects are available.

Area Courses:
Chemistry 2A03, 2B06, 2C03, 2F03, 2K03, 2Q06, 2P06, 2Z03, 3A03, 3B03, 3D03, 3F03, 3G03, 3M06, 3N03, 4A03, 4B03, 4C03, 4D03, 4D33, 4G06, 4H06, 4L03, 4P03, 4Q03, 4R03, 4S03, 4T03, 4T83, 4T06, 4Y03.

Level II: 30 units
R Chemistry 2A03, 2B06, 2C03, 2P06; Mathematics 2N03; Computer Science 1MA3, if Computer Science 1MA3 or 1ZA3 not completed in Level I.
E 6 to 9 units, excluding Chemistry. Physics 2A03 is strongly recommended.

Level III: 30 units
R Chemistry 3A03, 3B03, 3D03, 3K06, 3Q03; Physics 2A03 if not already taken.
E 9 to 12 units.

Level IV: 30 units
R Chemistry 4L03, 4T06 and 9 units of Level IV Area courses.
E 12 units.

B. Sc. in CHEMISTRY
Admission:
Completion of Natural Sciences I, including Chemistry 1A06 with a grade of at least C, and Mathematics 1A06. Mathematics 1B03, and one of Physics 1A06, 1B06. 1C06 must be taken before Level III. The election of one of Physics 1A06, 1B06, 1C06 in Natural Sciences I is strongly recommended.

Area Courses:
Chemistry 2A03, 2B06, 2C03, 2F03, 2K03, 2Q06, 2P06, 3A03, 3B03, 3D03, 3G03, 3I03, 3K03, 3Q03.

Level II: 30 units
R Chemistry 2A03, 2B06, 2C03, 2P06, Mathematics 2N03 and 1B03 (if not already completed); Computer Science 1MA3, if Computer Science 1MA3 or 1ZA3 not completed in Level I.
E 3 to 9 units.

Level III: 30 units
R Chemistry 3A03, 3B03, 3I03, 3Q03.
E 15 to 18 units, at least 6 units of which may not be Chemistry.

Department of Computer Science and Systems
If courses are chosen carefully, a student upon completion of Level II of the following programmes may satisfy the requirements for a related programme. Such students may request a transfer to another programme if they wish. For example, students may wish to transfer from Honours Computer Science to Honours Statistics or from Honours Mathematics to Honours Computer Science and Mathematics.

HONOURS MATHEMATICS AND MATHEMATICS MAJOR
AND B. SC. IN MATHEMATICS
(See Mathematics and Statistics)

HONOURS STATISTICS AND STATISTICS MAJOR
(See Mathematics and Statistics)

HONOURS ECONOMICS AND COMPUTER SCIENCE (B. A.)
(See Faculty of Social Sciences, Department of Economics)

HONOURS ARTS AND SCIENCE AND COMPUTER SCIENCE (B. Arts Sc.)
(See Arts and Science Programme)

HONOURS COMPUTER SCIENCE
Admission:
Completion of any Level I programme with a weighted average of at least 7.0 in Computer Science 1MA3, 1B03, and Mathematics 1A06, and 1B03. Students who have Mathematics 1C06 in place of Mathematics 1A06 will be considered, but Mathematics 1A06 is recommended.

Programme Notes:
1. Students entering from another Faculty must complete the requirements of the Natural Sciences I programme before entry to Level IV.
2. It is recommended that students choose a coherent set of electives. The following possibilities should be noted:

**Numerical Analysis Option:** Mathematics 2A06, 3Q03, 4Q03, 4Q04 and 4R03.
**Hardware Option:** Mathematics 2A06, 2C03, Physics 2B06, 3B06, 4D06.

3. Computer Science 3E3A must be taken in Levels III or IV.

**Area Courses:**
Computer Science 2MC3, 2MD3, 2ME3, 2MF3, 2MJ3, and all Level III and IV Computer Science courses; Mathematics 2A06, 2B06, 2C03, 2E03, 2F03, 2J06, 3B03, 3E03, 3E3, 3J06, 3K06, 3Q03, 3R03, 4C03, 4J03, 4Q03, 4R03, 4S3; Statistics 2D03, and all Level III and IV Statistics courses; Physics 2B06, 3B06, 4D06.

**Level II:** 30 units
- Computer Science 2MC3, 2MD3, 2ME3, 2MF3; either Mathematics 2B06 and 2F03, or 2J06; Mathematics 2A06 or 2G03.
- E 3 to 9 units.

**Level III:** 30 units
- Computer Science 3MG3, 3MF3, 3MJ3, two of 3CA3, 3EA3, 3IA3, 3TA3; 6 units of Level III and IV Area courses from Mathematics or Statistics. Students must select courses carefully so that prerequisites for the Level IV courses in the desired area of specialization are satisfied.
- E 9 units, at least 6 of which must not be Computer Science, Mathematics or Statistics.

**Level IV**
- Students may take their Level IV course selection according to their chosen area of specialization. They are urged to note carefully the prerequisites for these courses. The project chosen for Computer Science 4ZP6 must be suitable for the student's area of specialization, subject to approval of the Chair.

**Level IV:** 30 units
- Computer Science 4ZP6 and 3 of Computer Science 4CB3, 4CC3, 4CD3, 4TB3, 9 units of Level III and IV Area courses, including Computer Science 3EA3 if not already completed.
- E 6 units.

**Level IV:** 30 units
- Software Engineering
- Computer Science 4ZP6 and 3 of Computer Science 4EB3, 4EC3, 4ED3, 4TB3; 9 units of Level III and IV Area courses.
- E 6 units.

**Level IV:** 30 units
- Artificial Intelligence
- Computer Science 4ZP6 and 3 of Computer Science 4B03, 4C03, 4D03, 4EB3; Mathematics 4C03, 4J03; Computer Science 3EA3 if not already completed, otherwise 3 units of Level III and IV Area courses.
- E 6 units.

**Level IV:** 30 units
- Theory of Computation
- Computer Science 4ZP6 and 3 of Computer Science 4TB3, 4TC3, 4TD3, 4GB3; Mathematics 4C03, 4J03; Computer Science 3EA3 if not already completed, otherwise 3 units of Level III and IV Area courses.
- E 6 units.

**HONOURS COMPUTER SCIENCE AND MATHEMATICS**

**Admission**
Completion of any Level I programme with a weighted average of at least 7.0 in Computer Science 1MA3, 1MB3 and Mathematics 1A06 and 1B03. Students who have Mathematics 1C06 in place of Mathematics 1A06 will be considered, but Mathematics 1A06 is recommended.

For 1991-92 admission to Level II: Completion of Level II Honours Mathematics (Common Level II programme) including Computer Science 2MC3, 2MD3, and 2MF3.

**Programme Note:** Mathematics 2F03 is recommended in Level II, but may be deferred.

**Area Courses:**
- Computer Science 2MC3, 2MD3, 2ME3, 2MF3, 2MJ3, and all Level III and IV Computer Science courses; Mathematics 2A06, 2B06, 2C03, 2E03, 2F03, 2J06, 3B03, 3E03, 3E3, 3F03, 3F3, 3G03, 3J06, 3K06, 3Q03, 3R03, 3T03, 3X03, 3Y03, 4A06, 4C03, 4G03, 4J03, 4Q03, 4R03, 4S03; Physics 2C03, 2D03, Statistics 2D03, 2M03, 3D05, 3S03, 3U03, 4H03, 4K03, 4M03, 4R03, 4S03, 4T03, 4U03, 4V03, 4X03, 4Z03.

**Level II:** 30 units
- Computer Science 2MC3, 2MD3, 2MF3; Mathematics 2A06, 2B06.
- E 9 units.

**Level III and IV:** 60 units
- Computer Science 2ME3, 2MF3 (if not completed), 3MG3, 3MF3, 3MJ3, 4MP6 and one of Computer Science 3CA3, 3EA3, 3G03, 3H03, and 3TA3; Mathematics 2C03 or 2D03 (if not completed), 2F03 (if not completed); Mathematics 3A06 and one of Mathematics 4A06, 4C03, 4J03, 4Q03, 4S03; 6 units of Level III or IV Mathematics or Statistics Area courses; 3 units of Area courses. (Computer Science 3EA3 is strongly recommended).

- Electives to make a total of 60 units, at least 6 of which must not be from either the Department of Mathematics and Statistics, or the Department of Computer Science and Systems.

**HONOURS COMPUTER SCIENCE AND PSYCHOLOGY**

**Admission**
Completion of Natural Sciences I with a weighted average of 7.0 in Computer Science 1MA3, 1MB3, Mathematics 1A06, 1B03 and Psychology 1A06, including a grade of at least B in each of Computer Science 1MA3, 1MB3 and Psychology 1A06. Students who have Mathematics 1C06 in place of Mathematics 1A06 will be considered, but Mathematics 1A06 is recommended.

**Programme Notes:**
1. Students must complete at least one laboratory course in Psychology. Enrolment is limited in the laboratory courses, and permission of the department must be obtained by March 1.
2. Students who entered this programme prior to September 1988, must complete either Psychology 2E03 or 3W06. Students who entered this programme from September 1988, must complete Psychology 2E03.

**Area courses:**
- All Psychology courses above Level I; Computer Science 2MC3, 2MD3, 2ME3, 2MF3, 2MJ3 and all Level III and IV Computer Science courses; Statistics 2D03, 2M03, 2R06; Mathematics 4G03.

**Level II:** 30 units
- Computer science 2MC3, 2MD3, 2MF3; Psychology 2E03, 2H03, 2T03; one of Statistics 2M03, 2R06 or Psychology 2T06; either Mathematics 2F03 and 2B06 or Mathematics 2D06.

- E Electives to make a total of 30 units.

**Level III:** 30 units
- Computer Science 3MG3, 3MF3, 3MJ3, one of Computer Science 3CA3, 3EA3, 3TA3; 3 additional units of Computer Science Area courses; 12 units from Level III Psychology.
- E 3 units.

**Level IV:** 30 units
- Computer Science 4MP6 or Psychology 4A06 (the project or thesis must be approved by the Chair of both department); Computer Science 3S03, 4TC3, 6 additional units of Level III or IV Computer Science (Computer Science 3EA3 is strongly recommended); 9 additional units of Level III or IV Psychology.
- E 3 units.

**HONOURS COMPUTER SCIENCE AND STATISTICS**

**Admission**
Completion of any Level I programme with a weighted average of at least 7.0 in Computer Science 1MA3, 1MB3, and Mathematics 1A06 and 1B03. Students who have Mathematics 1C06 in place of Mathematics 1A06 will be considered, but Mathematics 1A06 is recommended.

For 1991-92 admission to Level II: Completion of Level II Honours Mathematics (Common Level II programme) including Computer Science 2MC3, 2MD3 and either 2MF3 or 2MJ3 and Statistics 2D03.

**Area Courses:**
- Computer Science 2MC3, 2MD3, 2ME3, 2MF3, 2MJ3, and all Level III and IV courses; Mathematics 2A06, 2B06, 2C03, 2E03, 2F03, 3Q03, 3R03, 3T03, 4G03, 4H03, 4J03, 4K03, 4Q03, 4R03, 4S03, 4D03; Physics 2C03, 2D03; Statistics 2D03, 2M03 and all Level III and IV Statistics courses.
Level II: 30 units
R Computer Science 2MC3, 2MD3; Computer Science 2MF3 or 2MJ3; Mathematics 2A06, 2B06; Statistics 2D03.
E 6 units.

Levels III and IV: 60 units
R Computer Science 2ME3, 2MF3 (if not completed), 3MC3, 3MH3, 3M3, 4MF6 and one of Computer Science 3CA3, 3EA3, 3GA3, 3IA3, 3TA3; Mathematics 2C03 or 2D03 (if neither completed), and 3T03; Statistics 3D06, 2MU3 (if not completed); 15 units of Level III and IV Area courses selected as follows: 6 units of Statistics, 6 units of Mathematics, 3 additional units. (Computer Science 3EA3 is strongly recommended.)

E Electives to make a total of 60 units, at least 6 of which must not be from either the Department of Mathematics and Statistics, or the Department of Computer Science and Systems.

COMPUTER SCIENCE MAJOR
Admission:
Completion of any Level I programme with a weighted average of at least 5.0 in Computer Science 1MA3, 1MB3, and Mathematics 1A06 and 1B03. Students who have Mathematics 1C06 in place of Mathematics 1A06 will be considered, but Mathematics 1A06 is recommended.

Programme Notes:
1. It is recommended that students choose a coherent set of electives. The following possibilities should be noted:

   Numerical Analysis Option: Mathematics 2G03, 2003, 3Q03, 4Q03, 4R03, 4R33.

   Hardware Option: Mathematics 2G03, 2003; Physics 2B06, 3B06, 4D06.

2. Computer Science 3EA3 must be taken in Levels III or IV.

Area Courses:
Computer Science 2MC3, 2MD3, 2ME3, 2MF3, 2MJ3, and all Level III and IV Computer Science courses; Mathematics 2D03, 2003, 2G03, 2J06, 2M03, 3B03, 3E03, 3G03, 3H06, 3Q03, 3R03, 3T03, 4C03, 4D03, 4F03, 4G03, 4H03, 4I03, 4J03, 4K03, 4M03, 4R03, 4S03, 4T03, 4U03, 4Z03.

E 15 units to a total of 60 units, at least 6 units of which must not be from either the Department of Mathematics and Statistics, or from the Department of Computer Science and Systems.

Level II: 30 units
R Computer Science 2MC3, 2MD3, 2ME3, 2MF3; Mathematics 2G03 and 2J06.
E 9 units, at least 6 of which must not be from either the Department of Computer Science and Systems, or the Department of Mathematics and Statistics.

Level III: 30 units
R Computer Science 3MG3, 3MH3, 3M3, and two of 3CA3, 3EA3, 3IA3, 3TA3; 3 units of Mathematics or Statistics Area courses. Students must select courses carefully so that prerequisites for the Level IV courses in the desired area of specialization are satisfied.

E 12 units, at least 6 of which must not be Computer Science, Mathematics, or Statistics.

Level IV: Students will make their Level IV course selection according to their chosen area of specialization. They are urged to note carefully the prerequisites for these courses. The project chosen for Computer Science 4ZP6 must be suitable for the student's area of specialization, subject to the approval of the Chair.

Level IV: 30 units Computer Systems
R Computer Science 4ZP6 and 3 of Computer Science 4CB3, 4CC3, 4CD3, 4TB3; 6 units of Level III and IV Area courses, including Computer Science 3EA3 if not already completed.
E 9 units.

Level IV: 30 units Software Engineering
R Computer Science 4ZP6 and 3 of Computer Science 4EB3, 4EC3, 4ED3, 4TE3; 6 units of Level III and IV Area courses.
E 9 units.

Level IV: 30 units Artificial Intelligence
R Computer Science 4ZP6 and 3 of Computer Science 4IB3, 4IC3, 4ID3, 4EB3; Mathematics 4C03 or 4J03; Computer Science 3EA3 if not already completed, otherwise 3 units of Level III or IV Area courses.
E 9 units.

Level IV: 30 units Theory of Computation
R Computer Science 4ZP6 and 3 of Computer Science 4TB3, 4TC3, 4TD3, 4GB3; Mathematics 4C03 or 4J03; Computer Science 3EA3 if not already completed, otherwise 3 units of Level III or IV Area courses.
E 9 units.

COMPUTER SCIENCE AND MATHEMATICS MAJOR
Admission:
Completion of any Level I programme with a weighted average of at least 5.0 in Computer Science 1MA3, 1MB3, and Mathematics 1A06 and 1B03. Students who have Mathematics 1C06 in place of Mathematics 1A06 will be considered, but Mathematics 1A06 is recommended.

For 1991-92 admission to Level III: Completion of Level II Mathematics Major (Common Level II programme) including Computer Science 2MC3, 2MD3 and either 2MF3 or 2MJ3 and Statistics 2D03.

Area Courses:
Computer Science 2MC3, 2MD3, 2ME3, 2MF3, 2MJ3, and all Level III and IV Computer Science courses; Mathematics 2E03, 2003, 2J06, 2M03, 3B03, 3E03, 3F03, 3G03, 3H06, 3Q03, 3R03, 3T03, 4C03, 4D03, 4F03, 4G03, 4H03, 4I03, 4J03, 4K03, 4M03, 4R03, 4S03, 4T03, 4U03, 4Z03.

Level II: 30 units
R Computer Science 2MC3, 2MD3; Mathematics 2G03, 2003, 2J06; Statistics 2D03; Computer Science 2MF3 or 2MJ3.
E 6 units.

Level III and IV: 60 units
R Computer Science 2ME3, 2MF3 (if not completed), 3MG3, 3MH3, 3M3, 4MF6 and one of 3CA3, 3EA3, 3GA3, 3IA3, 3TA3; Mathematics 3006 and 6 units from 3003, 3T03, 4C03, 4D03, 4G03, 4I03, 4J03, 4K03, 4S03, 4T03, 4U03, 4Z03, 6 units of Level III and IV Mathematics or Statistics Area courses; 3 additional units of Level III and IV Area courses (Computer Science 3EA3 is strongly recommended).

E 15 to 18 units, to a total of 60 units, at least 6 units of which must not be from either the Department of Mathematics and Statistics, or from the Department of Computer Science and Systems.

COMPUTER SCIENCE AND STATISTICS MAJOR
Admission:
Completion of any Level I programme with a weighted average of at least 5.0 in Computer Science 1MA3, 1MB3, and Mathematics 1A06 and 1B03. Students who have Mathematics 1C06 in place of Mathematics 1A06 will be considered, but Mathematics 1A06 is recommended.

For 1991-92 admission to Level III: Completion of Level II Mathematics Major (Common Level II programme) including Computer Science 2MC3, 2MD3 and either 2MF3 or 2MJ3 and Statistics 2D03.

Area Courses:
Computer Science 2MC3, 2MD3, 2ME3, 2MF3, 2MJ3, and all Level III and IV Computer Science courses; Mathematics 2E03, 2G03, 2J06, 2K03, 3B03, 3E03, 3G03, 3H06, 3Q03, 3R03, 3T03, 4C03, 4D03, 4F03, 4G03, 4H03, 4I03, 4J03, 4K03, 4M03, 4R03, 4S03, 4T03, 4U03, 4Z03.

Level II: 30 units
R Computer Science 2MC3, 2MD3; Mathematics 2G03, 2003, 2J06; Statistics 2D03; Computer Science 2MF3 or 2MJ3.
E 6 units.

Level III and IV: 60 units
R Computer Science 2ME3, 2MF3 (if not completed), 3MG3, 3MH3, 3M3, 3MF6 and one of 3CA3, 3EA3, 3GA3, 3IA3, 3TA3; Mathematics 3006 and 6 units from 3003, 3T03, 4C03, 4D03, 4G03, 4I03, 4J03, 4S03, 4T03, 4U03, 4Z03, 6 units of Level III and IV Mathematics or Statistics Area courses; 3 additional units of Level III and IV Area courses (Computer Science 3EA3 is strongly recommended).

E 15 to 18 units, to a total of 60 units, at least 6 units of which must not be from either the Department of Mathematics and Statistics, or from the Department of Computer Science and Systems.

B.Sc. IN COMPUTER SCIENCE
Admission:
Completion of any Level I programme with a weighted average of at least 4.0 in Computer Science 1MA3, 1MB3, and Mathematics 1A06. Students who have Mathematics 1C06 in place of Mathematics 1A06 will be considered, but Mathematics 1A06 is recommended.
FACULTY OF SCIENCE

Programme Notes:
1. It is recommended that students should choose their electives so that 18 units of Level II and Level III courses are in a single subject. Economics 1A06 and Business 3W06 are recommended.
2. It is recommended that students select Statistics 2M03 in Level III.

Area Courses:
- Computer Science 2MC3, 2MD3, 2ME3, 2MF3, 2MJ3, and all Level III and IV Computer Science courses, all Level II, III and IV Mathematics and Statistics courses; Business 3W06.

Level II: 30 units
- Computer Science 2MF3, 2ME3, 2MC3, 2MD3; 3 units of any Mathematics or Statistics courses.
- 15 to 18 units of a total of 30 units, at least 6 units of which must not be from the Department of Computer Science and Systems, or the Department of Mathematics or Statistics.

Level III: 30 units
- Computer Science 3MG3, 3MF3, 3M3, 3MP6, and one of Computer Science 3CA3, 3EA3, 3IA3, 3TA3. (Computer Science 3EA3 is strongly recommended.)
- 12 units, at least 6 units of which must not be Computer Science, Mathematics or Statistics.

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.)
(See Faculty of Social Sciences, Department of Economics)

HONOURS HISTORY AND GEOGRAPHY (B.A.)
(See Faculty of Humanities, Department of History)

HONOURS ARTS AND SCIENCE AND GEOGRAPHY (B.A.)
(See Arts and Science Programme)

HONOURS GEOGRAPHY (B.Sc.)
Admission:
Completion of Natural Sciences I, including Geography 1A06, Chemistry 1A06, with at least a B in Geography 1A06, and an average of at least 70 in that and 6 additional units of Mathematics, Geology, Chemistry, Physics or Biology.

Programme Note: No student may register in any Level of this programme without the approval of a Departmental Counsellor, which must be obtained before completing registration forms in March.

Area Courses:
- Geography 2F03, 2K03, 2L13, 2NN3, 2T03, 2U03, 2W03, 3E03, 3F03, 3G03, 3H03, 3J03, 3K03, 3L03, 3M03, 3N03, 3O03, 3P03, 3Q03, 3R03, 3S03, 3T03, 4A03, 4B03, 4C03, 4D03, 4E03, 4F03, 4G03, 4H03, 4I03, 4J03, 4K03, 4L03, 4M03, 4N03, 4O03, 4P03, 4Q03, 4R03, 4S03, 4T03, 4U03, 4V03, 4W03, 4X03, 4Y03, 4Z03.

Level II: 30 units
- Geography 2LL3, 2NN3 and 12 units from 2F03, 2K03, 2T03, 2U03, 2W03.
- 12 units

Levels III-IV: 60 units
- Geography 3E03, 3O03 and 4C06: 24 units of Levels II and IV area courses which must include at least 9 units of Level IV area courses.
- 24 units, 12 of which may not be in Geography.

HONOURS GEOGRAPHY AND ENVIRONMENTAL SCIENCE (B.Sc.)
Admission:
Completion of Natural Sciences I, including Chemistry 1A06, with at least a B in both Biology 1A06 and in Geography 1A06. Students must complete Geography 1A03 or 1C03 by the end of Level II.

Area Courses:
- Biochemistry 2E03; Biology 2D03, 2E03, 2F03, 3A06, 3S3, 3T03, 4D03, 4F03; Chemistry 2B03; 2F03, Geography 2F03, 2K03, 2L13, 2NN3, 2T03, 2U03, 3C03, 3E03, 3F03, 3G03, 3J03, 3K03, 3L03, 3M03, 3N03, 3O03, 3P03, 3Q03, 3R03, 3S03, 3T03, 3U03, 3V03, 3W03, 4A03, 4C06, 4D03, 4F03, 4N03, 4P03, 4Q03, 4R03, 4S03, 4T03, 4U03, 4V03, 4W03, 4X03, 4Y03.

Level II: 30 units
- Geography 2LL3, 2NN3, 2T03; Biology 2F03; Chemistry 2D03; 6 units from Geography 2F03, 2K03, 2T03, 2U03; 3 units of Area courses which must not be from the Department of Geography.
- 6 units of Biochemistry 2E03 is recommended.

Level III: 30 units
- Geography 3C03, 3E03, 3J03, 3O03, 3U03; Biochemistry 2E03 (if not already completed); 3 units of Level III or IV Area courses; 3 units of Area courses which may not be from the Department of Geography.
- 6 units

Level IV: 30 units
- Geography 4C06, 4V03; 6 units Level III or IV Area courses; 6 units of Area courses which may not be from the Department of Geography.
- 6 units

HONOURS GEOGRAPHY AND GEOLOGY (B.Sc.)
Admission:
Completion of Natural Sciences I, including Geography 1A06, Geology 1A03 or 1C03, and Mathematics 1A06 or 1C06, with a grade of at least B – in both Geography 1A06 and Geology 1A03 or 1C03. Chemistry 1A06 must be completed by the end of Level II.

Programme Notes:
1. No student may register in any Level of this programme without the approval of a Departmental Counsellor, which must be obtained before completing registration forms in March.
2. Geology 3E02 is normally taken at the end of Level II. This course is scheduled outside of the regular term.

Area Courses:
- Geography 2F03, 2K03, 2L13, 2NN3, 2T03, 2U03, 2W03, 3E03, 3F03, 3G03, 3H03, 3J03, 3K03, 3L03, 3M03, 3N03, 3O03, 3P03, 3Q03, 3R03, 3S03, 3T03, 3U03, 3V03, 3W03, 4A03, 4B03, 4C03, 4D03, 4E03, 4F03, 4G03, 4H03, 4I03, 4J03, 4K03, 4L03, 4M03, 4N03, 4O03, 4P03, 4Q03, 4R03, 4S03, 4T03, 4U03, 4V03, 4W03, 4X03, 4Y03, 4Z03.

Level II: 31 units
- Geography 2LL3, 2NN3, 2T03, and one of Geography 2F03, 2K03, 2W03, Geology 2B06, 2C03, 2DD3, 2E01 and 3 to 6 units of Natural Science or Engineering approved by the Department.
- Electives excluding Geography and Geology to make a total of 31 units.

Level III: 32 units
- Geography 3E03, 3M03, 3O03, and one of 3F03, 3K03, 3N03, 3P03, 3Q03, 3W03, 3G03; Geology 3CC5, 3E02 and one of Geography 2G03, 2J03, 3DD3 and 3F03.
- 9 units, at least 3 of which may not be Geography or Geology.

Level IV: 30-33 units
- 18 units of Area courses including 6 units of Level IV Geography Area courses, and 6 units of Level IV Geography Area courses and 6 units of Level III or IV Geography Area courses or Level III or IV Geology courses. Geology 3S03 must be taken if not already completed.
- Electives to make a total of 30 to 33 units. Geology 3G03 is strongly recommended.

B.Sc. IN GEOGRAPHY
Admission:
Completion of Natural Sciences I, with a grade of at least C - in Geography 1A06, and an average of at least 4.0 in that and another six units of Science.

Programme Note:
No student may register in any Level of this programme without the approval of a Departmental Counsellor, which must be obtained before completing registration forms in March.
Area Courses:
- Geography 2F03, 2K03, 2L13, 2NN3, 2T03, 2W03, 3E03, 3F03, 3I03, 3K03, 3L03, 3M03, 3N03, 3Q03, 3P03, 3V03, 3W03.

Level II: 30 units
- R Geography 2L13 and 2NN3 and 12 units of Level II Area courses. E 12 units.

Level III: 30 units
- R 18 units of Level III Area courses. E 12 units, 6 of which may not be in Geography.

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
Admission:
- Completion of Natural Sciences I including one of Geography 1A03 or 1C03, and Mathematics 1A06 (or 1C06) and Chemistry 1A06, and one of Physics 1A06, 1B06, 1C06. A grade of B must be obtained in Geography 1A03 or 1C03 and one other course listed. Mathematics 1B03 or Statistics 2M03 is required by the end of Level II.

Programme Notes:
1. Geography 3E02 is normally taken at the end of Level II. This course is scheduled outside of the regular term.

Area Courses:
- All Geography courses above Level I except Geography 2E01 and 3E02.

Level II: 34 units
- R Geography 2B06, 2C03, 2DD3, 2E01, 2I03, 2J03; Chemistry 2P06; Biology 2E03; Mathematics 1B03 or Statistics 2M03. E 3 units, excluding Geography.

Level III: 32 units
- R Geography 3C06, 3D03, 3E02, 3F03, 3G03, 3J03, 3Q03. E 9 units, 3 of which may not be from Geography. Geology 3S03 must be completed in Level III or IV. Materials 3D03 is recommended.

Level IV: 30 units (1990-1991)
- R Geography 4B03 or 4F03, 4E03 and 4E03 or 4K06, 4M03 and 4MM3, 6 units of Level IV Geology. E 9 units.

Level IV: 30 units (for students entering Level IV in 1991-92)
- R Geography 4T03; 12 units of Level IV Geology; Geology 3S03, if not taken previously. E 12 to 15 units.

HONOURS GEOLOGY AND PHYSICS
Admission:
- Completion of Natural Sciences I, including one of Geography 1A03 or 1C03, Physics 1A06, and Chemistry 1A06, and Mathematics 1A06 and 1B03, with a grade of at least B in each of Geography 1A03 or 1C03, and Physics 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.

Programme Notes:
1. Geography 2D06 will be included in calculating the Graduation Average.
2. Geology 3E02 is normally taken at the end of Level II. This course is scheduled outside of the regular term.

Area Courses:
- All Geography courses above Level I except Geography 2E01 and 3E02; Physics 2B06, 2C05, 2D03, 3G03, 3M06, 3M03, 3M03, 3S03, 4B04, 4K03; Mathematics 3C03, 3D03.

Level II: 34 units
- R Geology 2B06, 2C03, 2DD3, 2E01, 2I03; Physics 2B06, 2C05, 2D03; Mathematics 2G03, 2I03. E 3 units, excluding Geology and Physics. Computer Science 1MA3 is strongly recommended.

Level III: 35 units
- R Geology 3C06, 3D03, 3E02, Physics 2H03 or Chemistry 2P06; Physics 3M03, 3M03; Physics 3G03 or 3S03; Mathematics 3C03 and 3D03. E 3 to 6 units. Geology 3A03 or 3B03 is strongly recommended.

Level IV: 31-34 units
- R Geology 2D03, 3D03, 3A03 or 3B03, whichever not already completed; Physics 4B04, 4K03; one of Physics 3G03 or 3S03, whichever not already completed; 6 additional units of Level III or IV Geology or Physics. E 6 to 9 units.

Level IV: 31-34 units (for students entering Level IV in 1991-92)
- R Geology 3S03 or 3F03, 4J03, 4T03; Physics 4B04, 4K03; one of Physics 3G03 or 3S03, whichever not already completed; 6 additional units of Level III or IV Geology or Physics. E 6 to 9 units. Geology 3A03 or 3B03 is strongly recommended.

GEOLOGY MAJOR
Admission:
- Completion of Natural Sciences I, including one of Geography 1A03 or 1C03, Mathematics 1A06 or 1C06, Chemistry 1A06, and one of Physics 1A06, 1B06, or 1C06. A grade of at least C must be obtained in Geology 1A03 or 1C03 and one other course listed.

Programme Notes:
1. Geology 2D06 or 2D03 will be included in calculating the Graduation Average for students registered in Level III in 1989-90.
2. Geology 3E02 is normally taken at the end of Level II. This course is scheduled outside of the regular term.
3. Geology 3J03 will be included in calculating the Graduation Average for students registered in Level IV in 1990-91.

Area Courses:
- All Geology courses above Level I except Geology 2E01 and 3E02.

Level II: 31 units
- R Geology 2B06, 2C03, 2DD3, 2E01, 2I03, 2J03; Chemistry 2P06; Biology 2E03. E 3 units, excluding Geology.

Level III: 32 units
- R Geology 3C06, 3D03, 3E02, 3F03, 3G03, 3J03, 3Q03. E 9 units, 3 of which may not be from Geology. Geology 3S03 must be completed in Level III or IV. Chemistry 3G03, 3S03, 3T03, 3W03. E 9 units.

Level IV: 30 units (1990-1991)
- R Geology 4T03; 9 units of Level IV Geology; Geology 3S03, if not taken previously. E 15 to 18 units, 3 of which may not be from Geology.

GEOLOGY AND PHYSICS MAJOR
Admission:
- Completion of Natural Sciences I, including one of Geography 1A03 or 1C03, Physics 1A06, Chemistry 1A06, Mathematics 1A06 and 1B03 with a grade of at least C in each of Geography 1A03 or 1C03 and Physics 1A06. Students will also be considered for admission if they have completed Physics 1B06, or 1C06; however, Physics 1A06 is strongly recommended.
FACULTY OF SCIENCE

Programme Notes:
1. Geology 2D06 will be included in calculating the Graduation Average.
2. Geology 3E02 is normally taken at the end of Level II. This course is scheduled outside of the regular term.

Area Courses:
All Level II Geology courses except Geology 2E01; Physics 2B06, 2G03, and all Levels III and IV Geology and Physics courses, except Geology 3E02.

Level II: 34 units
R Geology 2B06, 2C03, 2D03, 2E01, 2I03; Physics 2B06, 2G03; Mathematics 2G03, 2B03.
E 3 units excluding Physics and Geology. Computer Science 1MA3 is strongly recommended.

Level III: 32 units
R Geology 3CC6, 3DD3, 3ED2; Physics 2H03 or Chemistry 2P06; Physics 2G03; Physics 3G03 or 3S03; 3 units of Geology or Physics.
E 6 to 9 units. Geology 3A03 or 3B03 is strongly recommended.

Level IV: 30 units
(for students entering Level IV in 1991-92)
R One of Geology 3A03, 3B03 or 3D03, whichever not already completed; Physics 3G03 or 3S03, whichever not already completed; 9 units of Level III or IV Geology or Physics, of which 6 units must be Level III or IV Physics.
E 9 units.

Level IV: 30 units
R Geology 2DD3, 3DD3; 3A03 or 3B03, whichever not already completed; Physics 3G03 or 3S03, whichever not already completed; 9 units of Level III or IV Geology or Physics, of which 6 units must be Level III or IV Physics.
E 9 units.

B.Sc. IN GEOLOGY

Admission:
Completion of Natural Sciences I including one of Geology 1A03 or 1C03, Chemistry 1A06 and Mathematics 1A06 or 1C06, with a grade of at least C- in Geology 1A03 or 1C03.

Programme Note:
Geology 3E02 is normally taken at the end of Level II. This course is scheduled outside of the regular term.

Area Courses:
All Geology courses above Level I except Geology 2E01 and 3E02.

Level I: 31 units
R Geology 2B06, 2C03, 2DD3, 2E01; Biology 2E03.
E 15 units, at least 6 of which may not be Geology. Chemistry 2P06 is strongly recommended.

Level III: 29 units
R Geology 3CC6, 3DD3; 3I03 or 3G03; 3S03 or 3F03; 3E02.
E 12 units, 6 of which may not be from Geology. Geology 3I03 or 3G03, whichever not already completed as an R-group course is strongly recommended.

Department of Mathematics and Statistics

HONOURS COMPUTER SCIENCE AND COMPUTER SCIENCE MAJOR AND B.SC. IN COMPUTER SCIENCE
(See Computer Science and Systems)

HONOURS COMPUTER SCIENCE AND MATHEMATICS, AND COMPUTER SCIENCE AND MATHEMATICS MAJOR
(See Computer Science and Systems)

HONOURS COMPUTER SCIENCE AND STATISTICS AND COMPUTER SCIENCE AND STATISTICS MAJOR
(See 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 THEORETICAL PHYSICS AND APPLIED MATHEMATICS
(See Department of Physics)

HONOURS ARTS AND SCIENCE AND MATHEMATICS
(B.Arts Sc.)
(See Arts and Science Programme)

HONOURS ARTS AND SCIENCE AND STATISTICS
(See Arts and Science Programme)

General Programme Note:
If courses are chosen carefully, a student upon completion of Level II may satisfy the requirements for a related programme. Such students may request transfer to the other programme. For example, students may wish to transfer from Honours Computer Science to Honours Statistics, or from Honours Mathematics to Honours Computer Science and Mathematics.

HONOURS MATHEMATICS
Admission:
Completion of any Level I programme, with a weighted average of at least 7.0 in Mathematics 1A06 and 1B03, and 6 units acceptable to the Department of Mathematics and Statistics. Students will be considered for admission if they have completed Mathematics 1B03 and 1C06, but Mathematics 1A06 is strongly recommended.

For 1991-92 admission to Level III: Completion of any Level II Honours Mathematics (common Level II programme) including Mathematics 2C03.

Programme Notes:
1. The Department of Mathematics and Statistics requires that all Honours students entering Level III or IV must have their programmes approved by the Chair or designate.
2. By electing Statistics 2D03 and Statistics 2M03 in Level II of this programme, a student can also complete Level II Honours Statistics.

Area Courses:
Mathematics 2A06, 2B06, 2C03, 2D03, 2F03; Statistics 2D03, 2M03 and all Level III, IV Mathematics and Statistics courses.

Level II: 30 units
R Mathematics 2A06, 2B06, 2C03; 6 units of Area courses.
E 9 units.

Level III and IV: 60 units
R Mathematics 3A06, 3B03, 3E03, 3EE3, 4A06; 15 units Level III and IV Area courses; 6 units of Area courses.
E 18 units.

HONOURS MATHEMATICS AND PHYSICS
Admission:
Completion of Natural Sciences I, including Mathematics 1A06 and 1B03; Physics 1A06 and Chemistry 1A06, with a weighted average of at least 7.0 in the Physics and Mathematics courses. It is also recommended that Computer Science 1MA3 be taken in Level I. Students will be considered for admission if they have completed Mathematics 1B03 and 1C06, but Mathematics 1A06 is strongly recommended.

Programme Note:
Students who complete Level II of Honours Mathematics and Physics are eligible to proceed to any Level III Honours programme in Mathematics or Physics.

Area Courses:
Mathematics 2A06, 2B06, 2C03, 2E03, 2F03; Statistics 2D03, 2M03; all Level III and IV Mathematics and Statistics courses; Physics 2B06, 2C03, 2D03, 2E03; all Level III and IV Physics courses except Physics 3C03, 3E03, 3T03, 4R03 and 4T03; Computer Science 2M03, 2MD3.

Level II: 32 units
R Mathematics 2A06, 2B06, 2C03, 2E03, 2F03, 2H03.
E 3 units

Levels III and IV: 61-62 units
R Mathematics 3A06, 3F03, 4A06; Physics 3C03, 3K04, 3M03, 3M03, 4B04, 4C03; 17 to 18 units of Area courses.
Note: Physics 3C03 is offered in alternate years.
E 12 units

HONOURS STATISTICS
Admission:
Completion of any Level I programme, with a weighted average of at least 7.0 in Mathematics 1A06 and 1B03, and 6 units acceptable to the Department of Mathematics and Statistics. Students will be considered for admission if they have completed Mathematics 1B03 and 1C06, but Mathematics 1A06 is strongly recommended.

For 1991-92 admission to Level III: Completion of Level II Honours Mathematics (common Level II programme) including Statistics 2D03.

Area Courses:
Computer Science 2MC3, 2MD3, 2M33, 2SB3, 3A03, 3SC3; Mathematics 2A06, 2B06, 2C03, 2E03, 3A06, 3E03, 3EE3, 3F03, 3FF3, 3G03, 3H03, 3I03, 3J03, 3K04, 3L03, 3M03, 3N03, 3O03, 4A06, 4C03, 4D03, 4F03, 4G03, 4H03, 4J03, 4K03, 4L03, 4M03, 4N03, 4O03, 4P03, 4Q03, 4R03, 4S03, 4T03; Statistics 2D03, 2M03 and all Level III and IV Statistics courses.

Level II: 30 units
R Mathematics 2A06, 2B06, 2C03; Statistics 2D03, 2M03.
E 9 units.

Levels III and IV: 60 units
R Mathematics 3A06 or 3O06, 3T03; Statistics 3D03, 4M03; 9 units of Statistics Area courses; 9 units of Level III or IV Area Courses; 6 units of Area Courses.
E 18 units.

MATHEMATICS MAJOR
Admission:
Completion of any Level I programme, with an average of at least 5.0 in Mathematics 1A06 and 1B03, and 6 units acceptable to the Department of Mathematics and Statistics. Students will be considered for admission if they have completed Mathematics 1B03 and 1C06, but Mathematics 1A06 is strongly recommended.

Students with a weighted average of at least 10.0 in Mathematics 2C03, 2D03 and 2F03 in Level II Mathematics Major may be permitted to transfer to Honours Mathematics in Level III.

For 1991-92 admission to Level III: Completion of Level II Mathematics Major (common Level II programme) including Statistics 2D03.

Programme Notes:
Students interested in Statistics should take Statistics 2M03. A course in Computer Science is recommended.

Area Courses:
Computer Science 2MC3, 2MD3, 2M33, 2SB3; Mathematics 2E03, 2G03, 2H06, 2K03, 2O03; Statistics 2D03, 2M03; all Levels III and IV Mathematics and Statistics courses.

Level II: 30 units
R Mathematics 2G03, 2J06, 2O03, Statistics 2D03.
E 15 units of elective, at least 6 of which must not be from the Department of Mathematics and Statistics.

Level III and IV: 60 units
R Mathematics 3O06, 3T03, and 6 units from Mathematics 3B03, 3E03, 3F03, 3H03; 21 units of Level III or IV Area courses.
E 24 units of electives, at least 6 of which must not be from the Department of Mathematics and Statistics.

STATISTICS MAJOR
Admission:
Completion of any Level I programme, with an average of at least 5.0 in Mathematics 1A06 and 1B03, and 6 units acceptable to the Department of Mathematics and Statistics. Students will be considered for admission if they have completed Mathematics 1B03 and 1C06, but Mathematics 1A06 is strongly recommended.
FACULTY OF SCIENCE

Students are strongly urged to complete Computer Science 1B03 or 1M03 or 1H03 or 1Z03 before entering Level III.

For 1991-92 admission to Level III: Completion of Level II Mathematics Major (common Level II programme) including Statistics 2D03.

Area Courses:
Computer Science 2MC3, 2ME3, 2MG3, 2SB3, 3CA3, 3MG3, 3SD3, 4EC3; Mathematics 2E03, 2G03, 2J06, 2K03, 2O03, 3C06, 3Q03, 3R03, 3S03, 3T03, 3X03, 3Y03, 4C03, 4C04, 4G03, 4J03, 4Q03, 4QZ3, 4RR3, 4W03; Statistics 2D03, 2M03; all Level III and IV Statistics courses.

Level II: 30 units
R  Mathematics 2G03, 2J06, 2C03; Statistics 2D03.
E 15 units, at least 6 of which must not be from the Department of Mathematics and Statistics.

Levels III and IV: 60 units
R  Mathematics 3Q06, 3T03; Statistics 3D06, 2M03 (if not completed); 12 units of Level III or IV Statistics Area courses; 9 units of Level III or IV Area courses.
E Electives to make a total of 60 units at least 6 of which must not be from the Departments of Mathematics and Statistics.

B.Sc. IN MATHEMATICS

Admission:
Completion of any Level I Programme, with a weighted average of at least 4.0 in Mathematics 1A06 and 1B03. Students will also be considered for admission if they have completed Mathematics 1B03 and 1C06. However, Mathematics 1A06 is strongly recommended.

Area Courses:
Mathematics 2E03, 2G03, 2J06, 2K03, 2O03; Computer Science 2ME3, 2SB3, 3SC3; Statistics 2D03, 2M03; all Level III Mathematics and Statistics courses.

Levels II and III: 60 units
R  Mathematics 2G03, 2J06, 2O03, 3O06; one of Mathematics 3B03, 3E03, 3T03; 6 units of Area courses.
E Electives to make a total of 60 units, at least 12 units of which must not be from the Department of Mathematics and Statistics.

Molecular Biology and Biotechnology

HONOURS MOLECULAR BIOLOGY AND BIOTECHNOLOGY

This Honours degree programme is administered within the Faculty of Science, jointly by the Departments of Biochemistry, Biology and Pathology, through a Committee of Instruction. The programme also draws on the McMaster Institute for Molecular Biology and Biotechnology. Information and counselling may be obtained from the Programme Co-ordinator, Dr. S.T. Baylel in the Department of Biology.

Admission:
Completion of Natural Sciences I including Biology 1A06, Chemistry 1A06, one of Physics 1A06, 1B06, or 1C06, with at least a B in Biology 1A06, Chemistry 1A06, and in one of Mathematics 1A06, 1C06 or Physics 1A06, 1B06, 1C06. The inclusion of Computer Science 1M03 or 1Z03 in Level I is strongly recommended.

Programme Note:
Level IV programme registrations must be approved by the Programme Co-ordinator for Molecular Biology and Biotechnology.

Area Courses:
Biochemistry 2A03, 2A06, 3A06, 3B03, 3C03, 3Q06, 4B06, 4B03, 4M03, 4P03, 4Q05; Biology 2B03, 2C03, 2D03, 2E03, 3E03, 3H03, 3I03, 3M06, 3O03, 4B03, 4C08, 4F04, 4H03, 4I03, 4V03; Chemistry 2B06, 2N03, 2O06, 2Q06, 2R03, 3D03, 3F03; Molecular Biology 3A06, 4A03, 4C03, 4D03, 4E03, 4F03, 4H03.

Level II: 30 units
R  Biochemistry 2A06; Biology 2B03, 2C03; Chemistry 2B06, 2R03; Computer Science 1Z03 (or 1M03) if not completed; one of Biology 2D03, 2E03, Chemistry 2N03.

Level III: 30 units
R  Biochemistry 3A06 or 3G06 (if Biochemistry 2A03 not completed); Molecular Biology 4A06; 12 to 15 units from Biology 3H03, 3N06, 3Q03, Chemistry 3F03.
E 3 to 6 units.

Level IV: 30-32 units
R  Either Molecular Biology 4B06 and one of Biochemistry 4P03, Biology 4F04, or one of Biochemistry 4B06, Biology 4C08; Molecular Biology 4B03, 4C03, 4D09; 9 units chosen from Biochemistry 4I03, 4M03, 4Q03; Biology 4H03, 4I03, 4V03, Molecular Biology 4E03, 4F03, 4H03.

HONOURS PHYSICS

Admission:
Completion of Natural Sciences I, including Mathematics 1A06 and 1B03, Physics 1A06 and Chemistry 1A06, with a weighted average of at least 7.0 in the Physics and Mathematics courses. Students will also be considered for admission if they have completed Physics 1B06 or 1C06, instead of 1A06. However, Physics 1A06 is strongly recommended. It is also recommended that Computer Science 1M03 be taken in Natural Sciences I. Students will also be considered for admission (to Level II) if they have completed Mathematics 1B03 and 1C06. However, Mathematics 1A06 is strongly recommended.

Programme Note:
Students who have completed Level II of Honours Physics are eligible to proceed to Level III of Honours Physics, Honours Physics (Theory Option) and Honours Applied Physics. They may also be considered for admission to Level III of Honours Materials Science, preferably if Materials 1A06 or 1A03 and 1B03, or Engineering 2003, has been completed in Level II.

Area Courses:
Physics 2B06, 2C03, 2D03, 2H03, 2A03, 3A06, 3B06, 3C03, 3H04, 3K04, 3M03, 3N06, 3O03, 3Q03, 3X03, 3Y03, 4A02, 4B04, 4C03, 4D06, 4E03, 4F03, 4G03, 4J04, 4K03, 4U03; Mathematics 2A06, 3C03, 3D03.

Level II: 33 units
R  Physics 2B06, 2C03, 2D03, 2H03; Mathematics 2A06, 2C03; Computer Science 1M03 (if not completed).

NOTE: Students wishing to take Physics 4D06 in either Level III or IV must have completed Computer Engineering 2H03. However, they are encouraged to take Computer Engineering 2H03 in Level III and Physics 4D06 in Level IV.
E 6 to 9 units, at least 6 of which must not be from Physics.

Department of Physics

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 AND SCIENCE AND PHYSICS (B.Arts Sc.)
(See Arts and Science Programme)

HONOURS PHYSICS

Admission:
Completion of Natural Sciences I, including Mathematics 1A06 and 1B03, Physics 1A06 and Chemistry 1A06, with a weighted average of at least 7.0 in the Physics and Mathematics courses. Students will also be considered for admission if they have completed Physics 1B06 or 1C06, instead of 1A06. However, Physics 1A06 is strongly recommended. It is also recommended that Computer Science 1M03 be taken in Natural Sciences I. Students will also be considered for admission (to Level II) if they have completed Mathematics 1B03 and 1C06. However, Mathematics 1A06 is strongly recommended.

Programme Note:
Students who have completed Level II of Honours Physics are eligible to proceed to Level III of Honours Physics, Honours Physics (Theory Option) and Honours Applied Physics. They may also be considered for admission to Level III of Honours Materials Science, preferably if Materials 1A06 or 1A03 and 1B03, or Engineering 2003, has been completed in Level II.

Area Courses:
Physics 2B06, 2C03, 2D03, 2H03, 2A03, 3A06, 3B06, 3C03, 3H04, 3K04, 3M03, 3N06, 3O03, 3Q03, 3X03, 3Y03, 4A02, 4B04, 4C03, 4D06, 4E03, 4F03, 4G03, 4J04, 4K03, 4U03; Mathematics 2A06, 3C03, 3D03.

Level II: 33 units
R  Physics 2B06, 2C03, 2D03, 2H03; Mathematics 2A06, 2C03; Computer Science 1M03 (if not completed).

NOTE: Students wishing to take Physics 4D06 in either Level III or IV must have completed Computer Engineering 2H03. However, they are encouraged to take Computer Engineering 2H03 in Level III and Physics 4D06 in Level IV.
E 6 to 9 units, at least 6 of which must not be from Physics.
**Level III: 32-35 units**

R Physics 3H04, 3K04, 3M03, 3MM3, 3N03; Mathematics 3C03, 3D03. At least one of Physics 3B06 or 4D06 must be completed in either Level III or 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.

**NOTE:** Students wishing to take Physics 4D06 in Level IV must take Computer Engineering 2HA3 (if not completed) in Level III.

E Electives to make a total of 32-35 units.

**Level IV: 31-34 units**

R Physics 4A02, 4B04, 4F03, 4I04; two of Physics 3A03, 3B06 or 4D06, 3C03, 3X03, 3Y03, 4C03, 4Q04, 4R03, 4U03; 6 units of Level III or IV courses from the Faculty of Science.

E Electives to make a total of 31 to 34 units.

**HONOURS PHYSICS (THEORY OPTION)**

**Admission:**

Completion of Level II Honours Physics or Level II Honours Mathematics and Physics.

**Area Courses:**

Applicable Level II Area courses; Mathematics 3C03, 3D03, 3Q03, 4Q03, 4V03, Physics 3A03, 3C03, 3H04, 3K04, 3M03, 3MM3, 3N03, 3X03, 3Y03, 4A02, 4B04, 4C03, 4E03, 4F03, 4G03, 4K03, 4Q04, 4R03.

**Level III: 32-35 units**

R Mathematics 3C03, 3D03, 3Q03; Physics 3C03 (if offered), 3H04, 3K04, 3M03, 3MM3, 3N03.

**NOTE:** Physics 5C03, which is offered in alternate years, must be taken in Level III or Level IV.

E 6 to 9 units, at least 3 of which must be from outside of Physics and Engineering Physics.

**Level IV: 31-34 units**

R Mathematics 4B03 or 4V03; Physics 3C03 (if 4C03 not completed), 4A02, 4B04, 4F03; 9 units from Physics 3A03, 3X03, 3Y03, 4E03, 4G03, 4K03; 6 units of Level III or IV courses from the Faculty of Science.

**NOTE:** Physics 3C03, which is offered in alternate years, must be taken in Level III or Level IV.

E 4 to 7 units.

**HONOURS APPLIED PHYSICS**

**Admission:**

Completion of Level II Honours Physics or Level II Honours Mathematics and Physics.

**Area Courses:**

Applicable Level II Area courses; Physics 3B06, 3H04, 3M03, 3MM3, 3N03, 4A02, 4B04, 4D06, 4I04; Mathematics 3C03, 3D03, Engineering Physics 3W04.

**Level III: 34-35 units**

R Physics 3B06, 3H04, 3M03, 3MM3, 3N03; Mathematics 3C03, 3D03; Computer Engineering 2HA3 (if not completed).

E 6 to 10 units.

**Level IV: 32-34 units**

R Physics 4A02, 4B04, 4D06, 4I04; Engineering Physics 3W04; 6 to 8 units of Level III or IV Physics or Engineering Physics.

E 6 units.

**HONOURS APPLIED PHYSICS (MEDICAL AND HEALTH OPTION)**

**Admission:**

Completion of Natural Sciences I, including Mathematics 1A06 and IB03, Physics IA06, and Chemistry IA06 with a weighted average of at least 5.0 in the Mathematics and Physics courses. Students will also be considered for admission if they have completed Physics 1B06 or 1C06 instead of 1A06. However, Physics 1A06 is strongly recommended. It is also recommended that Computer Science 1MA3 be taken in Natural Sciences I. Students will also be considered for admission to Level II if they have completed Mathematics 1C06 and 1D06. However, Mathematics 1A06 is strongly recommended.

**Area Courses:**

Physics 2B06, 2C03, 2C05, 2D03, 2H03, 2I04, 3M03, 3MM3, 3W04, 4A02, 4B04, 4D06, 4I03, 4Q04, 4R03, 4T03; Mathematics 2A06, 3C03, 3D03; Biology 3Q03.

**Level II: 33-36 units**

R Physics 2B06, 2C03, 2D03, 2H03, Mathematics 2A06, 2C03; Computer Science 1MA3 (if not completed), and Biology 1A06 (if not completed).

E Electives to make a total of 33 to 36 units. Chemistry 2D03, Computer Science 1M03, 2S03 are strongly recommended.

**Level III: 31-34 units**

R Physics 3H04, 3M03, 3MM3, 3T03; Mathematics 3C03, 3D03, 3Q03; Biology 3Q03; Computer Engineering 2HA3.

E 3 to 6 units. Chemistry 2C03 is strongly recommended.

**Level IV: 35 units**

R Physics 4A02, 4B04, 4D06, 4E03, 4Q04, 4R03, 4T03; Engineering Physics 3W04; one of Engineering Physics 3X03 or Engineering 4X03. The project of Physics 4Q04 must be taken in the field of Health and Radiation Physics.

E 3 units.

**PHYSICS MAJOR (GENERAL OPTION)**

**Admission:**

Completion of Natural Sciences I, including Mathematics 1A06 and IB03, Physics IA06, and Chemistry IA06 with a weighted average of at least 5.0 in the Physics and Mathematics courses. Students will also be considered for admission if they have completed Physics 1B06 or 1C06 instead of 1A06. However, Physics 1A06 is strongly recommended. It is also recommended that Computer Science 1MA3 be taken in Natural Sciences I. Students will also be considered for admission (to Level II) if they have completed Mathematics 1C06. However, Mathematics 1A06 and 1B03 are strongly recommended.

**Area Courses:**

Physics 2B06, 2C03, 2C05, 2D03, 2C06, 2H03, and all Level III and IV Physics courses; Mathematics 2G03, 2K03, 3C03; Engineering Physics 3D03, 3F03, 3W04, 4D03, 4E03, 4G03, 4K03, 4N03, 4S04.

**Level II: 30-32 units**

R Physics 2B06, 2H03; either 2G03 or 2C03 and 2D03; Mathematics 2G03, 2H03, Mathematics 1B03 (if not completed); Computer Science 1MA3 (if not completed).

E Electives to make a total of 30 to 32 units, at least 6 of which must not be Physics.

**Level III: 29-32 units**

R 19 to 20 units selected as follows: Physics 3H04, Mathematics 3C03; either Physics 3M03 and 3MM3, and Mathematics 3D03, or Mathematics 3C03 and 3Q03; additional units from Levels III or IV Physics.

**NOTE:** Students wishing to take Physics 4D06 in Level IV must take Computer Engineering 2HA3 (if not completed) in Level III.

E 9 to 12 units, at least 6 of which must not be from Physics or Engineering Physics.

**Level IV: 30-32 units**

R Physics 4A02, 4I04; 8 to 10 units of Level III and IV Physics which must include one of Physics 3B06 or 4D06 if neither has been completed; 6 units of Level III or IV Area courses.

E 9 to 12 units.

**PHYSICS MAJOR (MEDICAL AND HEALTH OPTION)**

**Admission:**

Completion of Natural Sciences I, including Mathematics 1A06 and IB03, Physics IA06, Chemistry IA06, one of Biology IA06, Computer Science 1MA3, with a weighted average of at least 5.0 in Physics, one of the Mathematics courses, and any one other required course. Students will also be considered for admission if they have completed Physics 1B06 or 1C06, instead of 1A06. However, Physics 1A06 is strongly recommended. Students will also be considered for admission (to Level II) if they have completed Mathematics 1C06. However, Mathematics 1A06 and 1B03 are strongly recommended.

**Area Courses:**

Physics 2B06, 2C03, 2C05, 2D03, 2G03, 2H03, and all Levels III and IV Physics courses; Mathematics 2G03, 2K03, 3C03; Engineering Physics 3D03, 3F03, 3W04, 4D03, 4E03, 4G03, 4K03, 4N03, 4S04.
FACULTY OF SCIENCE

Level II: 30-33 units
R Physics 2B06, 2H03; either 2G03 or 2C03 and 2D03; Mathematics
2G03, 2D03; Mathematics 1B03 (if not completed); Computer Science
1MA3 (if not completed) and Biology 1A06 (if not completed).
E Electives to make a total of 30 to 33 units. Chemistry 2D03, Com-
puter Science 1MB3, 2SB3 are strongly recommended.

Level III: 31-34 units
R Physics 3H04, 3O03, 3Q03, 3T03; Mathematics 3C03; Biology
3Q03; Chemistry 2C03; Computer Engineering 2H03.
E 6 to 9 units.

Level IV: 30-32 units
R Physics 4A02, 4D06, 4E03, 4Q04, 4R03, 4T03; one of Engineering
Physics 3X03, Engineering 4X03. The project of 4Q04 must be
taken in the field of Health and Radiation Physics.
E 6 to 8 units.

B.Sc. IN PHYSICS

Admission:
Completion of Natural Sciences I, including Physics 1A06, Mathemat-
ics 1A06 and 1B03, Chemistry 1A06, with at least C− in Physics.
Students will also be considered for admission if they have completed
Physics 1B06 or 1C06, instead of 1A06. However, Physics 1A06 is
strongly recommended. It is also recommended that Computer Science
1MA3 be taken in Natural Sciences I. Students will also be con-
dered for admission (to Level II) if they have completed Mathematics 1C06.
However, Mathematics 1A06 and 1B03 are strongly recommended.

Area Courses:
Physics 2B06, 2G03, 2H03 and all Levels III and IV Physics courses;
Mathematics 2G03; Chemistry 2P06.

Level II: 30 units
R Physics 2B06, 2G03; either Physics 2H03 or Chemistry 2P06; Math-
ematics 2G03, 2D03, Mathematics 1B03 (if not completed); Com-
puter Science 1MA3 (if not completed).
E Electives to make a total of 30 units, at least 6 of which must not be
from Physics.

Level III: 29-31 units
R Physics 3H04, 3O03; 6 to 9 units of Levels III and IV Physics.
E 16 to 18 units, at least 6 of which must not be from Physics or Engi-
neering Physics.

Department of Psychology

HONOURS PSYCHOLOGY (B.A.), 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 AND SCIENCE AND PSYCHOLOGY
(B. Arts Sc.)
(See Arts and Science Programme)

HONOURS PSYCHOLOGY (B.Sc.)
Admission:
Completion of Natural Sciences I, with a grade of at least B− in Psy-
chology 1A06, and a grade of at least B− in 6 additional units of Biology,
Chemistry, Physics, or Mathematics.

Programme Notes:
1. At some time during the programme, the student must meet a labo-
ratory requirement by completing one of Psychology 3C06, 3E03,
3L03 (formerly 2U03), 3Q03, 3S03, 3V03, 4G03, or 4Q03.
   Enrollment in Psychology Laboratory courses is limited. Permission
   of the department is required by March 1.
2. Students who entered this programme prior to September 1988,
   must complete either Psychology 2E03 or 3W06.
   Students who entered this programme since September 1988,
   must complete Psychology 2E03.
3. The electives taken during Levels III and IV must include a minimum
   of 6 units which are not Psychology.
4. Students who are planning on graduate studies in Psychology and
   who meet the prerequisites should complete Psychology 4D06.

Area Courses:
Psychology 2E03, 2H03, 2R06, 2R03, 2R3, 2T03; All Level III and IV
Psychology courses.

Level II: 30 units
R Psychology 2E03, 2H03, 2R03, 2R3, 2T03; one of English 1D06,
3A03; 9 units chosen from Biochemistry, Biology, Chemistry, Phys-
ics, Mathematics and Statistics, Computer Science.
E Electives to make a total of 30 units, only 3 of which may be from
Psychology. Psychology 3L03 may be taken in Level II.

Level III: 30 units
R 18 units of Level III Psychology; 6 units chosen from Levels III and
IV Biochemistry, Biology, Chemistry, Physics, Mathematics and Sta-
tistics, or Computer Science.
E 6 units. (See Programme Notes above.)

Level IV: 30 units
R 18 units of Levels III or IV Psychology.
E 12 units. (See Programme Notes above.)

PSYCHOLOGY MAJOR (B.Sc.)

Admission:
Completion of Natural Sciences I with at least a grade of C in Psych-
ology 1A06 and in 6 additional units of Science courses.

Programme Notes:
1. At some time during the programme the student must meet a labo-
ratory requirement by completing one of: Psychology 3C06, 3E03,
3L03 (formerly 2U03), 3Q03, 3S03, 3V03, 4G03.
   Enrollment in Psychology laboratory courses is limited. Permission
   of the Department is required by March 1.
2. All area courses from Levels II, III and IV will be included in calcu-
   lating the Graduation Average.

Area Courses:
Psychology 2E03, 2H03, 2T03, 2R06, 2R03, 2R3, 2T03; All Level III and IV
Psychology courses except Psychology 3203 and 4D06.

Level II: 30 units
R Psychology 2R03 and 2R3; 6 units from Psychology 2E03, 2H03,
2T03; 3 additional units of Level II Psychology; English 1D06; 9 units
Natural Sciences excluding Psychology. Psychology 3L03 may be
taken in Level II.

Level III: 30 units
R 12 units Level III Psychology; 6 units Humanities or Social Science;
12 units Natural Sciences excluding Psychology, at least 6 units of
which must be Level III or IV courses.

Level IV: 30 units
R 12 units Level III or IV Psychology; 6 units Humanities or Social Sci-
ces; 12 units Level III or IV Natural Sciences courses excluding
Psychology.

B.Sc. IN PSYCHOLOGY

Admission:
Completion of Natural Sciences I, with a grade of at least C− in Psy-
chology 1A06.

Programme Notes:
1. At some time during the programme, the student must meet a labo-
ratory requirement by completing one of Psychology 3C06, 3E03,
3L03 (formerly 2U03), 3Q03, 3S03, or 3V03.
   Enrollment in Psychology laboratory courses is limited. Permission
   of the department is required by March 1.

Area Courses:
Psychology 2D06, 2E03, 2H03, 2R06, 2R03, 2R3, 2T03; All Level III and
IV Psychology courses.
Level II: 30 units
R 6 units from Psychology 2E03, 2H03, 2T03; Psychology 2R03 and 2RR3; one of English 1D06 or 3A03. 6 units chosen from Biochemistry, Biology, Chemistry, Computer Science, Mathematics and Statistics or Physics.
E 6 to 9 units, at least 3 of which must not be from Psychology. Psychology 3L03 may be taken in Level II.

Level III: 30 units
R 12 units of Level III Psychology; 6 units beyond Level I chosen from Biochemistry, Biology, Chemistry, Mathematics and Statistics, Computer Science or Physics.
E 12 units, at least 6 of which must not be from Psychology.

Science

B.Sc. IN SCIENCE

Admission:
Completion of Natural Sciences I, including Mathematics 1A06 or 1C06, and two of Chemistry 1A06, Physics 1A06, 1B06, 1C06, Biology 1A06, Psychology 1A06 with an average of at least 4.0 in two of the specified courses. Chemistry 1A06, one of Physics 1A06, 1B06, 1C06, one of Biology 1A06 or Psychology 1A06, and one of Geography 1A06, Geology 1A03, 1C03 must be completed before Level III. The completion of all the requirements in Level I is strongly recommended.

Programme Notes:
1. * Science Courses: Courses referred to as Science Courses and marked with * are those courses offered by the Departments of Biochemistry, Biology, Chemistry, Computer Science and Systems, Geology, Materials Science and Engineering, Mathematics and Statistics, Physics, Psychology, and courses offered by the Department of Geography which are classified as Science courses.
2. No more than 24 units of the R- and E-group courses designated as Science Courses* may be taken in any one department.
3. No more than 12 units of Level I courses may be taken in Levels II and III.
4. No more than 18 units of R-group courses may be taken in any one department.

Area Courses:
All Level II and III Science Courses*.

Level II: 30 units
R 15 units of Level II Science courses*, one of English 1D06, Humanities 1C03, 2C03, Philosophy 1B06, 1D06, 2R03. If not already completed; Chemistry 1A06, one of Physics 1A06, 1B06, 1C06, one of Biology 1A06, Psychology 1A06, and one of Geography 1A06, Geology 1A03, 1C03.
E Electives to make a total of 30 units.

Level III: 30 units
R 3 units of Level II or III Science courses, 12 units of Level III Science courses. 6 units from the Faculties of Humanities or Social Science.
E 9 units.
Faculty of Social Sciences

J.A. Johnson/M.A., Ph.D., Dean of Social Sciences
W.K. Whillier/B.A., Ph.D., Associate Dean (Studies)
E. Frank/M.A., Academic Assistant to the Dean
M. Foster/M.A., Student Advisor
J. Westen/B.A., Student Advisor
E. Moore/Programmes Co-ordinator

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, Political Education, 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. The Honours (Specialist) programmes provide a richer 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. 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 required for the Combined Honours degree. The Gerontology degree is offered only in combination with another subject, except when it is taken as a second degree. The Faculty of Social Sciences is participating fully in helping interested students combine concentration in a social science area with concentration in Arts and Science, or any discipline in the Faculty of Humanities.

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, and the Department of Physical Education offers a programme of studies leading to the B.P.E. Degree. The B.S.W. Degree may be attained separately only by those who have already received one undergraduate degree.

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.

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 of the Faculty of Social Sciences.

McMaster Test of Writing Competence

A student admitted to McMaster University in 1986 or later who has completed 60 units of any programme, must also have passed the McMaster Test of Writing Competence before continuing in any Social Sciences Programme. The intent of this regulation is to ensure that students pass the Test before registering in Level III of any Social Sciences programme, and the regulation will be applied in accordance with this intent. For second degree students whose first degree was taken at another university the Test must be passed prior to graduation.

Humanities Requirements

Students registered in programmes in the Faculty of Social Sciences, except for those registered in the Bachelor of Physical Education programme and the B.A./B.S.W. programme, are required to complete 6 units of courses chosen from the Faculty of Humanities before graduation, preferably before Level II.

Students registered in the B.A., B.A. (Major) or B.A. (Honours) programmes in Psychology or 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.

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 Application Procedures and Sessional Dates unless written documentation is provided showing good cause, as determined by the Faculty Admissions Committee.

Course Selection and Changes

A student must ensure that the selection of courses meets the degree requirements for the programme in which the student is registered, that any prerequisites have been met, and that the appropriate written permission has been obtained if required. Considerable inconvenience can result for a student whose registration does not meet the requirements.

All registrations, programme changes and course changes must be approved by the Associate Dean (Studies) and are subject to the deadlines established by the University as published in this Calendar under Sessional Dates.

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 instructor. These courses are:

Physical Education: 3J03, 3F03, 3Q03, 3S03, 3Q03, 4J03, 4H03, 4L03, 4M03, 4Q03
Social Work: 3C03, 3G03, 3H03, 3J03, 4G03, 4M03, 4Z03

Re-admission

A student who May Not Continue Without Permission may apply for re-admission. Application for re-admission must be made in writing to the Associate Dean of Social Sciences (Studies). Guidelines for the letter of application can be obtained from the Office of the Associate Dean (Studies). Deadlines for re-admission application are the same as application deadlines for admission to the University. See Sessional Dates. Re-admission 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.

Re-admission is not automatic or guaranteed.

In the case of students who have been Required to Withdraw, re-admission will not normally be considered for a session beginning within 12 months of the withdrawal date.

Students from other Faculties applying for re-admission under this section will not be considered for admission to Social Sciences if their pre-university work meets the current admission requirements (or equivalent) of the Faculty of Social Sciences.

Programmes

The Faculty of Social Sciences offers three types of Honours Programmes: Honours (Specialist) in a single subject, Combined Honours in two subjects, and Honours in one subject with a Minor in a second subject. 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 University's statement on 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 Science courses; 6 units, not in the candidate’s Honours subject(s) or minor areas; and 6 units, prescribed by the Department(s); and 3 units drawn from the Informal Logic menu. 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 3 units of the History of Thought of the candidate's Honours Social Science discipline(s) and 6 units of Inquiry and Honours seminar. Students who have enrolled in an Honours programme in the Faculty of Social Sciences prior to September, 1991 may fulfill the requirements for the B.A. Honours Degree either by completing the work specified in the 1990/91 Undergraduate Calendar for that degree or by fulfilling the requirements specified in this Calendar 1991-92.

The Faculty also offers a 4-Level Major Programme and several 3-Level Bachelor of Arts Programmes, as well as specialized programmes in the School of Social Work (B.A.B.S.W.) and the Department of Physical Education (B.P.E.).

Honours (Specialist) Programmes: A specialist programme includes at least 48 and no more than 60 units of work beyond Level I, prescribed by a single department or programme.

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) (Social Sciences). 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).

Honours Programmes with a Minor in a Second Subject: Subject to possible timetable restrictions, and provided that the student meets the requirements for entry into both the Honours and the minor portions of the programme, a student may combine work in two departments in the Faculty of Social Sciences and be graduated with an Honours Degree in one subject and a Minor in a second subject.

All combined programmes involving a Minor must be approved by both Departments concerned as well as by the Associate Dean (Studies). These programmes will normally include approximately 36 units of work beyond Level I prescribed by the student’s Honours Department (normally 12 units of work per Level) and 18 units of work beyond Level I prescribed by the student’s minor Department. (Note: Not all instructional units in the Faculty of Social Sciences offer a Minor concentration.)

Major Programme: For requirements of the Major programme see the university’s statement on Academic Regulations in this Calendar.

Bachelor of Arts Programmes: For requirements of Bachelor of Arts programmes see the University’s Statement on Academic Regulations in this Calendar.

The only 3-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 4-Level programme.

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 programmes of study 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, THOUGHT MENU
Students enrolled in an Honours Programme in the Faculty of Social Sciences must successfully complete at least 6 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 and 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 2103 History of Anthropology
Cla 2 Civ 1B06 An Introduction to the Civilizations of Greece and Rome
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 2H06 United States History
History 2I06 Europe in the Middle Ages
History 2J06 The History of China
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 2K06 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 2F06 History of Ancient Judaism
Relig St. 2G06 Religion and the Culture of the Twentieth Century
Relig St 2I03 Christianity in the Patristic Period (100-300)
Relig St 2J06 India: Its Culture, Social History, Religion and Philosophy
Relig St 2J03 Christianity in the Medieval Period (800-1500)
Relig St 2K03 Christianity in the 16th Century
Relig St 2L03 Christianity after 1500
Relig St 2M06 East Asia: Religion and Thought
Relig St 2P06 Japanese Civilization
Relig St 2P03 Indian Philosophy
Relig St 2R06 Divine Justice
Relig St 3M03 Scepticism, Atheism, and Religious Faith
Relig St 3N03 The Encounter of Science and Religion
Relig St 3U03 The Buddhist Tradition in India and South-East Asia
Relig St 3U03 The Buddhist Tradition in East Asia
Relig St 3U03 Introduction to Sociological Theory

INFORMAL LOGIC MENU
Students enrolled in an Honours Programme in the Faculty of Social Sciences must successfully complete 3 units of work from this menu.
Students enrolled in Combined Honours involving programmes in both Social Sciences and Arts and Science are exempt from this requirement.

Humanities 2C03 Critical Thinking
Philos 2R03 Reasoning

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Level I Programmes

SOCIAL SCIENCES I: 30 units

R 12 units from: Anthropology 1A03, 1L03, 1203, Canadian Studies 1A06; Economics 1A06; Geography 1A06, 1B06; Gerontology 1A06; Labour Studies 1A03, 1A33; Political Science 1A06; Psychology 1A06, Religious Studies 1B06, 1D06, 1E06, 1F06, 1H03, 1I06; Sociology 1A06.

Students registered in programmes in the Faculty of Social Sciences are required to complete 6 units of courses chosen from the Faculty of Humanities as stated above (Academic Regulations, Humanities Requirement). It is recommended that this requirement be completed in Level I. Students planning to enroll in an Honours Programme in the Faculty of Social Sciences in Level II may fulfill the World History, Culture, Thought requirement (see Menu) in Level I.

Students may take more than 12 units of work in the Faculty of Social Sciences if they wish, subject to the conditions outlined in E (Electives) below.

E 18 units.

Normally, a student will take only 6 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.

PHYSICAL EDUCATION I: 31 UNITS

R Physical Education 1A06, 1B03, 1E03, 1F03; Practicum: 1 unit, plus the McMaster Basic Swimming Test. Biology 1J03.

E 12 units.

Department of Anthropology

HONOURS ARTS AND SCIENCE AND ANTHROPOLOGY

(B. Arts Sc.)

(See Arts and Science Programme)

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 by department in the Calendar).

Cultural/ Social Anthropology: Anthropology 2B03, 2F03, 2H03, 2J03, 2J06, 2P03, 2Q03, 2R03, 2S03, 2T03, 2U03, 2V03, 2W03, 3A03, 3B03, 3D03, 3F03, 3G03, 3J03, 3J06, 3L03, 3P03, 3Q03, 3S03, 3T03, 3V03, 3Z03, 4A03, 4D03, 4I03, 4N03, 4Y03.

Physical/Biological Anthropology: Anthropology 2D03, 2E03, 2F03, 2I03, 2J03, 2J06, 2K03, 2U03, 3C03, 3N03, 3N03, 3R03, 3Z03, 3Z03, 3A03, 3B03, 3D03, 3F03, 4A03, 4D03, 4J03, 4R03, 4Y03 (relevant courses are also offered by Biology and Physical Education).

Archaeology: Anthropology 2A03, 2N03, 2O03, 2P03, 3N03, 3Q03, 4G03, 4R03, 4H03, 4M03 (relevant courses are also offered by History and Classics).

Linguistics: Anthropology 2L03, 2L13, 2M03, 2Q03, 3I03, 3M03, 3Y03, 4K03, 4L03, 4T03.

Other courses: Courses not distinguished by subfield include the reading courses 2W03, 2Y03, 3W03, 4G03 as well as the seminar course 4B03.

In planning your programme, it is important to take note of the prerequisites of certain of the higher level courses.

HONOURS ANTHROPOLOGY (SPECIALIST) Admission:

Completion of 30 units with an average of at least 7.0 in six units drawn from Anthropology 1A03, 1L03 and/or 1203. Linguistics 1A06 may be substituted for Anthropology 1L03.

Programme Notes:

1. See subfield descriptions above.

2. The Graduation Average (GA) is computed using at least 36 units of Levels II, III and IV Area courses. The Cumulative Area Average (CAA) is computed using the best 80% of Levels II, III and IV Area courses.

3. Students in Honours programmes in the Faculty of Social Science must complete at least 12 units of introductory (Level I) Social Sciences, including 6 units of Anthropology. If not completed in Level I, these must be completed while in the programme.

Area Courses:

All Level II, III and IV Anthropology courses.

Levels II, III and IV: 90 units

R 6 units from the Anthropology research methods menu (see below).

54 additional units of Anthropology Area courses, including Anthropology 2E03, 2F03; 2I03; 2Q03; one of 2A03, 2N03 and 2O03; one of 3A03, 3B03, 3D03 and 3F03, 4I03; and at least 9 additional units of Level IV Anthropology.

6 units not in the Specialist area, from the World History, Culture and Thought menu, if not completed in Level I.

3 units from the Informal Logic menu.

E Electives to make a total of 90 units.

COMBINED HONOURS IN ANTHROPOLOGY AND ANOTHER SUBJECT Admission:

Completion of 30 units with an average of at least 7.0 in six units drawn from Anthropology 1A03, 1L03 and/or 1203. Linguistics 1A06 may be substituted for Anthropology 1L03.

Programme Notes:

1. See subfield descriptions above.

2. The Graduation Average (GA) for the Anthropology component is computed on at least 24 units of Levels II, III and IV Area courses. See other component for computation of the Graduation Average (GA) in that subject. The Cumulative Area Average (CAA) is computed separately for each component using the best 80% of Levels II, III and IV Area courses in each subject.

3. Students in Honours programmes in the Faculty of Social Science must complete at least 12 units of introductory (Level I) Social Sciences, including 6 units of Anthropology. If not completed in Level I, these must be completed while in the programme.

Area Courses:

All Level II, III and IV Anthropology courses.

Levels II, III and IV: 90 units

R 6 units drawn either from the Anthropology research methods menu (see below) or as prescribed by the other department.

36 additional units of Anthropology Area courses, including Anthropology 2E03, 2F03; 2I03; 2Q03; one of 2A03, 2N03 and 2O03; one of 3A03, 3B03, 3D03 and 3F03, 4I03; and at least 3 additional units of Level IV Anthropology.

Units prescribed by the other department.

6 units not in the Honours Area of either programme, from the World History, Culture and Thought menu, if not completed in Level I.

3 units from the Informal Logic menu.

E Electives to make a total of 90 units.

HONOURS ANTHROPOLOGY WITH A MINOR IN ANOTHER SUBJECT Admission:

Completion of 30 units with an average of at least 7.0 in six units drawn from Anthropology 1A03, 1L03 and/or 1203. Linguistics 1A06 may be substituted for Anthropology 1L03.

Programme Notes:

1. See subfield descriptions above.
2. The Graduation Average (GA) is computed using at least 36 units of Levels II, III and IV Area courses in Anthropology and the Minor subject. The Cumulative Area Average (CAA) is computed using the best 80% of Levels II, III and IV Area courses in Anthropology and the Minor subject.

3. Students in Honours programmes in the Faculty of Social Science must complete at least 12 units of introductory (Level I) Social Sciences, including 6 units of Anthropology. If not completed in Level I, these must be completed while in the programme.

**Area Courses:**
All Level II, III and IV Anthropology courses.

**Levels II, III and IV:** 90 units
R 6 units drawn from the Anthropology research methods menu (see below)
36 additional units of Anthropology Area courses, including Anthropology 2E03, 2F03, 2L03, 2Q03; one of 2A03, 2N03 and 2C03; one of 3A03, 3B03, 3D03 and 3F03; 4L03; and at least 3 additional units of Level IV Anthropology.
18 units of a Minor prescribed by the other department.
6 units not in the Honours or Minor subjects, drawn from the World History, Culture and Thought menu, unless completed at Level I;
3 units from the Informal Logic menu.
E Electives to make a total of 90 units.

**MINOR IN ANTHROPOLOGY**

**Admission**
Admission to any Social Sciences Honours Programme and an average of at least 4.0 in six units drawn from Anthropology IA03, IL03 and/or 1Z03. Linguistics IA06 may be substituted for Anthropology 1L03.
R 18 units of Anthropology Area courses, including one of Anthropology 2A03, 2E03, 2F03, 2N03, 2Q03, and 2L03.

**ANTHROPOLOGY RESEARCH METHODS MENU**
One of: Economics 2B03, Geography 2L23, Political Science 2F06, Psychology 2G03, Sociology 2Y03, Sociology 3H06, Statistics 1A03, Statistics 2M03, or Statistics 2R06. Although Statistics 1A03 is recommended as the most general statistics course, students may select the statistical methods course most appropriate to their sub-disciplinary interests. Students are advised that some of these courses have their prerequisites.
If only 3 units are taken from the list above, an additional 3 units from Anthropology 2F3, 2D03, 2203, 3K03, 3P03 and 4L03 must be completed.

**B.A. IN ANTHROPOLOGY**

**Admission:**
Completion of 30 units with an average of at least 4.0 in six units drawn from Anthropology IA03, IL03, and/or 1Z03. Linguistics IA06 may be substituted for Anthropology 1L03.

**Area Courses:**
All Level II, III and IV Anthropology courses.

**Levels II and III:** 60 units
R 24 units of Anthropology Area courses, including two of Anthropology 2E03, 2F03, 2A03 or 2Q03, 2N03, 2C03.
E Electives to make a total of 60 units.

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**Department of Economics**

**HONOURS COMMERCE AND ECONOMICS**
In conjunction with the Faculty of Business, a programme is offered in Honours Commerce and Economics. Since students register in the Faculty of Business, details concerning admission, the programme of study and academic requirements are given in the Faculty of Business section of the Calendar.

**HONOURS ARTS AND SCIENCE ECONOMICS**
(B. Arts Sc.)
(See Arts and Science Programme)

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**HONOURS ECONOMICS (SPECIALIST)**

**Admission:**
Completion of any Level I programme with an average of at least 7.0 in Economics 1A06 and 6 additional units, including a grade of B- in Economics 1A06. Credit in OAC Calculus, or Math 1K03, or equivalent; credit in Math 1L03 or equivalent.

**Programme Notes:**
1. Students must meet the Faculty requirements for breadth and depth as outlined in Academic Regulations, Faculty of Social Sciences.
2. The Graduation Average (GA) is computed using at least 36 units of Levels II, III and IV Area courses. The Cumulative Area Average (CAA) is computed using the best 80% of Levels II, III and IV Area courses.

**Area Courses:**
All Level II, III and IV Economics courses.

**Levels II, III and IV:** 90 units
R Economics 3O06;
51 additional units of Economics including 2G03, 2G3, 2H03, 2H03, 3A03, 3A03, 3F03, 3L03, 3A03, and one of Economics 2K03, 3L03, 3R03;
at least 3 units of Calculus drawn from Mathematics 1A06, 1M03 or equivalent unless completed at Level I;
6 units, excluding Economics courses, from the World History, Culture and Thought menu, unless completed at Level I;
3 units from the Informal Logic menu.
E Electives to complete 90 units, of which 18 must not be offered by the Department of Economics.

**HONOURS ECONOMICS WITH A MINOR IN ANOTHER SUBJECT**

**Admission:**
Completion of any Level I programme with an average of at least 7.0 in Economics 1A06 and 6 additional units, including a grade of B- in Economics 1A06. Credit in OAC Calculus, or Math 1K03, or equivalent; credit in Math 1L03 or equivalent.

**Programme Notes:**
1. Students must meet the Faculty requirements for breadth and depth as outlined in Academic Regulations, Faculty of Social Sciences.
2. The Graduation Average (GA) is computed using at least 36 units of Levels II, III and IV Area courses in Economics and the Minor subject. The Cumulative Area Average (CAA) is computed using the best 80% of Levels II, III and IV Area courses in Economics and the Minor subject.

**Area Courses:**
All Level II, III and IV Economics courses and those designated for the minor.

**Levels II, III and IV:** 90 units
R 6 units drawn from Economics 2B03, 3L03, 3O06;
33 additional units of Economics including 2A03, 2G03, 2H03, 2L03, 2P03, 3L03;
one of Economics 2K03, 3L03, 3R03;
Economics 3F03; Economics 4A03;
at least 3 units of Calculus drawn from Mathematics 1A06, 1M03 or equivalent unless completed at Level I;
18 units of a Minor Specialization prescribed by another department;
6 units from the World History, Culture and Thought menu, excluding courses in Economics and the Minor subject, unless completed at Level I;
3 units from the Informal Logic menu.
E Electives to complete 90 units, of which 30 must not be offered in Economics.

**COMBINED HONOURS IN ECONOMICS AND ANOTHER SUBJECT**

**Admission:**
Completion of any Level I programme with an average of at least 7.0 in Economics 1A06 and 6 additional units, including a grade of B- in Economics 1A06. Credit in OAC Calculus, or Mathematics 1K03, or equivalent.

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Programme Notes:
1. With the approval of both departments concerned, students may follow a Combined Honours programme in Economics and another subject offered by a department in Humanities or Social Sciences. The Economics component of such programmes is the same as that prescribed for Honours Economics with a Minor in another Subject. Six units of research methods (including statistics) from the other department may be substituted for the economics research methods requirements (Economics 2B03, 3U03, 3006). Students wishing to arrange such programmes are urged to discuss their interests with the departments concerned. Combined Honours programmes involving other departments not in Social Sciences or Humanities are described separately.
2. Students must meet the Faculty requirements for breadth and depth as outlined in Academic Regulations, Faculty of Social Sciences.
3. The Graduation Average (GA) for the Economics component is computed on at least 24 units of Levels II, III and IV Area courses. See other component for computation of the Graduation Average (GA) in that subject. The Cumulative Area Average (CAA) is computed separately for each component using the best 80% of Levels II, III and IV Area courses in each subject, except where otherwise specified.
4. Math 1103 is a prerequisite for research methods courses offered by the Department of Economics.

Area Courses:
All Level II, III and IV Economics courses.

Levels II, III and IV: 90 units
R 6 units of Research Methods drawn from Economics 2B03, 3U03, 3006 or from the corresponding courses in the other department; 33 additional units of Economics including Economics 2G03, 2G06, 2H03, 2H13, 3F03, 3L13, 4A03 or 6 units of Inquiry and Honours Seminar specified by the other department; one of Economics 2K03, 3I03, 3R03; at least 3 units of Calculus drawn from Math 1A06, 1M03 or equivalent, unless completed at Level I; units prescribed by the other department; 6 units, excluding courses from Economics and the other subject, from the World History, Culture and Thought menu, unless completed at Level I; 3 units from the Informal Logic menu.
E Electives to total 90 units.

HONOURS ECONOMICS AND COMPUTER SCIENCE
Admission:
Completion of any Level I programme, including Computer Science 1N13 and 1M13, and including a grade of at least 7.0 in Economics 1A06, and an average of at least 7.0 in Economics 1A06, Computer Science 1M13, Mathematics 1A06 and Mathematics 1B03. Mathematics 1B03 may be postponed until Level II.

Programme Notes:
1. Students must meet the Faculty requirements for breadth and depth as outlined in Academic Regulations, Faculty of Social Sciences.
2. The Graduation Average is computed on at least 36 units of all Level II, III and IV Economics and Computer Science courses.
3. The Cumulative Area Average is computed using the best 80% of all Level II, III, and IV Area courses in Economics and Computer Science.

Area Courses:
All Level II, III and IV Economics and Computer Science courses.

Levels II, III and IV: 90 units
R Statistics 2D03; 3 units from Statistics 2M03 or 3D06 or Economics 3006; 36 units of Economics including Economics 2G03, 2G06; 2H03, 2H13; 3L13, 3F03 and 4A03; one of 2K03, 3I03, 3R03; 30 units of Computer Science including 2MF3 (if not completed), 2MC3, 2MD3, 3MG3, 4MP6; and two of Computer Science 3CA3, 3EA3, 3M13, 3M16; Computer Science 3EA3 is strongly recommended. Computer Science 2ME3, 4EB3, 3EC3 are recommended as preparation for Business Data Processing; 6 units, excluding Economics courses, from World History, Culture and Thought Menu, if not completed at Level I; 3 units from the Informal Logic Menu.
E Electives to make a total of 90 units.

HONOURS ECONOMICS AND GEOGRAPHY
Admission:
Completion of any Level I programme with a grade of at least B— in each of Economics 1A06 and Geography 1B06. Credit in OAC Calculus, or Math 1K03, or equivalent.

Programme Notes:
1. No student may register in any Level of this programme without the approval of a Geography Departmental Counsellor, which should be obtained before completing registration forms.
2. A single Cumulative Area Average and a single Graduation Average will be computed. (See section Academic Regulations.)
3. Students must meet the requirements for breadth and depth as outlined in Academic Regulations, Faculty of Social Sciences.
4. Math 1L03 is a prerequisite for research methods courses offered by the Department of Economics (Economics 2B03 and 3006).

Area Courses:
Geography 2A03, 2B03, 2L13, 2NN3, 2R03, 2U03, 2Y03, 3G03, 3J03, 3L03, 3M03, 3Q03, 3T03, 3U03, 3X03, 4C06, 4F03, 4H03, 4J03, 4N03, 4S03, 4T03, 4X03, 4Z03; all Level II, III and IV Economics courses.

Level II, III and IV: 90 units
E Economics, Breadth and Depth Requirements (48-54 units)
R 6 units of Research Methods, drawn from Economics 2B03, 3U03, 3006 or from Geography 2L13 and 2NN3; 33 additional units of Economics including Economics 2G03, 2G06; 2H03, 2H13; 3L13, one of 2K03, 3I03, 3R03; Economics 3F03 and Economics 4A03 or 6 units of Inquiry and Honours Seminar specified by the Department of Geography; at least 3 units of Calculus drawn from Math 1A06, 1M03 or equivalent, unless completed at Level I; 6 units (excluding Economics and Geography courses), drawn from the World History, Culture and Thought Menu, unless completed at Level I; 3 units from the Informal Logic Menu.
Geography Requirements (30-36 units)

Level II
R Geography 2L13, 2NN3 if Economics research methods are not chosen; 9 units from Geography 2A03, 2B03, 2R03, 2Y03.

Level III:
R Geography 3Q03, 3T03 and 6 units from Geography 3G03, 3T03, 3X03.

Level IV:
R Geography 4C06 and at least 6 other units of Level IV Area courses in Geography.

HONOURS ECONOMICS AND MATHEMATICS
Admission:
Completion of any Level I programme, including a grade of at least B— in Economics 1A06 and an average of at least 7.0 in Mathematics 1A06 and 1B03.

Programme Notes:
1. Students must meet the requirements for breadth and depth as outlined in Academic Regulations, Faculty of Social Sciences.
2. Graduation Average is computed on all Level II, III and IV Economics, Mathematics and Statistics courses.
3. The Cumulative Area Average is computed using the best 80% of all Level II, III and IV Area courses in Economics and Mathematics.

Area Courses:
All Level II, III and IV Economics, Mathematics and Statistics courses.
Levels II, III and IV: 90 units
R Statistics 2D03; 3 units from Statistics 2M03 or 3D06 or Economics 3006;
36 additional units of Economics including Economics 2G03, 2G33;
2M03, 2H13; 3L13; one of 2K03, 3I03, 3R03; Economics 3F03 and 4A03;
36 units of Mathematics and Statistics, selected as follows: Mathematics 2A06 and 2B06, 2C03; one of 3A06 or 3006; 15 units from Mathematics 3E03, 3E23, 3F03, 3P03, 3Q03, 3R03, 3T03, 4A06, 4C03, 4J03, 4R03, 2R03, Statistics 3D06, 3S03, 3U03, 4H03, 4K03, 4M03;
6 units, excluding Economics, Mathematics and Statistics courses, drawn from the World History, Culture and Thought Menu, unless completed at Level I:
3 units from the Informal Logic Menu.
E Electives to make a total of 90 units.

MINOR SPECIALIZATION IN ECONOMICS
Admission:
Admission to any Honours Programme in the Faculty of Social Sciences and a grade of at least C – in Economics 1A06. Credit in OAC Calculus, or Math 1K03, or equivalent.
Students enrolled in Honours programmes in the Faculty of Social Sciences may offer a Minor Specialization in Economics as part of their programme. Such a specialization should include:
R 18 additional units of Economics including Economics 2G03 and 2H03.

B.A. IN ECONOMICS
Admission:
Completion of any Level I programme with a grade of at least C – in Economics 1A06. Credit in OAC Calculus, or Mathematics 1K03, or equivalent.

Programme Notes:
1. English Requirement: Students must complete English 1D06 or equivalent by the end of Level II. It is strongly recommended that the English course be included in the student’s Level I programme.

Area Courses:
All Level II, III and IV Economics courses.

Levels II and III: 60 units
R 24 units of Economics, including Economics 2G03, 2H03, 2B03 or 3006; one of Economics 2K03, 3I03, 3R03; at least 3 units of Calculus drawn from: Math 1A06, 1M03 or equivalent, and Mathematics 1L03, unless completed in Level I;
24 units outside of Economics.
E Electives to make a total of 60 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 AND SCIENCE AND GEOGRAPHY (B. Arts Sc.)
(See Arts and Science Programme)

HONOURS GEOGRAPHY (B.A., SPECIALIST)
Admission:
Completion of any Level I programme with at least a B – in Level I Geography, and an average of at least 7.0 in that and 6 additional units. One of Mathematics 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. Students are reminded of the Humanities requirement of the Faculty of Social Sciences. (See Faculty of Social Sciences, Humanities Requirement.)

Programme Notes:
1. No student may register in any Level of this programme without the approval of a Departmental Counsellor, which must be obtained before completing registration forms in March.
2. Students are advised to take Geography 1A06 or 1B06 in Level I and to take Geography 2L03 and 2N03 in Level II. Geography 3003 must be taken in Level III. Students should consult the Handbook for Undergraduate Geographers, which may be obtained from the departmental office.
3. In order to meet the Breadth and Skill Requirements prescribed by the Faculty of Social Sciences, all students must take 6 units of Level I. Social Science outside Geography: an additional 6 units outside Geography, drawn from the World History, Culture and Thought Menu; 3 units from the Informal Logic Menu (Humanities 2C03 or Philosophy 2R03).
4. The Graduation Average (GA) is computed using at least 36 units of Levels III and IV Area courses. The Cumulative Average Grade (CAG) is based on the best 80% of the grades obtained in Levels II, III and IV Area courses.

Area Courses:
All Level II, III and IV Geography courses.

Level II: 30 units
R Geography 2L03 and 2N03, at least 12 units of 2A03, 2B03, 2D03,
2F03, 3K03, 3T03, 3C03, 3W03, 3Y03, and one of Mathematics 1A06, 1C06 or 1M03 if not taken in Level I.
E Electives to make a total of 30 units. At least 6 units of electives must be in Humanities, if not completed in Level I. Some elective units may be required to fulfill Breadth and Skill requirements if not completed in Level I. (See Programme Note 3 above).

Levels III and IV: 60 units
R Geography 3003 and 4C06; 27 units from Level III and Level IV area courses (excluding Geography 3B03, 3L03, 3K03) which must include at least 9 units of Level IV courses.
E Electives to total 24 units of which 12 may not be from Geography.

HONOURS GEOGRAPHY AND ENVIRONMENTAL STUDIES (B.A.)
Admission:
Completion of any Social Sciences I including Mathematics 1K03 or 1M03, Economics 1A06, Biology 1G06 and Geography 1A06 with a grade of at least B – in Geography 1A06 and in Biology 1C06.

Area Courses:
Anthropology 2E03, 2F03, 2J03, 3C03, 3F03, 3V03, 3Z03, 4A03, 4C03; Biology 2D03, 2E03, 2F03, 3A06, 3SS3, 3TT3, 4D03, 4Y03; Economics 2G03, 2L05, 3F03, 3V03, 3Z03, 4D03, 4G03, 4H03, 4P03; Geography 2F03, 2G03, 2L03, 2N03, 2R03, 2T03, 3G03, 2W03; 3C03, 3F03, 3G03, 3U03, 3K03, 3L03, 3M03, 3N03, 3P03, 3U03, 3V03, 3A03, 3D03, 4J03, 4K03, 4N03, 4P03, 4Q03, 4R03, 4S03, 4T03, 4V06, 4W03; Philosophy 2G03, 3M03; Political Science 2E06, 2G06, 3CC3, 3S03, 3Z06, 4F06, 4G06, 4K06, 4O06; Sociology 2H06, 3G03, 3H03, 3V03.

Level II: 30 units
R Geography 2L03, 2N03, 2U03; Biology 2F03; 12 units of area courses of which at least 3 must be from Geography and at least 6 outside of Geography.
E 6 units. Geography 1A03 or 1C03 is strongly recommended.

Level III: 30 units
R Geography 3C03, 3F03, 3J03, 3O03, 3U03; 12 units of area courses, at least 6 of which may not be from Geography.
E 3 units.

Level IV: 30 units
R Geography 4C06, 4V06, 12 units of Senior Division area courses, at least 6 of which may not be from Geography.
E 6 units.
FACULTY OF SOCIAL SCIENCES

HONOURS GEOGRAPHY AND GEOLOGY (B.A.)

Admission:
Completion of any Level I programme with a grade of at least B— in both Geography 1A06 and Geology 1A03 or 1C03. Six units of Mathematics (either 1A06 or 1C06, or two of 1K03, 1L03, 1M03) which must be completed by the end of Level II. Their inclusion in the student’s Level I programme is strongly recommended. Chemistry 1C03 must be completed by the end of Level II.

Programme Notes:
1. No student may register in any Level of this programme without the approval of a Departmental Counsellor, which must be obtained before completing registration forms in March.
2. Students wishing to enter this programme are to follow the procedures for admission to the Limited Enrolment Programme in Geology.
3. This programme is considered to have a unified area. The Graduation Average is calculated on at least 36 units of all Levels III and IV courses.
4. Geology 3E02 is normally taken at the end of Level II. This course is scheduled outside of the regular term.
5. In order to meet the Breadth and Skill Requirements prescribed by the Faculty of Social Sciences, all students must take 6 units of Level I Social Science outside Geography; an additional 6 units outside Geography, drawn from the World History, Culture and Thought Menu; 3 units from the Informal Logic Menu (Humanities 2C03 or Philosophy 2R03).

Area Courses:
Geography 2F03, 2K03, 2LL3, 2L06, 2NN3, 2T03, 2W03, 3E03, 3F03, 3I03, 3K03, 3L03, 3M03, 3NN3, 3Q03, 3P03, 3V03, 3W03, 4A03, 4C06, 4D03, 4E03, 4K03, 4N03, 4P03, 4Q03, 4R03, 4W03; All Geography courses above Level I except Geography 2E01 and 3E02.

Level II: 31-34 units
R Geography 2L3, 2NN3, 2T03 and one of Geography 2F03, 2K03, 2L03, 2W03; Geology 2B06, 2C03, 2D03, 2E01; 6 units of Mathematics (either 1A06, 1C06, or 1K03 and one of 1L03 or 1M03) if not taken in Level I, or 3 to 6 units from the Faculties of Science or Engineering approved by the Departments. (Chemistry 1C03 is strongly recommended and must be completed by the end of Level II.)
E Electives, excluding Geography and Geology, to make a total of 31 to 34 units. Some elective units may be required to fulfill Breadth and Skill requirements if not completed in Level I. (See Programme Note 5.)

Level III: 32 units
R Geography 3E03, 3M03, 3Q03, and one of 3F03, 3K03, 3NN3, 3P03, 3W03; Geology 3CC6, 3E02, and two of 2J03, 2L03, 3D03, or 3F03.
E Electives to make a total of 32 units, at least 3 of which may not be in Geography or Geology.

Level IV: 30 units
R 18 units of Area courses including 6 units of Level IV Geography Area courses and 6 units of Level IV Geology Area courses and 6 units of Level III or IV Geography Area courses or Level III or IV Geology courses. Geology 3S03 must be taken if not already completed.
E Electives to make a total of 30 units. Geology 3G03 is strongly recommended.

HONOURS GEOGRAPHY WITH A MINOR IN ANOTHER SUBJECT

Admission:
Completion of any Level I programme with at least a B— in Level I Geography, and an average of at least 7.0 in that and 6 additional units. One of Mathematics 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. Students are reminded of the Humanities requirement of the Faculty of Social Sciences. (See Faculty of Social Sciences, Humanities Requirements.)

Programme Notes:
1. No student may register in any level of this programme without the approval of a departmental counsellor, which must be obtained before completing registration forms in March.
2. Students are advised to take Geography 1A06 or 1B06 in Level I and to take Geography 2L3 and 2N3 in Level II. Geography 3P03 must be taken in Level III. Students should consult the Handbook for Undergraduate Geographers, which may be obtained from the departmental office.
3. In order to meet the Breadth and Skill Requirements prescribed by the Faculty of Social Sciences, all students must take 6 units of Level I Social Science outside Geography; an additional 6 units outside Geography and the Minor subject, drawn from the World History, Culture and Thought Menu; 3 units from the Informal Logic Menu (Humanities 2C03 or Philosophy 2R03).
4. Students are advised that a minimum of 36 units of Levels III and IV area courses in Geography and the Minor subject are required for calculation of the Graduation Average. The Cumulative Area Average (CAA) is computed using the best 80% of Levels II, III and IV Area courses in Geography and the Minor subject.

Area Courses:
All Level II, III and IV Geography Courses and all area courses as prescribed by the Minor Department.

Levels II, III and IV: 90 units
R 6 units of research methods: Geography 2L13 and 2N3. 33 units of Geography including 3P03 and 4C06 and at least 24 additional units of Levels II, III and IV Geography (excluding 2C03, 2E03, 2P03, 3B03, 3JJ3 and 3R03) at least 6 of which should be in Level IV. One of Mathematics 1A06, 1C06 or 1M03 if not taken in Level I.
R 18 units of a Minor Specialization prescribed by another department.
E 30 units, some of which may be required to fulfill Breadth and Skill requirements. See Programme Note 3 above.

MINOR IN GEOGRAPHY

Admission:
Admission to any Social Sciences Honours programme and completion of Geography 1A06 or 1B06 with a grade of at least C—.
R 18 units of Levels II, III and IV Geography, no more than 6 of which may come from Geography 2C03, 2E03, 2P03, 3B03, 3JJ3 and 3R03.

B.A. IN GEOGRAPHY

Admission:
Completion of any Level I programme, including 6 units of Level I Geography with a grade of at least C—, and 6 units of one other subject with a grade of at least C—.

Programme Note:
No student may register in any Level of this programme without the approval of a Departmental Counsellor, which must be obtained before completing registration forms.

Area Courses:
All Level II, III and IV Geography courses.

Level II: 30 units
R At least 6 units from Geography 2A03, 2B03, 2D03, 2F03, 2K03, 2L13, 2N3, 2R03, 2T03, 2U03, 2W03, 2Y03; at least 6 additional units of Level II Geography.
E Electives to make a total of 30 units, so that at least 18 units outside Geography are taken in Levels II and III.

Level III: 30 units
R At least 6 units from Geography 3F03, 3G03, 3K03, 3M03, 3P03, 3N3, 3Q03, 3T03, 3W03, 3X03; at least 6 additional units of Level III Geography.
E Electives to make a total of 30 units, so that at least 18 units outside Geography are taken in Levels II and III.
Gerontological Studies

HONOURS ARTS AND SCIENCE AND GERONTOLOGY
(B. Arts Sc.)
(See Arts and Science Programme)

COMBINED HONOURS IN GERONTOLOGY AND ANOTHER SUBJECT

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 Gerontology 1A06 or Social Science 2G06, and satisfaction of admission requirements for the Honours B.A. programme in the other subject.

Programme Notes:
1. \text{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.

2. Students who have not taken Gerontology 1A06 or Social Science 2G06 in Level I may be considered for admission to the programme, and should consult the Chair of the Committee of Instruction.

3. Courses other than those listed below as Area Courses, may qualify as Gerontology Area courses. Students wishing to designate an Area course not on the list of Gerontology Area courses must do so at registration, with the permission of the Chair of the Committee of Instruction.

4. Students should refer to the section Course Listings in this Calendar, and take note of the prerequisites for the Area courses.

5. Students in the Combined Honours Programme must complete 6 units of research methods including Statistics as prescribed by one or both of the Departments or Programmes. In addition, Gerontology 3C03 must be taken by all students in the Combined Honours Programme and will be included in the 36 units of Gerontology requirement.

6. Students in the Combined Honours Programme in Gerontology and Another subject must include 6 units not from either subject, chosen from the World History, Culture and Thought Menu and 3 units of courses from the Informal Logic Menu.

7. The Graduation Average (GA) for the Gerontology component is computed on at least 24 units of Levels III and IV Area courses. See Regulations for the other component for computation of the GA in that subject.

Separate Cumulative Area Averages (CAAs) are computed for each subject based on the best 80% of the grades obtained in Levels II, III and IV Area courses in each subject.

Area Courses:
All Level II, III and IV Gerontology courses, and all designated Gerontology Area courses: Anthropology 3Z03; Economics 3D03, 3Z03; Geography 4S03; Health Sciences 3B04, 4C03, 4D03; History 3EE3; Philosophy 3C03; Religious Studies 2N03, 2W03, 2W43; Social Work 3C03; Sociology 3G03, 3HH3, 3X03, 4P03; or other designated and approved Area courses. (See Programme Notes above.)

Levels II, III and IV: 90 units

R Gerontology 2A03, 3B03, 3C03; 3 units of Statistics as prerequisite for Gerontology 3C03; one of Gerontology 2B03 or 3D03; Gerontology 4A06 (Thesis) or Psychology 4D06; 3 units of Level IV Gerontology Area courses; 15 additional units of Gerontology Area courses; the unit requirements of the Honours B.A. programme of the other subject.

E Electives, beyond Level I, to a total of 90 units.

B.A. IN GERONTOLOGY AND ANOTHER SUBJECT

Admission:
Completion of any Level I programme with a Grade of at least C- in Gerontology 1A06 or Social Science 2G06, and satisfaction of admission requirements for the B.A. in the other subject.

Programme Notes:
1. \text{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.

2. Students who have not taken Gerontology 1A06 or Social Science 2G06 may be considered for admission to the programme and should consult the Chair of the Committee of Instruction.

3. Courses other than those listed below as Area Courses, may qualify as Gerontology Area courses. Students wishing to designate an Area course not on the list of Gerontology Area courses must do so at registration, with the permission of the Chair of the Committee of Instruction.

4. No more than 6 units of work in the other subject of the combined programme which are also Gerontology Area courses may be used to fulfill the requirements of both programme components.

5. Students should refer to the section Course Listings in this Calendar, and take note of the prerequisites for some of the Area courses.

Area Courses:
All Level II and Level III Gerontology courses and the following designated Gerontology Area Courses: Anthropology 3Z03; Economics 3D03, 3Z03; Geography 4S03; Health Sciences 3B04, 4C03, 4D03; History 3EE3; Philosophy 3C03; Religious Studies 2M03, 2N03, 2W03, 2W43; Social Work 3C03; Sociology 3G03, 3HH3, 3X03, 4P03; or other designated and approved Area courses. (See Programme Notes above.)

Levels II and III: 60 units
R Gerontology 2A03; 3B03, 3C03; one of 2B03 or 3D03; 12 units of Gerontology Area Courses; the unit requirements of the B.A. programme of the other subject.

E Electives, beyond Level I, to a total of 60 units.

B.A. IN GERONTOLOGY AS A SECOND DEGREE

Admission:
Completion of an undergraduate degree from a recognized university normally with a Graduation Average of at least 4.0 (or its equivalent), a grade of at least C- in Gerontology 1A06 (or its equivalent), and evidence of 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.

Students who have completed a three level combined Gerontology and Another Subject programme may, if qualified, register in the Combined Honours in Gerontology and Another Subject as a Second Degree Programme. 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.

Students must apply to the University as second degree candidates and consult the Chair of the Committee of Instruction.

Programme Notes:
1. \text{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. Applicants must also apply for admission to the University through the office of the Associate Registrar (Liaison and Admissions).

2. Students who have not included Gerontology 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.

Requirements: 30 units
R 24 units of Gerontology or Gerontology Area Courses beyond Level I, including Gerontology 2A03, 3B03, 3C03, and one of 2B03 or 3D03.

E 6 units

FACULTY OF SOCIAL SCIENCES
Japanese Studies
(See Japanese Studies, Faculty of Humanities)

LABOUR STUDIES

Admission:
Completion of any Level I programme with an average of at least 7.0 in Labour Studies 1A03 and 1A03, and an overall average of at least 7.0 in 12 units, which includes Labour Studies 1A03 and 1A03, and 6 units from Economics 1A06, History 1C06, Mathematics 1K03, Mathematics 1L03, Political Science 1A06, Sociology 1A06. Students must successfully complete Economics 1A06 and Sociology 1A06 by the end of Level II. Students should take note of the minimum depth and breadth requirements for Honours Degrees in the Faculty of Social Sciences, some of which are normally taken in Level I. These include 6 units, not in either Honours area, from the World History, Culture and Thought Menu.

Programme 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. Required courses: To meet the minimum depth and breadth requirements for Honours Labour Studies and another subject as set by the Faculty of Social Sciences and the Labour Studies Programme, students must take:
   a) 3 units of informal logic (See Informal Logic Menu);
   b) 6 units, not in the student’s Honours subject, drawn from the World History, Culture and Thought Menu (if not taken at Level I);
   c) at least 3 units drawn from the following Research and Methods Menu: Economics 2B03, Economics 3006, Sociology 2Y03, Sociology 3H06, Political Science 2F06, Sociology 1A03, Statistics 2M03, Statistics 2R06.

3. Students are encouraged to consult the Labour Studies Programme handbook which is available from the Labour Studies Office.

4. Students may not transfer from Labour Studies to a Minor in Labour Studies except by the normal application process.

5. The Graduation Average (GA) is based on at least 36 units of Levels III and IV Area courses. The Cumulative Area Average (CAA) is based on the best 80% of the grades obtained in Levels II, III, and IV Area courses.

Programme Requirements:

All Level II, III and IV Labour Studies courses; Commerce 2BAA3, 4BC3, 4BD3.

Level II:
R Labour Studies 2A06, 2B03, 2C03; Commerce 2BAA3;
units to meet Faculty Requirements (see Programme Note #2 above).
E Units to total 30.

Level III:
R Labour Studies 3C03, Commerce 4BC3 and 4BD3; and 9 units from: Labour Studies 3A03, 3A03, 3B03, 3D03, 3E03, 3I03.
E Units to total 30. These may include Commerce 3BB3.

Level IV:
R Labour Studies 4A09, 4B03, 4C03, 4D03; and 3 additional units of Level III Labour Studies.
E Units to total 30.

COMBINED HONOURS IN LABOUR STUDIES AND ANOTHER SUBJECT

Admission:
Completion of any Level I programme with an average of at least 7.0 in Labour Studies 1A03 and 1A03, and an overall average of at least 7.0 in 12 units, which includes Labour Studies 1A03 and 1A03, and 6 units from Economics 1A06, History 1C06, Mathematics 1K03, Mathematics 1L03, Political Science 1A06, Psychology 1A06, Sociology 1A06, Students must successfully complete Economics 1A06 and Sociology 1A06 by the end of Level II. Students should take note of the minimum depth and breadth requirements for Honours Degrees in the Faculty of Social Sciences, some of which are normally taken in Level I. These include 6 units, not in either Honours area, from the World History, Culture and Thought Menu.

Programme Notes:
1. 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.

2. Required courses: To meet the minimum depth and breadth requirements for Honours Labour Studies and another subject as set by the Faculty of Social Sciences and the Labour Studies Programme, students must take:
   a) 3 units of informal logic (See Informal Logic Menu);
   b) 6 units, not in the student’s Honours subject, drawn from the World History, Culture and Thought Menu (if not taken at Level II);
   c) at least 3 units drawn from the following Research and Methods Menu: Economics 2B03, Economics 3006, Sociology 2Y03, Sociology 3H06, Political Science 2F06, Sociology 1A03, Statistics 2M03, Statistics 2R06.

3. Students are encouraged to consult the Labour Studies Programme handbook which is available from the Labour Studies Office.

4. Students may not transfer from Labour Studies to a Minor in Labour Studies except by the normal application process.

5. The Graduation Average (GA) is based on at least 36 units of Levels III and IV Area courses. The Cumulative Area Average (CAA) is based on the best 80% of the grades obtained in Levels II, III, and IV Area courses in each subject.

Area Courses:
Level II, III and IV Labour Studies courses; Commerce 2BAA3, 4BC3, 4BD3.

Option A
(Requirements for Statistics, Inquiry and Honours Seminar specified by the Labour Studies Programme)

Level II:
R Labour Studies 2A06, 2C03; units prescribed by other Programme;
units to meet Faculty Requirements (see Programme Note #2 above).
E Units to total 30.

Level III:
R 15 units of Labour Studies 3A03, 3A03, 3B03, 3D03, 3E03, 3I03, 3C03, Commerce 4BC3 and 4BD3; units prescribed by other Programme;
E Units to total 30. These may include Commerce 3BB3.

Level IV:
R Labour Studies 4A09, 4B03, 4C03, 4D03; and 3 additional units of Level III Labour Studies.
E Units to total 30.

Option B
(Requirements for Statistics, Inquiry and Honours Seminar specified by the other Department or Programme)

Level II:
R Labour Studies 2A06, 2C03; units prescribed by other Programme;
units to meet Faculty Requirements (see Programme Note #2 above).
E Units to total 30.
FACULTY OF SOCIAL SCIENCES

REQUIREMENTS FOR A MINOR IN LABOUR STUDIES

Students taking an honours degree in another Social Science Subject may also take a minor specialization in Labour Studies.

Labour Studies will admit a maximum of 10 students to the Minor Programme in Labour Studies each year.

Admission:

Completion of any Level I programme with an average of at least 4.0 in Labour Studies IA03 and IA03. Students must successfully complete Economics IA06 and Sociology IA06 by the end of Level II.

Programme 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 3 units of Level IV courses.

3. Students are encouraged to 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.

Area Courses:

All Level II, III and IV Labour Studies courses excluding 4A09 and 4B03; Commerce 2BA3, 4BC3, 4BD3.

Level II: 18 units

R Labour Studies 2A06 and 2C03, plus 9 units from Labour Studies Area courses at Level II and above.

B.A. IN LABOUR STUDIES

Admission:

Completion of any Level I programme with an average of at least 4.0 in Labour Studies IA03 and IA03 and an overall average of at least 4.0 in 12 units, which includes Labour Studies IA03 and IA03, and 6 units from Economics IA06, History 1C06, Mathematics 1K03, Mathematics 2L03, Political Science IA06, Sociology IA06 and satisfaction of the admission requirements for the Minor in the other subject. Students must successfully complete Economics IA06 and Sociology IA06 by the end of Level II.

Programme 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. 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 are encouraged to 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.

Area Courses:

All Level II and III Labour Studies courses; Commerce 2BA3, 4BC3, 4BD3.

Level II: 30 units

R Labour Studies 2A06, 2B03, 2C03; Commerce 2BA3.

E 15 units.

Level III: 30 units

R Commerce 4BC3 and 4BD3; 12 units from Labour Studies 3A03, 3A03, 3B03, 3C03, 3D03, 3E03, 3I03.

E 12 units which may include Commerce 3BB3.

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Level III and IV:

R 27 units from the following Level III and IV courses: Labour Studies 3A03, 3AA3, 3B03, 3C03, 3D03, 3E03, 3I03, 4A09, 4B03, 4C03, 4D03; and Commerce 4BC3 and 4BD3; at least 6 units of which must be from Labour Studies 4A09, 4B03, 4C03 or 4D03; units prescribed by other Programme;

E Units to total 60. These may include Commerce 3BB3.

HONOURS LABOUR STUDIES WITH A MINOR IN ANOTHER SOCIAL SCIENCE SUBJECT

Admission:

Completion of any Level I programme with an average of at least 7.0 in Labour Studies IA03 and IA03, and an overall average of at least 7.0 in 12 units, which includes Labour Studies IA03 and IA03, and 6 units from Economics IA06, History 1C06, Mathematics 1K03, Mathematics 2L03, Political Science IA06, Psychology IA06, Sociology IA06 and satisfaction of the admission requirements for the Minor in the other subject. Students must successfully complete Economics IA06 and Sociology IA06 by the end of Level II.

Students should take note of the minimum depth and breadth requirements for Honours Degrees in the Faculty of Social Sciences, some of which are normally taken in Level I. These include 6 units, not in the student's Honours or minor subject areas, from the World History, Culture and Thought Menu.

Programme 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. Required courses: To meet the minimum depth and breadth requirements for Honours Labour Studies as set by the Faculty of Social Sciences and the Labour Studies Programme, students must take:

   a) 3 units of informal logic (See Informal Logic Menu);
   b) 6 units, not in the student's Honours or minor subject, drawn from the World History, Culture and Thought Menu (if not taken at Level I);
   c) at least 3 units drawn from the following Research and Methods Menu: Economics 2B03, Economics 3C06, Sociology 2Y03, Sociology 3H06, Political Science 2F06, Statistics 1A03, Statistics 2M03, Statistics 2R06.

3. Students are encouraged to consult the Labour Studies Programme handbook which is available from the Labour Studies Office.

4. Students may not transfer from Labour Studies to a Minor in Labour Studies except by the normal application process.

5. The Graduation Average (GA) is computed on at least 35 units of Levels III and IV Area courses, including those in the minor area. The Cumulative Area Average (CAA) is based on the best 80% of the grades obtained in Levels II, III, and IV Area courses in the Honours Programme and those courses specified in the Minor Programme.

Area Courses:

All Level II, III and IV Labour Studies courses; Commerce 2BA3, 4BC3, 4BD3.

Level II:

R Labour Studies 2A06 and 2C03;

Units prescribed for the Minor Programme;

Units to meet Faculty Requirements (see Programme Note #2 above)

E Units to total 30.

Level III:

R 15 units of: Labour Studies 3A03, 3AA3, 3B03, 3C03, 3E03, 3I03;

Commerce 4BC3 and 4BD3;

Units prescribed by the other Programme.

E Units to total 30. These may include Commerce 3BB3.

Level IV:

R Labour Studies 4A09, 4B03, and either 4C03 or 4D03;

Units prescribed by the other Programme.

E Units to total 30.
Department of Physical Education

PROGRAMME FOR THE B.P.E. DEGREE

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. As a result, the programme is divided into three distinct parts.

During Levels I and II students take a core of thirty-six units of required theoretical courses in which they are introduced to the various theoretical sub-disciplines of Physical Education, and a core of five units of required practicum courses together with the McMaster Basic Swimming Test.

During Levels III and IV students are free to select from a variety of Physical Education electives in both the theoretical and practicum areas. These courses, supplemented by the arts and science electives selected by the student, may be grouped in various ways with career and/or graduate study goals in mind.

ACADEMIC REGULATIONS

Students enrolled in Physical Education, in addition to meeting the General Academic Regulations of the University, shall be subject to a number of Department regulations.

Continuation in Programme

Students in Physical Education I must:
1. obtain a University Average (UA) of at least 4.0 computed on the grades obtained in all courses taken.
2. obtain a Cumulative Area Average (CAA) of at least 4.0 calculated as a weighted average of grades in all Physical Education courses taken.
3. obtain a grade of at least D+ in each Area course.

Beyond Level I a student must achieve a minimum grade of D- in each Area course taken and a CAA of at least 4.0 at each review in order to continue in the programme.

Failure to meet the above requirements leads to one of two conditions:

1. May Not Continue in the Programme: Re-Admission

A student who is ineligible to continue in the B.P.E. programme may apply for re-admission after not less than one year. Application for re-admission must be made in writing to the Undergraduate Coordinator in March of the year re-admission is desired. Students normally will not be considered for re-admission unless they have achieved a B- (70) average in at least 24 units of university course work.

Re-admission Is Not Guaranteed.

2. May Continue on Probation: Repeated Courses

Students who have failed (F grade) any Area course, but who have achieved a CAA of 4.0 at the review period may be permitted to continue on probation subject to the approval of the Department of Physical Education Admissions and Review Committee. In such cases the student must repeat any failed Required Area course or replace any failed Elective Area course and achieve a grade of at least C-.

Work Load

All B.P.E. students must complete a Winter Session work load of 31 units in Level I, and 34 units in each of Levels II, III, and IV. Advanced credit and credit earned during Summer Sessions may be used to reduce this load requirement. Such reductions will be applied as late as possible in a student's programme. In any Winter Session, a student may not register for any more than the required number of units without the approval of the Undergraduate Coordinator. While no unit credit is given, students are also required to pass the McMaster Basic Swimming Test, normally during Level I, but no later than the end of Level II.

Graduation

The minimum requirement for graduation from the B.P.E. programme is a CAA of 4.0 in at least 60 units of Area courses taken in Levels II, III, and IV. A student may be awarded First, Second, or Third Class standing on the basis of the Graduation Average (GA).

Students require 133 units to graduate. These units are composed of 54 units of electives, 66 units of Physical Education theory, and 13 units of Physical Education practicum.

Area Courses

All Level I, II, III and IV Physical Education courses and Biology 1J03. Normally, the requirements for each Level must be completed satisfactorily before a student is allowed to proceed to the next Level of the Physical Education programme.

Level I: 31 units
R Physical Education 1A06, 1B03, 1E03, 1F03; Practicum: 1 unit, plus the McMaster Basic Swimming Test; Biology 1J03.
E 12 units, excluding Physical Education courses.

Level II: 34 units
R Physical Education 2A03, 2B03, 2C06, 2D03, 2F03; Practicum: 4 units, plus the McMaster Basic Swimming Test, if not passed in Level I.
E 12 units, excluding Physical Education courses.

Level III: 34 units
R 15 units from Level III or IV Physical Education courses; Practicum: 4 units.
E 15 units, excluding Physical Education courses.

Level IV: 34 units
R 15 units from Level III or IV Physical Education courses. Practicum: 4 units.
E 15 units, excluding Physical Education courses.

B.P.E. AS A SECOND DEGREE

Individuals already holding an undergraduate degree may be admitted to the Physical Education programme. Applications should be made to the Undergraduate Physical Education Coordinator prior to May 15 for the Fall term.

Enrolment is limited and applicants must normally provide evidence of at least second class standing (B-) in their previous university work to be eligible. Only full-time students will be considered.

Students are required to take 79 units of Physical Education courses which consist of 66 units of Physical Education theory and 13 units of Physical Education practicum, plus satisfactory completion of the McMaster Basic Swimming Test. Level I and II theory and practicum courses must be taken in sequence and be completed before Level III and IV courses are undertaken.

The B.P.E. degree will be awarded if the student achieves a minimum grade of D– in each course and maintains a CAA of at least 4.0 (C–).

TRANSFERRING INTO THE DEPARTMENT OF PHYSICAL EDUCATION

Undergraduate students from McMaster University or any other university seeking to transfer into the B.P.E. program may be admitted. Enrolment is limited and applicants must normally provide evidence of at least second class standing (B-) in their previous university work to be eligible. Only full-time students will be considered.

Department of Political Science

HONOURS ARTS AND SCIENCE AND POLITICAL SCIENCE (B. Arts Sc.)
(See Arts and 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)

General Information

The following applies to all Honours Programmes including Honours (Specialist), Combined Honours and Honours with a Minor in Another Social Science Subject.
Students should take note of the minimum depth and breadth requirements for Honours degrees in the Faculty of Social Sciences, some of which may be taken in Level I.

1. 12 units of introductory Level I Social Sciences, 6 units of which will be in Political Science.
2. 6 units of Humanities.
3. 6 units, not in the area of concentration (Honours or Minor), from the World History, Culture and Thought Menu.
4. 3 units taken from the Informal Logic Menu.
5. 6 units Research Methods taken in the area of concentration.
6. Students should note the restrictions imposed on enrolment in most Level III and IV courses.

**HONOURS POLITICAL SCIENCE (SPECIALIST)**

**Admission:**
Completion of any Level I programme with an average of at least 7.0 in Political Science 1A06 and 6 other units, including a grade of at least B+ in Political Science 1A06.

**Programme Notes:**
1. After completion of Level I, students in Honours Political Science (Specialist) must complete at least 48 units of Political Science and at least 30 units of electives outside of Political Science. The 48 units may not include the 6 units to be drawn from Research Methods menu.
2. If both Political Science 2F06 and Political Science 2006 are taken together in Level II, students will have difficulties with prerequisites in Level III. It is strongly recommended that students do not take both of these in Level II but leave one for Level III.
3. If Political Science 2F06 or Political Science 2006 are taken in Level III, they will be included in calculation of the Graduation Average (GA).
4. Prerequisites: All students should note those Level II Political Science courses that are required in order to register in a number of Level III and Level IV courses.
5. Students are reminded that Graduation Average (GA) will be computed separately for each subject. Computation is based on a minimum of 24 units of Level III and Level IV Area courses in each. For exceptions in Political Science see Programme #4 above.
6. Cumulative Area Averages (CAAs) are computed separately for each subject using the best 80% of the grades obtained in Levels II, III and IV Area courses in each subject.

**Area Courses:**

**Level II, III and IV: 90 units**

R at least 36 units of Political Science;
- 12 units at Level II which should include at least 6 units of Political Science 2F06 and 2006;
- 12 units at Level III; or 12 units of Level III and 6 units of Political Science 2F06 or 2006, if not taken in Level II;
- 12 units at Level III or IV, at least 6 of which should be Level IV other than 4F06;
- Political Science 2006, or the equivalent from the other Honours subject. These units may be included in the required 36 units;
- 6 units Research Methods taken in Political Science (2F06) or the other Honours subject area. These units are not to be counted in the required 36 units of Political Science;
- 6 units, not in either Honours Programme, drawn from the World History, Culture and Thought Menu, if not taken in Level I;
- 3 units drawn from the Informal Logic Menu;
- units prescribed by the other departments.

E To total 90 units. Only 12 units may be from Political Science.

**HONOURS POLITICAL SCIENCE WITH A MINOR IN ANOTHER SOCIAL SCIENCE 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 Political Science 1A06, and satisfaction of the admission requirements for the programme in the minor subject.

**Programme Notes:**
1. After completion of Level I, students in Honours Political Science with a minor in another subject must complete at least 36 units of Political Science, of which (with the exception of either Political Science 2F06 or Political Science 2006) only 12 units may be in Level II courses, and at least 6 units of research methods (2F06). Students must also complete at least 18 units beyond Level I in the minor area as prescribed by the other department, of which only 12 units may be in Level II courses.
2. If both Political Science 2F06 and Political Science 2006 are taken together in Level II, students will have difficulties with prerequisites in Level III. It is strongly recommended that students do not take both of these in Level II but leave one for Level III.
3. If Political Science 2006 or Political Science 2F06 are taken in Level III, they will be included in calculation of the Graduation Average (GA).
4. Prerequisites: All students should note those Level II Political Science courses that are required in order to register in a number of Level III and Level IV courses.
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5. Students are reminded that the computation of the Graduation Average (GA) is based on at least 36 units of Level III and Level IV Political Science Area courses, with the exception as in Programme Note #3 above, and Level III and IV area courses taken in the minor programme.

6. The Cumulative Area Average (CAA) is computed using the best 80% of the grades obtained in Levels II, III and IV Area courses in both the Honours and Minor subjects.

Area Courses:
All Level II, III and IV Political Science courses for the Political Science component.

Level II, III and IV: 90 units
R at least 36 units of Political Science;
12 units at Level II which should include at least 6 units of Political Science 2F06 and 2006;
12 units at Level III; or 12 units of Level III and 6 units of Political Science 2F06 or 2006, if not taken in Level II;
12 units at Level III or IV, at least 6 of which should be Level IV other than 4206;
Political Science 2006, or the equivalent from the Minor subject. These units may be included in the required 36 units;
6 units Research Methods taken in Political Science (2F06) or the Minor subject area. These units are not to be counted in the required 36 units of Political Science;
6 units not in either the Honours or Minor Programme, drawn from the World History, Culture and Thought Menu, if not taken in Level I;
3 units drawn from the Informal Logic Menu;
units prescribed for the Minor.
E To total 90 units. Only 12 units may be from Political Science.

REQUIREMENTS OF POLITICAL SCIENCE AS A MINOR

Admission:
Students must complete the Level I admission requirements for any Social Sciences Honours Programme and achieve a grade of at least C− in Political Science 1A06.

Programme Notes:
1. The Cumulative Area Average (CAA) is calculated using the best 80% of the grades obtained in Levels II, III and IV Area courses in both the Minor and Honours subjects.
2. Computation of the Graduation (GA) is based on at least 36 units of Levels III and IV Area courses in the Honours and Minor Programmes.
3. Prerequisites: All students should note those Level II Political Science courses that are required in order to register in a number of Level III and Level IV courses.

Area Courses:
All Level II, III and IV Political Science courses excluding 4206.
R After completion of Level I, Honours students with a minor in Political Science must complete at least 18 units of Political Science, of which only 12 units may be Level II courses. Honours students with a minor in Political Science may not enrol in Political Science 4206.

B.A. IN POLITICAL SCIENCE

Admission:
Completion of any Level I programme, with a grade of at least C− in Political Science 1A06.

Programme Notes:
1. After completion of Level I, students in the B.A. programme must complete at least 24 units of Political Science, of which 12 units should be in Level II or Level IV, and at least 24 units of electives outside of Political Science.
2. Prerequisites: All students should be alerted to those Level II Political Science courses that are required in order to register in a number of Level III and IV courses. Students at Level III may take courses at Levels II, III or IV, provided they meet the prerequisites. Note: Level IV courses have limited enrolment with preference given to Honours Political Science students.

Area Courses:
All Level II, III and IV Political Science courses.

Level II: 30 units
R 12 to 18 units of Level II Political Science.
E Electives to make a total of 30 units, with at least 12 units outside Political Science.

Level III: 30 units
R 12 to 18 units of Level III or IV Political Science.
E Electives to make a total of 30 units.

Department of Psychology

HONOURS PSYCHOLOGY (B.Sc.), MAJOR PSYCHOLOGY (B.Sc.) AND B.Sc. IN PSYCHOLOGY
(See B.Sc. Programmes in Psychology, Faculty of Science, Department of Psychology)

HONOURS BIOLOGY AND PSYCHOLOGY (B.Sc.)
(See Faculty of Science, Department of Biology)

HONOURS COMPUTER SCIENCE AND PSYCHOLOGY (B.Sc.)
(See Faculty of Science, Department of Computer Science & Systems)

HONOURS ARTS AND SCIENCE AND PSYCHOLOGY (B. Arts Sc.)
(See Arts and Science Programme)

HONOURS PSYCHOLOGY (B.A.)

Admission:
Completion of any Level I programme with a grade of at least B− in Psychology 1A06, at least B− in six additional units, at least C− in English 1D06 or equivalent, and credit in Mathematics 1A06 or 1C06 or at least C− in Mathematics 1M03.

Students who did not complete the English or Mathematics requirements in Level I should obtain the permission of the department to register for Level II Psychology. They may be admitted to the Honours Psychology programme on completion of Level II, subject to the completion of these requirements, and obtaining a CAA of at least 7.0 or greater in the required Level II Psychology courses.

Programme Notes:
1. When Mathematics is delayed to Level II, then Psychology 2E03 and 2RR3 must be deferred to Level III and another 6 units of Psychology must be taken to fulfill the Level II requirements.

Psychology 2F06, 2B03 and 2BR3 will be include in calculating the Graduation Average, if taken after Level II.

2. Students who entered this programme prior to September 1988, must complete either Psychology 2E03 or 3W06.

Students who enter this programme from September 1988, must complete Psychology 2E03.

3. At some time during the programme, the student:
   a. must meet a laboratory requirement by completing one of Psychology 3C06, 3E03, 3L03 (formerly 2U03), 3Q03, 3S03, 3V03, 4G03, 4QQ3.
   Enrolment in Laboratory courses is limited. Permission of the Department must be obtained by March 1.
   b. must complete 6 units not from Psychology, from the World History, Culture and Thought Menu.
   c. must complete 3 units from the Informal Logic Menu.
   d. must complete 12 units of Level I Social Sciences including Psychology 1A06.

4. Students who are planning on graduate studies in Psychology and who meet the prerequisites should complete Psychology 4D06.

5. Computation of the Graduation Average (GA) is based on at least 36 units of Level III and IV Area courses including Psychology 2F06, 2B03 and 2BR3, if taken after Level II. The Cumulative Area Average (CAA) is computed using the best 80% of Levels II, III and IV Area courses.

Area Courses:
Psychology 2E03, 2H03, 2R06, 2R03, 2RR3, 2T03. All Level III and IV Psychology courses.
Level II: 30 units  
R Psychology 2E03, 2H03, 2R03, 2R3, 2T03; 6 units of courses chosen from the Faculty of Science, excluding Psychology and the Mathematics course taken to meet the Admission requirements (e.g. Mathematics 1K03, 1M03).  
E 9 units, at least 6 of which must not be from Psychology. Psychology 3L03 may be taken in Level II.  

Level III: 30 units  
R 18 units of Level III Psychology, or 12 units of Level III Psychology and Psychology 2R03 and 2R3 (if not completed).  
E 12 units, 6 of which must not be from Psychology.  

Level IV: 30 units  
R 18 units of Levels III or IV Psychology. See Programme Note 4.  
E 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 Psychology 1A06, at least B- in six additional units, at least C- in English 1D06 or equivalent, and credit in Mathematics 1A06 or 1C06 or at least C- in Mathematics 1M03.  

Students who did not complete the English or Mathematics requirements in Level I should obtain the permission of the department to register for Level II Psychology. They may be admitted to the Honours Psychology programme on completion of Level II, subject to the completion of these requirements, and obtaining a CAA of at least 7.0 or greater in the required Level II Psychology courses.  

Programme Note:  
1. When Mathematics is delayed to Level II, then Psychology 2R03 and 2R3 must be deferred to Level III and another 6 units of Psychology must be taken to fulfill that Level II requirement. Psychology 2E03, 2H03, 2T03, 2R06, 2R03 and 2R3 will be included in calculating the Graduation Average, if taken after Level II.  
2. Students who entered this programme prior to September 1988, must complete either Psychology 2E03 or 2W06. Students who enter this programme from September 1988, must complete Psychology 2E03.  
3. At some time during the programme, the student:  
   a. must meet a laboratory requirement by completing one of Psychology 3C06, 3E03, 3L03 (formerly 2U03), 3Q03, 3S03, 3V03, 4G03, 4Q03.  
      Enrolment in Laboratory courses is limited. Permission of the Department must be obtained by March 1.  
   b. must complete 6 units, not in Psychology or the other subject, from the World History, Culture and Thought Menu.  
   c. must complete 3 units from the Informal Logic Menu.  
   d. must complete 12 units of Level I Social Sciences including Psychology 1A06.  
   e. units prescribed by another department.  
4. Computation of the Graduation Average (GA) for the Psychology component is based on at least 24 units of Levels III and IV Area courses, including Psychology 2E03, 2H03, 2T03, 2R06, 2R03 and 2R3, if taken after Level II. The Cumulative Area Average (CAA) is computed using the best 80% of Levels II, III and IV Area courses.  

Area Courses:  
Psychology 2E03, 2H03, 2R03, 2R3, 2T03, All Level III and IV Psychology courses.  

Level II: 30 units  
R Psychology 2R03 and 2R3; 6 units from Psychology 2E03, 2H03 and 2T03; 6 units of courses chosen from the Faculty of Science, excluding Psychology and the Mathematics course taken to meet the Admission requirements (e.g. Mathematics 1K03, 1M03); units required for the other subject.  
E To total 30 units.  

Level III: 30 units  
R One of Psychology 2E03, 2H03, 2T03 not completed for Level II; 9 units of Level III Psychology, or 3 units of Level III Psychology and Psychology 2R03 and 3R3 (if not completed); units required for the other subject.  
E To total 30 units.  

Level IV: 30 units  
R 12 units of Levels III or IV Psychology; units required for the other subject.  
E To total 30 units.  

PSYCHOLOGY MAJOR (B.A.)  

Admission:  
Completion of any Level I programme with at least C in Psychology 1A06 and in 6 additional units of Social Sciences or Natural Science, and at least a C- in English 1D06.  

Students who did not complete the English requirement in Level I will be admitted to the programme only with the approval of a departmental councillor and must complete the requirement by the end of Level II.  

Programme Note:  
The Graduation Average (GA) is computed using at least 36 units of Levels II, III and IV Area courses. The Cumulative Area Average (CAA) is computed using the best 80% of Levels II, III and IV Area courses.  

Area Courses:  
Psychology 2A03, 2B03, 2C03, 2E03, 2G03, 2H03, 2R03, 2R3, 2T03. All Level III and IV Psychology courses except 3Z03 and 4D06.  

Level II: 30 units  
R Psychology 2G03 or 2R03; 6 units from Psychology 2E03, 2H03, 2T03; 3 additional units of Level II Psychology; 3 units Level I Mathematics; 6 units from the Faculty of Humanities or the Faculty of Science excluding Psychology.  
E Electives excluding Psychology to make a total of 30 units.  

Level III: 30 units  
R 12 units Level III Psychology; 6 units Humanities or Science excluding Psychology.  
E 12 units excluding Psychology, at least 6 of which must be from Level III or IV.  

Level IV: 30 units  
R 12 units Level II or IV Psychology; 6 units Humanities or Science excluding Psychology.  
E 12 units Level III or IV excluding Psychology.  

B.A. IN PSYCHOLOGY  

Admission:  
Completion of any Level I programme with a grade of at least C- in Psychology 1A06, and at least C- in English 1D06.  

Students who did not complete the English requirement in Level I will be admitted to the programme only with the approval of a departmental councillor and must complete the requirement by the end of Level II.  

Area Courses:  
All Psychology courses above Level I.  

Level II: 30 units  
R Psychology 2G03, and 6 units from 2E03, 2H03, or 2T03; 3 units of Level II Psychology; Mathematics 1L03, or any other 3 units of Level I Mathematics; 6 units of courses chosen from the Faculty of Science or the Faculty of Humanities, excluding Psychology, English 1D06 (if not completed), and the 3 units of Mathematics required by the programme.  
E 9 units, 3 of which must not be from Psychology. Psychology 3L03 may be taken in Level II.  

Level III: 30 units  
R 12 units of Level III Psychology; 6 units of courses chosen from the Faculty of Science or the Faculty of Humanities, excluding Psychology.  
E 12 units, 6 of which must not be from Psychology.
Department of Religious Studies

PROGRAMME NOTE: (Applicable to all Religious Studies programmes)

Religious Studies at McMaster includes three major subfields of Biblical Studies, Western Religious Traditions, and Asian Religious Studies. Students may concentrate 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. Courses listed below are considered central to the subfield and are strongly recommended for any student wishing such a concentration.

Biblical Studies

Hebrew Bible: Religious Studies 2D06, 2D08, 2E33, 3M03

Christianity: Religious Studies 2E06, 2F66, 3O03, 3T03, 3X03

Western Religious Traditions

Religious Studies 2J06, 2K06, 2L13, 2K33, 2L13, 3D03, 3M03, 3NN3

Asian Religious Studies

Religious Studies 2D08, 2M06, 3U03, 3U13.

(For the Social Science Study of Religion, the following courses are recommended: Religious Studies 3J06, 3J65.)

HONOURS ARTS AND SCIENCE AND RELIGIOUS STUDIES

(B. Arts Sc.)

(See Arts and Science Programme)

HONOURS RELIGIOUS STUDIES PROGRAMMES

Admission:

Admission to Honours Programmes in Religious Studies requires completion of any Level I programme with an average of 7.0 in 12 units acceptable to the department, preferably including one of the Level I Religious Studies courses.

Admission to the Minor Programme in Religious Studies requires admission to any Social Science Honours Programme and C- in 6 units acceptable to the Department.

Programme Notes:

1. All students should consult the Departmental Handbook. All students are strongly urged to consult a 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 a Departmental Undergraduate Advisor as early as possible in their programmes.

2. All students must meet the Faculty of Social Sciences Breadth and Research Skills Requirements, described in the section "Faculty Of Social Sciences Academic Regulations". Breadth requirements will be met in the following way:

   (i) 12 units of introductory Social Science courses, preferably including one of the Level I Religious Studies courses;
   (ii) 6 units, in Religious Studies, a second Honours subject or a minor subject, drawn from the World History, Culture and Thought Menu;
   (iii) 3 units from the Informal Logic Menu;
   (iv) Religious Studies 3F03.

3. The Research Skills Requirement will be met in the following way:

   (i) 6 units of a language other than English, or linguistics; (a) students in the Honours (Specialist) programme or in the Honours programme with a Minor in another subject may substitute 6 units of statistics with the approval of a Departmental Advisor; (b) students in Combined Honours in Religious Studies and another Social Science discipline, must consult with both departments to determine the manner in which the Research Methods requirement is to be satisfied;
   (ii) Religious Studies 4A06.

4. With the written approval of a Departmental Advisor, courses from other departments may be substituted for Religious Studies courses and may then be designated as Area courses.

5. The "Western Pool" consists of the following Religious Studies courses: 2D06, 2E06, 2F66, 2L13, 2L13, 2K03, 2K33, 2L13, 2T06, and 2S06. The "Eastern Pool" consists of the following Religious Studies courses: 2J06, 2M06, 2T73, 3E03, 3F03, 3T03, 3L03, and 3U03.

6. Students who entered Religious Studies prior to September 1989, must complete either 2G03 or six units from the Eastern Pool; and either 2N03 or six units from the Western Pool.

7. Students are advised that a minimum number of Levels III and IV Area courses are necessary for Graduation. In the Honours (Specialist) and Honours with a Minor Programmes, a minimum of 36 units is required. In the Combined Honours Programme, separate Graduation Averages (GA) are computed for each subject using a minimum of 24 units in each subject.

8. Cumulative Area Averages (CAs) are computed using the best 80% of the grades obtained in Levels II, III, and IV Area courses. In the Combined Honours Programme, separate CAs are calculated for each subject. In the Honours Programme with a Minor, Area courses in the Minor subject are included.

HONOURS RELIGIOUS STUDIES (SPECIALIST)

Programme Notes:

The Honours (Specialist) Programme in Religious Studies consists of at least 48 units and no more than 60 units in religious Studies courses (or approved substitutes) in Levels II, III and IV.

Area Courses:

- All Level II, III, and IV Religious Studies courses or approved substitutes.

Levels II, III and IV: R 40 units of Religious Studies (or approved substitutes), including: 6 units from the Eastern Pool; 6 units from the Western Pool; at least 9 further units of Level III Religious Studies; 4A06 and 4J06; breadth and research skills requirements. See Notes 2 and 3 above.
(See Arts and Science Programme)

E Electives to make a total of 90 units.

COMBINED HONOURS IN RELIGIOUS STUDIES AND ANOTHER SUBJECT

Area Courses:

- All Level II, III, and IV Religious Studies courses or approved substitutes.

Levels II, III and IV: R 40 units of Religious Studies (or approved substitutes): 6 units from the Eastern Pool; 6 units from the Western Pool; 3F03; 9 further units of Level III Religious Studies: 4A06 and 4J06; breadth and research skills requirements. See Notes 2 and 3 above.

E Electives to make a total of 90 units.

HONOURS RELIGIOUS STUDIES WITH A MINOR IN ANOTHER SUBJECT

Area Courses:

- All Level II, III, and IV Religious Studies courses or approved substitutes, and all Area courses in the Minor programme as specified by the other Department.

Levels II, III and IV: R 36 units of Religious Studies (or approved substitutes): 6 units from the Eastern Pool; 6 units from the Western Pool; 3F03; 9 further units of Level III Religious Studies: 4A06 and 4J06; 18 units prescribed for the Minor; breadth and research skills requirements. See Notes 2 and 3 above.

E Electives to make a total of 90 units.

RELIGIOUS STUDIES AS A MINOR

Admission:

Admission to any Social Science Honours Programme and at least C- in 6 units acceptable to the Department.

Area Courses:

- All Level II, III and IV Religious Studies courses.

R At least 38 units of Religious Studies courses in Levels II, III and IV.

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.
School of Social Work

COMBINED B.ARTS 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.

COMBINED B.A./B.S.W.

Admission:
Completion of any Level I programme, including Psychology 1A05 and Sociology 1A06, normally with a University Average 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 Associate Dean of the Faculty.

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 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 (early December):
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 BA/BSW programme, and the subject you wish to take for the BA 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 180.
In order to allow adequate time for the processing of the General Application, applicants are advised to submit their applications in early December.

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 are advised to 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.

Programme Notes

1. Course Groupings: There are three groups of courses in the Social Work programme:
Group I are those which are required core courses;
Group II are those which are primarily practice oriented;
Group III are those which are primarily policy oriented. Only Group III courses may be taken for elective credit by undergraduates not in Social Work. Social Work students must in each of Levels III and IV take 6 units from Group III courses for Elective credit. Permission of the School for Group III courses is required for all students.

Group I:
Social Work 2B06, 2C03, 2D06, 3D06, 4D06, 4DD6

Group II:
Social Work 2E03, 3N03, 3P03, 3R03, 4G03, 4H03, 4K03, 4O03, 4P03, 4T03, 4V03, 4W03, 4X03, 4Y03

Group III:
Social Work 3C03, 3G03, 3H03, 3I03, 4J03, 4M03, 4R03

2. Progression Within Programme: Students must achieve a minimum grade of C+ in each of Social Work 2B06, 2C03, 2D06, 3D06, and 4D06, and a 'Pass' in Social Work 3D06 and 4DD6, and a Cumulative Area average of at least 6.0 in Social Work courses at each review in order to continue in the programme.

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.

The B.S.W. degree will be granted only if the student has achieved a grade of at least C+ in each of Social Work 2B06, 2C03, 2D06, 3D06, and 4D06, and a 'Pass' in Social Work 3D06 and 4DD6, and a Cumulative Area average of at least 6.0 in Social Work courses. Graduation from the three-year B.A. portion of the programme requires a Graduation Average of at least 4.0.

4. Students are expected to assume the cost of travelling to and from field practice agencies.

Area Courses:
All Social Work courses.

Level I: 30 units (B.A.)
B.A. courses as prescribed above for admission to the programme.
FACULTY OF SOCIAL SCIENCES

Level II: 36 units
R Social Work 2B06, 2C03 and 2D03 all of which must be completed prior to enrolling in Social Work 3D06 and 3DD6; courses in the corresponding B.A. programme to total 21 units, including Psychology 2A03 which must be completed prior to enrolling in Social Work 3D06 and 3DD6.

Level III: 36 units
R Social Work 3D06 and 3DD6, which must be completed prior to enrolling in Social Work 4D06 and 4DD6; one of Social Work 3N03 or 3R03; and one other Group II Social Work course to total 15 units; courses in the corresponding B.A. programme to total 21 units, of which 6 units must be from Group III Social Work courses for B.A. credit.

Level IV: 36 units
R Social Work 4D06 and 4DD6; one of Social Work 4C03, 4X03, or 4Y03; and one other Group II Social Work course to total 18 units; courses in the corresponding B.A. programme to total 18 units, of which 6 units must be from Group III Social Work courses for B.A. credit.

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 Psychology 1A06 and Sociology 1A06i 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 for 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 Social Work programme are considered annually and must be made directly to the School well before March 1 for the following fall term. Applicants must also apply to the University through the Associate Registrar (Liaison and Admissions) for full- or part-time study.

Programme 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: those which are required core courses;
   - Group II: those which are primarily practice oriented;
   - Group III: those which are primarily policy oriented. Only Group III courses may be taken for elective credit by undergraduates not in Social Work. 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:
   - Social Work 2B06, 2C03, 2D03, 3D06, 3DD6, 4D06, 4DD6

   Group II:
   - Social Work 2E03, 3N03, 3P03, 3R03, 4G03, 4H03, 4K03, 4L03, 4P03, 4T03, 4V03, 4W03, 4Y03

   Group III:
   - Social Work 3C03, 3G03, 3H03, 3J03, 3K03, 4J03, 4M03, 4R03

3. Progression Within Programme: Students must achieve a minimum grade of C+ in each of Social Work 2B06, 2C03, 2D03, 3D06, 4D06, and a 'Pass' in Social Work 3D06 and 3DD6, and a Cumulative Area average of at least 6.0 overall at each review in order to continue in the programme.

4. 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 Social Work 2B06, 2C03, 2D03, 3D06, 4D06, and a 'Pass' in Social Work 3D06 and 3DD6, and a Cumulative Area average of at least 6.0 overall.

5. Area Courses: All Social Work courses, Psychology 2A03.

6. Requirements: R All Group I required Social Work core courses, with a minimum grade of C+, in each of Social Work 2B06, 2C03, 2D03, 3D06, and 4D06, a 'Pass' in Social Work 3D06 and 4D06, and credit in Psychology 2A03. Students must complete Social Work 2B06, 2C03, 2D03, and Psychology 2A03 prior to enrolling in 3D06 and 3DD6. Completion of 3D06 and 3DD6 is a prerequisite for Social Work 4D06 and 4DD6, one of Social Work 3N03, 3R03, one of Social Work 4C03, 4X03, 4Y03; four Group III Social Work courses; one or two other Group II Social Work courses to total 60 units. (Two courses must be chosen if Psychology 2A03 was completed prior to admission to the B.S.W. Second Degree Programme.)

Department of Sociology

HONOURS ARTS AND SCIENCE AND SOCIOLOGY (B. Arts Sc.)
(See Arts and Science Programmes)

HONOURS PROGRAMMES IN SOCIOLOGY
Admission:
Completion of any Level I programme with an average of at least 7.0 in 12 units, including Sociology 1A06 with a grade of at least B—

Programme Notes:
1. A student may take a maximum of 6 units of Level IV independent research (Sociology 4M03/4N03 or 4MM6).
2. Students should check both this Calendar and the Departmental Handbook for prerequisites and course descriptions.
3. All students must meet Breadth and Skill requirements prescribed by the Faculty of Social Sciences. Except where specified otherwise, 3 units of the History of Thought in Sociology, 6 units of Research Methods and 6 units of Inquiry and Honours Seminars are included in the required courses listed below. Students must take Sociology 1A06 and 6 additional units of Level I Social Science courses; 6 units, not from Sociology, a second Honours subject or a Minor subject, drawn from the World History, Culture and Thought Menu; 3 units from the Informal Logic Menu (Humanities 2C03 or Philosophy 2R03).
4. Students are reminded that a minimum number of Area course units is required for calculation of the Graduation Average (GA). Honours Specialist, 36 units; Combined Honours, 24 units in each subject calculated separately; Honours with a Minor, 36 units including those in the Minor subject.
5. Cumulative Area Averages (CAAs) are computed using the best 80% of all Area courses including the Minor Area courses where applicable. In the Combined Honours Programme, CAAs are calculated separately for each subject.
6. Honours students may specialize in Sociology in any one of four programmes: 1) Specialist with a single Honours in Sociology; 2) Sociology Honours Combined with Honours in Another Subject ("Combined Honours"); 3) Sociology Honours with a Minor in another subject; or 4) Sociology Minor with Honours in another subject.

HONOURS SOCIOLOGY (SPECIALIST)

Area Courses:
All Level II, III and IV Sociology courses.

Levels II, III and IV: 90 units
R 54 units of Sociology including Sociology 2S06 and one of 3A03, 3P03 or 3PP3; Sociology 3H06 and one of 3003 or 3W03; 36 additional units of Levels II, III and IV Sociology including at least 12 units of Level IV Sociology.
E 36 units, some of which may be required to fulfill Breadth and Skill requirements. (See programme Note #3 above.)
COMBINED HONOURS IN SOCIOLOGY AND ANOTHER SUBJECT

Programme Notes:
1. Where 6 units of Research Methods and Statistics are required by both Departments, a comparable course may be substituted for Sociology 3H06. Permission of the Sociology Department must be obtained to make this substitution.
2. If Sociology 3H06 is replaced, only 36 units of Levels II, III and IV Sociology are required.

Area Courses:
All Level II, III and IV Sociology courses.

Levels II, III and IV: 90 units
R At least 42 units of Sociology including: Sociology 2S06 and one of 3A03, 3P03 or 3PP3; Sociology 3H06 and one of 3O03, 3W03; 24 additional units of Level II, III and IV Sociology, including at least 12 units of Level IV Sociology; units in the other Social Science discipline.
E 12 units, some of which may be required to fulfill Breadth and Skill requirements. (See programme Note #3 above.)

HONOURS SOCIOLOGY WITH A MINOR IN ANOTHER SUBJECT

Admission:
Completion of any Level I programme, including Sociology 1A06 with a grade of at least C-.

Area Courses:
All Level II, III and IV Sociology courses.

Levels II, III and IV: 90 units
R 42 units of Sociology including Sociology 2506 and one of 3A03, 3P03 or 3PP3; Sociology 3H06 and one of 3O03 or 3W03; 24 additional units of Level II, III and IV Sociology, including at least 12 units of Level IV Sociology; 18 units as prescribed for the Minor.
E 36 units. Some of which may be required to fulfill Breadth and Skill requirements. (See programme Note #3 above.)

SOCIOLOGY AS A MINOR

Area Courses:
All Level II, III and IV Sociology courses.
R 18 units of Sociology including: one of Sociology 2D06, 2006, 2506 or 2V06; 12 additional units of Levels II and III Sociology.

B.A. IN SOCIOLOGY

Admission:
Completion of any Level I programme, including Sociology 1A06 with a grade of at least C-.

Area Courses:
All Level II, III and IV Sociology courses.

Levels II and III: 60 units
R 24 units of Sociology, including Sociology 2506 and at least one of Sociology 2Y03, 2203 or 3P06.
E 36 units.
Women's Studies Programme


Mary O'Connor/B.A. (McGill), M.A., Ph.D. (Toronto), Acting Director (1991-92)

Pat Fraser, Administrative Assistant

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 re-assessment 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 Area 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 not only in feminist theories but in applied skills that enable them to be creatively responsive to community needs and to participate in women's issues and problems in the workworld, local and international.

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 (see the Academic Regulations section of this Calendar) and the regulations described below.

COMBINED HONOURS B.A. IN WOMEN'S STUDIES AND ANOTHER SUBJECT

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's Studies 1A06 and satisfaction of admission requirements for the Honours B.A. programme in the other subject.

Programme Notes:

1. Enrolment in the Programme is limited. Application for admission to the Combined Honours B.A. programme in Women's Studies and Another Subject is by selection of applicants who have completed or are completing 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's Studies 1A06 and satisfaction of admission requirements for the Honours B.A. programme in the other subject. Application for admission, including a letter explaining the applicant's interest in the Programme, should be made to the Director of Women's Studies prior to 15 April.

2. Students who have not taken Women's Studies 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's Studies 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 6-unit Women's Studies course appropriate to their level and 6 additional units of approved Women's Studies area courses. 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.

Area Courses:

R Women's Studies 2A06, 3A06, 4A06 and 18 units of Area course work at the appropriate level.

Area Courses: Women's Studies 2B06, 2C06, 2H03, 3B03, 3B03, 3C06, 3D06, 4B06, 4C06;

Area courses at the appropriate level may also be selected where available from: Anthropology, Classical Civilisation, Comparative Literature, English, French, Geography, History, Labour Studies, Philosophy, Physical Education, Religious Studies and Sociology. Students must select their Area courses in consultation with the Director of Women's Studies.

Note: The Area 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.

E To the minimum total of 72 units of Area work in the two components of the Combined Honours programme, students must add elective work to make a minimum overall total of 90 units beyond the Level I programme.
The following listing is designed to assist students 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 wishing to pursue Asian Studies may obtain further information from Dr. D. Barrett (History) or Dr. K. Shinohara (Religious Studies).

**COURSES DEALING STRICTLY WITH ASIAN MATERIAL**

| Geography 2C03 | China: People and Land in Transition |
| History 2B06 | China: From the Opium War to the Present |
| History 3B03 | Modern Japan |
| History 3D03 | Imperial China |
| History 4G06 | The Revolutionary Movement in Modern China |

**Political Science 2M06**

Introduction to Far Eastern Political Traditions

**Political Science 3D03**

Comparative Politics: Southeast Asian Systems

**Political Science 3V03**

Culture and Politics in South Asia

**Religious Studies 2J06**

India: Its Culture, Social History, Religion and Philosophy

**Religious Studies 2MM6**

East Asia: Religion and Thought

**Religious Studies 2P06**

Japanese Civilization

**Religious Studies 3AA3**

Popular Religion in India

**Religious Studies 3C03**

Divination and Philosophy of I-Ching or the Book of Changes

**Religious Studies 3U03**

The Buddhist Tradition in India and Southeast Asia

**Religious Studies 3U03**

The Buddhist Tradition in East Asia

**COURSES WITH A SIGNIFICANT AMOUNT OF ASIAN CONTENT**

| Economics 3A06 | Economic Development |
| Political Science 3VV3 | Culture and Politics in the Middle East and Africa |
| Religious Studies 1B06 | World Religions |
| Religious Studies 1F06 | War and the Problem of Meaning |
| Religious Studies 2AA3 | Mysticism in Hindu and Christian Traditions |
| Religious Studies 2BB3 | Images of the Divine Feminine |
| Religious Studies 2H03 | Issues in War and Peace |
| Religious Studies 2QQ5 | Cults in North America |
| Religious Studies 2SS3 | Women and Religion |
| Religious Studies 2WW3 | Health, Healing and Religion |

**LANGUAGE COURSES**

| Chinese 1Z06 | Beginner's Intensive Chinese |
| Chinese 1Z26 | Beginner's Intensive Chinese for Dialect Speakers |
| Chinese 2B06 | Intermediate Intensive Chinese |
| Chinese 3Z03 | Advanced Chinese |
| Japanese 1Z06 | Beginner's Intensive Japanese |
| Japanese 2Z06 | Intermediate Japanese |
| Japanese 32Z6 | Advanced Japanese |
| Sanskrit 3A06 | Introduction to Sanskrit Grammar |
| Sanskrit 4B06 | 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 History 3B03 | Canadian Art and Architecture |
| Drama 3BB3 | Contemporary Quebec Theatre |
| English 2C03 | Contemporary Canadian Fiction |
| English 3203 | Contemporary Canadian Poetry |
| French 2F03 | The Civilization of French Canada I |
| French 2FF3 | The Civilization of French Canada II |
| French 3AA3 | The Modern French Canadian Novel |
| French 3BB3 | Contemporary Quebec Theatre |
| French 4UG3 | Topics in French-Canadian Literature |
| History 2J06 | The History of Canada |
| History 3V06 | The People of Ontario, 1790-1940: An Introduction to Regional Social History |
| Music 3T03 | Canadian Historiography |

**SOCIAL SCIENCES**

| Anthropology 3A03 | Ethnology: The Canadian North |
| Anthropology 3F03 | Contemporary Northern Peoples |
| Economics 2K03 | Economic History of Canada |
| Geography 2E03 | Canada |
| Geography 4U03 | Selected Problems in Urban Planning |
| Geography 4Z03 | Advanced Cultural Geography |
| Political Science 2G06 | Politics in Canada |
| Political Science 3D06 | Political Parties, Movements and Elites in Canada |
| Political Science 3G03 | Politics of Federalism |
| Political Science 4S06 | Canadian Political Theory |
| Religious Studies 3BB3 | Native and Ethnic Religions in Canada |
| Religious Studies 3BB3 | Major Denominations in Canada |
| Sociology 2H06 | A Sociological Analysis of Canadian Society |
| Sociology 3B03 | Major Denominations in Canada (Same as Religious Studies 3BB3) |
| Sociology 3Q03 | Native and Ethnic Religions in Canada (Same as Religious Studies 3BB3) |

**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 appropriate departmental listings. For information on year offered see the timetable.

| Art History 2N03 | Italian Baroque Art and Architecture |
| English 2R03 | Topics in Restoration and 18th-Century Literature |
| English 3G06 | English Literature 1660-1800 |
| English 3M03 | Romantic Poetry |
| French 3K03 | Eighteenth-Century French Literature I |
| French 3KK3 | Eighteenth-Century French Literature |
| French 4F03 | Topics in Eighteenth-Century French Literature |
| German 3A03 | Baroque and Enlightenment Literature |
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 various departments and schools in the Faculty of Social Sciences. Those students desiring further information on specific courses should consult the departments listed 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 further information from Dr. Vivienne Walters (Sociology).

COURSES DEALING WITH HEALTH AND SOCIETY ISSUES

- Anthropology 2103: Plagues and People
- Anthropology 3203: Medical Anthropology: Biomedical Approach
- Anthropology 3223: Medical Anthropology: Symbolic Healing
- Anthropology 4C03: Human Adaptability/The Social Environment
- Economics 3203: Health Economics
- Geography 4S03: Geography of Health
- History 3EE3: History of Medicine in Canada
- History 4EE6: Society, Science and the Medical Profession in 19th and 20th Century in North America
- Labour Studies 3D03: Occupational Health and Safety
- Philosophy 2D03: Moral Issues
- Philosophy 3C03: Advanced Bioethics
- Physical Education 4F03: Health Issues in Research and Consumerism
- Physical Education 4P03: Health and Science: Behavioural Psychology
- Psychology 3B03: Special Populations
- Psychology 3N06: Abnormal Psychology
- Religious Studies 2M03: Death and Dying: Comparative Views
- Religious Studies 2N03: Death and Dying: The Western Experience
- Religious Studies 2WW3: Health, Healing and Religion
- Religious Studies 3SS3: Body, Mind, and Spirit
- Science 3G03: The World’s Food Supply
- Social Work 3C03: Social Aspects of Health and Disease
- Sociology 3G03: Sociology of Health Care
- Sociology 3H33: Sociology of Health
- Sociology 4G03: The Social Production of Illness

Students will also find courses relevant to this theme in the listings of other faculties.

Indigenous Peoples

(Containing courses offered on First Nations)

While there is no B.A. programme on Indigenous Peoples, several departments offer courses on First Nations and indigenous peoples of the world. All students interested in this area may choose electives from among the following courses offered by various departments. For a full description of courses and requirements, see the listings under the department offering the course.

Students wishing to pursue Indigenous Studies may obtain further information from Dr. H. Felt (Anthropology) or Dr. L. W. Lee (Social Work).

COURSES DEALING PRIMARILY WITH INDIGENOUS PEOPLES

- Anthropology 2B03: Native Peoples of North America
- Anthropology 2B03: New World Prehistory
- Anthropology 2V03: The Aztecs, Maya and Inca
- Anthropology 3A03*: Ethnology: The Canadian North
- Anthropology 3F03*: Contemporary Northern Peoples
- Anthropology 3U03*: Canadian/North American Prehistory
- Religious Studies 3B03*: Native and Ethnic Religions in Canada
- Sociology 3Q03*: (same as Religious Studies 3B03)

COURSES WITH A SIGNIFICANT SECTION ON INDIGENOUS PEOPLES

- Anthropology 2U03: Plagues and People
- Anthropology 3D03*: Medical Anthropology: Symbolic Healing
- Anthropology 4N03*: Anthropology and Education
- Anthropology 4R03*: Skeletal Biology of Earlier Human Populations
- Drama 3R03*: The American Cinema II
- Religious Studies 2K03: Myth
- Religious Studies 2W03: Religion and the Environment
- Religious Studies 2WW3: Health, Healing and Religion
- Social Science 2C03: Genocide and Ethnocide
- Social Work 4C03*: Community Work

These courses may have prerequisites of other courses, registration in specific programs, or permission of the instructor.

Peace Studies

While there is no B.A. programme in Peace Studies, students wishing to concentrate in this area should be aware of the following courses offered by various departments. Special note should be taken of the introductory course, Social Sciences 2B06. Those desiring further information on specific courses should consult the departmental listings in the Calendar.

Students wishing to pursue Peace Studies may obtain further information from Dr. P. Dekar (Divinity College) or Dr. Graeme MacQueen (Religious Studies).

- Social Science 2B06: Introduction to the Study of Peace
- Social Science 2C03: Genocide and Ethnocide
- Social Science 2D03: Peace and Development
- Anthropology 2X03: Warfare and Aggression
- Anthropology 3T03: Competition and Conflict
- Biology 3Q03: Radiation Biology
- History 3H03: The International Relations of the European Powers, 1924-1945
- History 3I06: The History of Warfare 1865-1945
- History 3R03: War and Society in Twentieth Century Britain
- Philosophy 1B06: Philosophy and Society
- Philosophy 2G03: Social and Political Issues
- Philosophy 3P03: Philosophies of War and Peace
- Political Science 2E06: International Politics
- Political Science 3A03: International Politics in the Post War Period
- Political Science 4M06: Issues in International Politics
- Religious Studies 1F06: War and the Problem of Meaning
- Religious Studies 2H03: Issues in War and Peace
- Religious Studies 2W03: Life, Work and Teachings of Mahatma Gandhi
- Science 3G03: The World’s Supply of Food
- Sociology 3P06: The Political Sociology
Part-time Degree Studies

The University offers a broad range of educational opportunities for students who wish to take degree studies on a part-time basis. In addition to the day time offerings in the Winter and Summer sessions, a wide selection of evening classes is available throughout the year.

Each student taking degree courses will associate with one of the undergraduate faculties (Business, Humanities, Science or Social Sciences). By doing so, students will have the opportunity to consult with the academic counsellors of their Faculty, and with the departments concerned with the interests in which they wish to develop further study. If their interests change, it is often possible to transfer to another department or Faculty.

The courses which part-time students take in the early stages of their education will form the basis for choosing their programme of study. The Level I courses will give them the information they 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 chart Degrees by Programme, in the Degrees and Programmes section of this Calendar. Students should also familiarize themselves with the requirements and information found in the following sections: Admissions, Academic Regulations and Sessional Dates as well as the programme descriptions found in the specific Faculty sections.

ADMISSION

Before you can register for any course or programme, you must apply for admission to the University. Applicants who satisfy the normal admission requirements of the University may choose to register for part-time study. Those who do not satisfy these requirements may be admissible as Special Students and given the opportunity to show that they can deal successfully with university work. Initially, Special Students, with the approval of the appropriate Associate Dean (Studies), may take only one course at a time until 12 units are completed.

Students who do not wish to enter a degree programme, but would like to take a course for credit, may be admissible as Occasional Students under the same conditions as apply to Special Students. Such students may subsequently transfer to a degree programme. If the courses already completed were relevant to the programme, then they could be counted towards the degree requirements.

Many part-time students enter degree study from other forms of post-secondary education. Students who want to inquire regarding credit recognition for work taken in non-degree programmes (e.g. diploma, certificate, CAAT) should contact the appropriate Faculty Office.

Please refer to the section Admission Requirements for details about the various avenues for admission to study at McMaster.

AVAILABILITY OF COURSES

Although both daytime and evening courses are open to all students, part-time students often have other responsibilities which restrict them to the courses offered in the evenings, winter and summer. For those who can arrange to take day courses, the options are greatly enlarged. Announcements concerning course offerings planned primarily for part-time students will be made from time to time through separate Part-Time Degree Studies brochures.

CO-ORDINATOR OF PART-TIME DEGREE STUDIES

The Co-ordinator of Part-time Degree Studies, Mr. Gordon Raymond or his Assistant, Ms. Tina Horton, may be telephoned at 525-9140, extension 4325 or 4324 respectively, Gilmour Hall Room 103, for counselling and to discuss preparation and plans for degree study. His office 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: extension 3941
- Humanities: extension 4326
- Science: extension 2612
- Social Sciences: extension 4604

Information about application procedures and admission regulations is available through the Admissions Office (525-9140, ext. 4796, Gilmour Hall, Room 120).

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 CENTRES

McMaster University supports the Mohawk/McMaster Education Information Centre in downtown Hamilton and the Brantford Information Centre. The Brantford Centre is directed by the Council for Continuing Education for Brantford and Brant County. These centres exist to provide information and maintain comprehensive collections of calendars and brochures concerning educational opportunities across Canada. The staff at these centres can help you to make contact with the appropriate persons at McMaster.

The Centre in Hamilton is in the Hamilton Central Library just off Jackson Square, telephone (416)525-9140, extension 2020.

The Information Centre in Brantford is located at 99 Chatham Street, Brantford, N3T 2T3, telephone (519)753-3171.

MAPS

The McMaster Association of Part-time Students (MAPS) maintains an office and student lounge in Room 102 of Kenneth Taylor Hall, telephone 525-9140, extension 2021 and publishes a newsletter, Link, which is sent to all part-time students. The coffee lounge is open day and evening from Monday to Thursday, and Friday during the day. MAPS Executive Director, Ms. Judy Worsley, 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

Anthropology

Faculty as of January 15, 1991

David R. Counts/Chair

Professors Emeriti
David J. Damsas/R.A. (Toledo), A.M., Ph.D. (Chicago)
Ruth S. Landes/M.S.W. (New York), Ph.D. (Columbia)
Richard Stebbin/M.A., B.S. (City College of New York), Ph.D. (Columbia)

Professors
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. Gianville/B.A., Ph.D. (Dublin)
Christopher Halpke/B. Litt., M.A., D. Phil. (Oxford)
William C. Noble/B.A. (Toronto), Ph.D. (Calgary)
Richard J. Preston/M.A., Ph.D. (North Carolina)

Associate Professors
Matthew Cooper/B.A. (Brooklyn College), M.Phil., Ph.D. (Yale)
Laure Finken/B.A. (Western), M.A. (Calgary), Ph.D. (Purdue)
Klaus Jackle/Ph.D. (Tuebingen)/part-time
Thudy Nics/B.A., M.A., M.A. Ph.D. (Alberta)/part-time
Peter G. Ramsden/B.A. (Toronto), M.A. (Calgary), Ph.D. (Toronto)
William L. Rodman/B.A. (Sydney), M.A., Ph.D. (Chicago)
Shelley Saunders/B.A., M.A., M.A. (Toronto)
Michael Spence (University of Western Ontario)/B.A., M.A. (Toronto), Ph.D. (Southern Illinois)/part-time

Assistant Professors
Ellen Badone (Religious Studies)/B.A., M.A. (Toronto), Ph.D. (California, Berkeley)
Sally Cole/B.Sc. (Trent), M.A. (Memorial), Ph.D. (Toronto)/part-time
Christopher Ellis/B.A. (Waterloo), M.A. (McMaster), Ph.D. (Simon Fraser)/part-time
D. Ann Harding/B.A., M.A., Ph.D. (Toronto)
William Thurston/B.A., M.A. (McMaster), Ph.D. (Toronto)/part-time
Wayne Warr/B.A., M.A. (McMaster), Ph.D. (ANU)

Associate Members
Susan Pfeiffer (University of Guelph)/B.A. (Iowa), M.A., Ph.D. (Toronto)
Henry Schwartz (Geology)/B.A. (Chicago), M.S., Ph.D. (California Institute of Technology), F.R.S.C.
Dennis Willms (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 three Level I Anthropology courses. Anthropology 1A03 and 1Z03, taken together, are designed to provide an introduction to the study of Anthropology. Anthropology 1U03 introduces the study of language as a sub-discipline of Anthropology.

3. 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 under Sessional Dates.

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.

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.

3 hrs. (lects. and discussion); one term

Prerequisite: Open

ANTHROP 1L03 INTRODUCTION TO ANTHROPOLOGY: THE NATURE OF LANGUAGE

An introduction to the structures of language and non-verbal communication, and to the role of language in the cultures and societies of the world.

3 hrs. (lects. and discussion); one term

Prerequisite: Open except to students with credit in Linguistics 1A06.

ANTHROP 1Z03 INTRODUCTION TO ANTHROPOLOGY: HUMAN AND CULTURAL ORIGINS

Emphasis will be on the evolution of man as seen in the fossil record and on the growth and development of human societies in prehistoric times.

3 hrs. (lects. and discussion); one term

Prerequisite: Open except to students with credit in Anthropology 3C03.

ANTHROP 2A03 WORLD PREHISTORY: PALEOLITHIC

A study of human cultures and societies during the Pleistocene, from approximately 2 million to 8000 years ago.

3 hrs. (lects. and discussion); one term

Prerequisite: Anthropology 1Z03, or permission of the instructor.

ANTHROP 2B03 INDIGENOUS PEOPLES OF NORTH AMERICA

A comparative study of selected cultures of this continent, dealing with traditional and modern situations.

3 hrs. (lects. and discussion); one term

Prerequisite: Open. Not open to students with credit in Anthropology 3C03.

ANTHROP 2D03 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.

3 hrs. (lects. and discussion); one term

Prerequisite: 6 units of level I anthropology or permission of the instructor.

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.

3 hrs. (lects. and discussion); one term

Prerequisite: Six units of Level I anthropology, or permission of the instructor.

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

An introduction to the anthropological concepts and theory underlying the comparative study of the social institutions of non-literate peoples.

3 hrs. (lects. and discussion); one term

Prerequisite: 6 units of Level I Anthropology, or permission of the instructor.

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.

3 hrs. (lects. and discussion); one term

Prerequisite: 6 units of Level I Anthropology or permission of the instructor.

ANTHROP 2H03 ECOLOGICAL ANTHROPOLOGY

An introduction to the interdependence of human societies and their physical and biological environments in an anthropological perspective.

3 hrs. (lects. and discussion); one term

Prerequisite: Anthropology 1A03, or permission of the instructor.

ANTHROP 2I03 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.

3 hrs. (lects. and discussion); one term

Prerequisite: 6 units of Level I Anthropology, Anthropology 1A03, or permission of the instructor.

This course is required of all students in an Honours Programme in Anthropology.
ANTHROP 2J33 HUMAN GROWTH AND CONSTITUTION
Variation in body form and composition examined in the context of normal growth and evolutionary development.
3 hrs. (lects. and discussion); one term
Prerequisite: Open, except to students with credit in 2J03.

ANTHROP 2K33 MYTH
Major definitions and theories of myth are discussed in conjunction with primary readings from mythological texts.
2 lects., 1 tut., one term
Prerequisite: Open
Same as Religious Studies 2K33.

ANTHROP 2L33 PHONETICS
A study of the sounds of language and the articulatory capabilities of man.
3 hrs. (lects.), one term
Prerequisite: Open
Same as Linguistics 2L33.

ANTHROP 2L33 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Open

ANTHROP 2M33 PHONETICS
A study of the patterns of distinctive sounds in the world’s languages.
3 hrs. (lects.), one term
Prerequisite: Anthropology or Linguistics 2L03, or permission of the instructor.
Same as Linguistics 2M33.

ANTHROP 2N33 WORLD PREHISTORY: Neolithic Cultures
A survey of the development of settled, food-producing human cultures from earliest villages to urban life.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1203, or permission of the instructor.

ANTHROP 2O33 NEW WORLD PREHISTORY
A survey of the prehistory of the Americas, from the first traces of human occupation until the arrival of Europeans.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1203, or permission of the instructor.

ANTHROP 2P33 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Open

ANTHROP 3Q33 LINGUISTICS AND THE STUDY OF CULTURE
A study of the application of linguistic models, particularly structuralism, to sociocultural anthropology and related disciplines.
3 hrs. (lects. and discussion); one term
Prerequisite: Registration in at least Level II of any program. This course is required of all students registered in an Honours Programme in Anthropology. Same as Linguistics 3Q33.

ANTHROP 3R33 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1A03, or permission of the instructor.

ANTHROP 3S33 THE PEOPLES OF THE SOVIET UNION
This survey course will acquaint the student with the ethnology, languages and histories of the multitudinous peoples spanning the present-day Soviet Union and neighbouring territories. Where possible, historical accounts of particular groups will be given, from remote antiquity to the present, and accounts of long-vanished peoples and civilizations will be presented.
3 hrs. (lects.); one term
Prerequisite: Open

ANTHROP 3U33 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Open

ANTHROP 3V33 THE AZTECS, MAYA AND INCA
A survey of these three great prehistoric New World civilizations, using archaeological, ethnographic and historical sources. Topics will include religion, social structure, political and economic organization, as well as the similarities and differences among the Aztecs, Maya and Inca.
3 hrs. (lects.); one term
Prerequisite: Open

ANTHROP 2W33 SPECIAL TOPICS IN ANTHROPOLOGY
Reading and discussion of selected topics in Anthropology.
One term
Prerequisite: Written permission of the supervising professor.
This course may be repeated in Level II, if on a different topic, to a total of six units.

ANTHROP 2X33 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Open

ANTHROP 3Y33 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Registration in Level II or III Honours Anthropology, or permission of the instructor.

ANTHROP 2Z33 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Registration in Honours or B.A. Anthropology and Anthropology 1A03; or permission of the instructor.
Same as Sociology 2Z33.
Enrolment is limited.

ANTHROP 3A33 ETHNOLOGY: THE CANADIAN NORTH
A comparative ethnological analysis of selected societies in the Canadian North.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1A03 and 3 other units of Social/Cultural Anthropology, or permission of the instructor.

ANTHROP 3B33 ETHNOLOGY: EUROPE
A comparative ethnological survey of selected societies in Europe.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1A03 and 3 other units of Social/Cultural Anthropology, or permission of the instructor.

ANTHROP 3C33 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 2E03, or permission of the instructor.

ANTHROP 3D33 ETHNOLOGY: PACIFIC ISLANDS
Analysis of selected issues in Pacific anthropology.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1A03 and 3 other units of Social/Cultural Anthropology, or permission of the instructor.

ANTHROP 3E33 COMPARATIVE MYTHOLOGY
The reconstruction of lost mythic traditions by means of comparative techniques drawn from historical linguistics. The Indo-European traditions of Europe will be examined.
3 hrs. (lects. and discussion); one term
Prerequisite: Open

ANTHROP 3F33 SYNTAX
A study of the human capacity to form words into sentences. Emphasis will be on generative transformational grammar.
3 hrs. (lects.); one term
Prerequisite: Open
Same as Linguistics 3F33.

ANTHROP 3G33 ADVANCED SOCIAL ANTHROPOLOGY
Further study of the topics introduced in Anthropology 2F03.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 2F03, or permission of the instructor.

ANTHROP 3H33 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.
2 lects., 1 tut., two terms
Prerequisite: Open
Same as Religious Studies 3J33.

ANTHROP 3I33 ARCHAEOLOGICAL INTERPRETATION
Theoretical and methodological considerations in the investigation of archaeological material.
3 hrs. (lects. and discussion); one term
Prerequisite: Three units of Level II Archaeology courses; or permission of the instructor.
Enrolment is limited.
ANTHRO 3L03: PRIMITIVE 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1A05 and 3 other units of Social/Cultural Anthropology, or permission of the instructor.

ANTHRO 3M03: MORPHOLOGY AND SEMANTICS
The study of word formation and patterns of meaning in language.
3 hrs. (lects.); one term
Prerequisite: Anthropology 3L03 or Linguistics 3I03.

ANTHRO 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 2E03 or permission of the instructor.

ANTHRO 3N13: HOMINID EVOLUTION
An examination of the anatomical, genetic and fossil evidence for the evolution of the human species.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 3N03 or permission of the instructor.

ANTHRO 3P03: RESEARCH METHODS IN CULTURAL ANTHROPOLOGY
Methodologies and techniques of research, especially field study, in sociocultural anthropology.
3 hrs. (lects. and discussion); one term
Prerequisite: Registration in Level II or III of any Anthropology programme, or permission of the instructor.

ANTHRO 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1A03 and 3 other units of Social/Cultural Anthropology, or registration in any programme in Gerontology, or permission of the instructor.

ANTHRO 3R03: 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.
3 hrs. (lects. and discussion); one term

ANTHRO 3T03: COMPETITION AND CONFLICT
Focus is on the comparative study of political processes and the role which conflict and competition play in social life.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1A03 and Social/Cultural Anthropology, or permission of the instructor.

ANTHRO 3U03: CANADIAN/NAKUTHAMER NORTH AMERICAN PREHISTORY
A study of the development of native Canadian cultures prior to the arrival of Europeans.
3 hrs. (lects. and discussion); one term
Prerequisite: Three units of Level II Archaeology courses, or permission of the instructor.

ANTHRO 3V03: COMPARATIVE ECONOMIC ORGANIZATION
An examination of contrasting types of economic organization, with particular reference to societies with a non-industrial base.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1A03 and 3 other units of Social/Cultural Anthropology, or permission of the instructor.

ANTHRO 3W03: SPECIAL TOPICS IN ANTHROPOLOGY
Reading and discussion of selected topics in Anthropology.
One term
Prerequisite: Written permission of the supervising professor.
This course may be repeated in Level III, if on a different topic, to a total of six units.

ANTHRO 3X03: HISTORICAL LINGUISTICS
Internal and comparative techniques for reconstructing ancestral languages, language classification, and models of language change.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 1D03 or Linguistics 1A06.
Same as Linguistics 3V03.

ANTHRO 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 2E03 or permission of the instructor.

ANTHRO 3ZZ3: MEDICAL ANTHROPOLOGY: SYMBOLIC HEALING
An interdisciplinary approach to traditional systems of healing such as Greek, humoral medicine, Chinese, Shamanic, etc. Emphasis will be on cultural and psychological parameters of healing.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 2E03 or permission of the instructor.

ANTHRO 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Six units of Level II or Level III Anthropology, including 2F03, or permission of the instructor.

ANTHRO 4B03: CURRENT PROBLEMS IN ANTHROPOLOGY
The topic varies with each instructor (e.g. one class may examine Urban Anthropology and another focus on Recent Advances in Linguistics). Consult the department office for topics prior to registration.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Anthropology, or permission of the instructor.
This course may be taken twice in one term with different instructors.

ANTHRO 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Anthropology 3C03.

ANTHRO 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Registration in Level IV Honours Anthropology, or permission of the instructor.

ANTHRO 4E03: ARCTIC ARCHAEOLOGY
A study of the field data, methods, and theoretical problems, in the prehistory of selected areas.
3 hrs. (seminar); one term
Prerequisite: Three units of Level III Archaeology courses; or permission of the instructor.

ANTHRO 4F03: CURRENT ISSUES IN ARCHAEOLOGICAL THEORY
A seminar in current topics and issues in archaeology.
3 hrs. (lects. and discussion); one term
Prerequisite: Three units of Level III Archaeology courses; or permission of the instructor.

ANTHRO 4G03: INDEPENDENT RESEARCH
Independent study of a research problem through published materials and/or field work. Students will be required to write up the results of their inquiry in a scholarly form.
Prerequisite: Registration in Level IV of any Honours Anthropology programme, and written permission of the supervising professor.
This course may be repeated, if on a different topic, to a total of six units.

ANTHRO 4H03: ADVANCED REGIONAL ARCHAEOLOGY: Mesoamerica
Current issues in Mesoamerican history, such as the archaeological definition of complex societies, theories of state formation, political economy of agrarian states, and evolution of complex societies.
3 hrs. (seminar); one term
Prerequisite: 3 units of Level III Archaeology courses.

ANTHRO 4I03: CONTEMPORARY ANTHROPOLOGICAL THEORY
Seminar on selected recent developments in anthropological theory.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV of any Honours Anthropology programme.

ANTHRO 4J03: ADVANCED TOPICS IN PHYSICAL ANTHROPOLOGY
Study at an advanced level of selected topics within the subdiscipline. Topics may change from year to year.
3 hrs. (seminar); one term
Prerequisite: Anthropology 2103, or permission of the instructor.

ANTHRO 4K03: ADVANCED TOPICS IN LINGUISTICS
An advanced course covering many areas of linguistic theory through the intensive examination of a language or a set of languages.
3 hrs. (lects.); one term
Prerequisite: Twelve units of Linguistics above Level I; or permission of the instructor.

Same as Linguistics 4K03.
ANTHROP 4L03  FIELD LINGUISTICS
An advanced course in techniques of linguistic field research. The field situation is simulated by using an actual target language.
3 hrs. (lecture); one term
Prerequisite: 12 units of Anthropology or Linguistics above Level I.

ANTHROP 4M03  GREAT LAKES ARCHAEOLOGY
A study of the field data methods and theoretical problems in the prehistory of selected areas.
3 hrs. (lecture); one term
Prerequisite: Three units of Level III Archaeology courses.

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.
3 hrs. (lecture); one term
Prerequisite: Registration in an Honours programme in Social Science; or permission of the Instructor.

ANTHROP 4P03  SKELETAL BIOLOGY OF EARLIER HUMAN POPULATIONS
The analysis of human skeletal samples, including such topics as paleopathology, paleodemography, paleonutrition and biological distance analyses.
3 hrs. (lecture and discussion); one term
Prerequisite: Anthropology 2F03, or permission of the instructor. Not open to students with credit in Anthropology 3C06.

ANTHROP 4Q03  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.
3 hrs. (lecture); one term
Prerequisite: either Anthropology/Linguistics 2Q03, 2L03 or 3013. Not open to students with credit in Anthropology/Linguistics 2T03.

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.
3 hrs. (lecture); one term
Prerequisite: 3 units of Level III Archaeology.

ANTHROP 4V03  DEVELOPING SOCIETIES
Topics may include, for example, the meaning of development, innovation and technological changes, urbanization, and protest movements.
3 hrs. (lecture and discussion); one term
Prerequisite: Anthropology 3S03 (3S06); or permission of the instructor.

Graduate Courses, see Calendar of the School of Graduate Studies.

Art and Art History
Faculty as of January 15, 1991
Glenn T. Scott/Chair
Professor Emeritus
George B. Wallace/M.A. (Trinity College, Dublin)
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
Robert J. Belton/B.F.A. (Western), M.A., Phil.M., Ph.D. (Toronto)
Graham Todd/LL.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)
Instructor
Jean Maddison/M.F.A. (Royal College of Art, London)/part-time
Art Gallery Director and Curator
Kim G. Nese/B.A. (McMaster), M.Litt. (Edinburgh), M.M.St. (Toronto)
Associate Members
Katherine M.D. Dunbabin/Classics/B.A., D.Phil. (Oxford)
Stephan B. Johnson/Drama/B.A. (Guelph), M.A. (Toronto), Ph.D. (Northwestern)
Graham Petrie/Drama/M.A. (St. Andrews), B.Litt. (Oxford)

Department Note:
Art courses are open only to students registered in a programme in Honours Art.

ART
ART 1F06  INTRODUCTION TO STUDIO PRACTICE
An introduction to concepts, techniques and ideas related to the development of paintings from motif through organization to completed work.
1 studio practice (4 hrs.); two terms
Prerequisite: Art 1F06.
Enrolment is limited.

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.
1 studio practice (4 hrs.); two terms
Prerequisite: Art 1F06.
Enrolment is limited.

ART 2C03  FIGURE DRAWING AND SUPERFICIAL ANATOMY
1 studio practice (3 hrs.); two terms
Prerequisite: Art 1F06.
Enrolment is limited.

ART 2F01  INTRODUCTORY PRINTMAKING
An introduction to methods of intaglio and relief printmaking, lithography and serigraphy.
1 studio practice (4 hrs.); two terms
Prerequisite: Art 1F06.
Enrolment is limited.

ART 3A03  ADVANCED PAINTING I
A continuation of subjects explored in Art 2A04 with encouragement towards independent development.
2 studio practice (3 hrs. each); one term
Prerequisite: Art 2A04.
Enrolment is limited.

ART 3A03  ADVANCED PAINTING II
A continuation of Art 3A03 with greater emphasis on the establishment of independent ideas.
2 studio practice (3 hrs. each); one term
Prerequisite: Art 3A03.
Enrolment is limited.

ART 3B03  ADVANCED SCULPTURE I
A continuation of subjects explored in Art 2B04 with encouragement towards independent development.
2 studio practice (3 hrs. each); one term
Prerequisite: Art 2B04.
Enrolment is limited.

ART 3B03  ADVANCED SCULPTURE II
A continuation of Art 3B03 with greater emphasis on the establishment of independent ideas.
2 studio practice (3 hrs. each); one term
Prerequisite: Art 3B03.
Enrolment is limited.

ART 3C03  ADVANCED DRAWING
1 studio practice (3 hrs.); two terms
Prerequisite: Art 2C03.
Enrolment is limited.

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.
3 hrs.; two terms
Prerequisite: Registration in Level III of any Honours programme in Art.
Enrolment is limited.
ART AND ART HISTORY

ART 3P03 ADVANCED PRINTMAKING I
A continuation of subjects explored in Art 2F04 with encouragement towards independent development.
2 studio practice (3 hrs. each); one term
Prerequisite: Art 2F04. Not available to students with credit in Art 3P06.
Enrolment is limited.

ART 3P03 ADVANCED PRINTMAKING II
A continuation of Art 3P03 with greater emphasis on the establishment of independent ideas.
2 studio practice (3 hrs. each); one term
Prerequisite: Art 3P03. Not available to students with credit in Art 3P06.
Enrolment is limited.

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 with a grade of at least B in 6 units of Level III work in the chosen field. Not open to students with credit in or registration in 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.
Enrolment is limited.

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 6 units of Level III work in the chosen field. Not open to students with credit in 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.
Enrolment is limited.

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 6 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.
Enrolment is limited.

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.
3 lects.; two terms
Prerequisite: Open.

ART HIST 2B03 GREEK ART
The architecture, sculpture, and painting of the Greek and Hellenistic worlds.
3 lects.; one term
Prerequisite: Open to students in Level II and above.
Same as Classical Civilization 2B03.

ART HIST 2C03 ROMAN ART
The architecture, sculpture, and painting of the Roman world.
3 lects.; one term
Prerequisite: Open to students in Level II and above.
Same as Classical Civilization 2C03.

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.
3 lects.; one term
Prerequisite: Open to students 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.
3 lects.; one term
Prerequisite: Open to students in Level II and above.

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.
3 lects.; one term
Prerequisite: Open to students 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.
3 lects.; one term
Prerequisite: Open to students in Level II and above.

ART HIST 2P03 MOVEMENTS IN TWENTIETH-CENTURY ART AND ARCHITECTURE
A consideration of the development of the avant garde and modernism in Post-Impressionism, Expressionism, Cubism, Surrealism and related developments to c. 1960.
3 lects.; one term
Prerequisite: Open to students in Level II and above.

ART HIST 2R03 THE ART OF THE NORTHERN RENAISSANCE 1400-1580
An examination of the art of the Netherlands, Germany and Austria in the fifteenth and sixteenth centuries.
3 lects.; one term
Prerequisite: Open to students 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.
2 lects. plus one weekly film screening; two terms
Prerequisite: Open to students in Level II and above.
Same as Drama 2X06.

ART HIST 3A95 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.
3 lects.; one term
Prerequisite: Open to students in Level II and above.
Offered in alternate years.

ART HIST 3B03 THE ART OF NORTHERN EUROPE IN THE SEVENTEENTH 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.
3 lects.; one term
Prerequisite: Art History 2N03 or permission of the instructor.
Offered in alternate years.

ART HIST 3C03 THE ICONOGRAPHY OF CHRISTIAN ART
An introduction to Christian iconography through the study of representations of the life of Christ from early Christian times to the present.
3 lects.; one term
Prerequisite: Registration in a programme in Art or Art History, or permission of the instructor.
Offered in alternate years.

ART HIST 3C33 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.
3 lects., plus one weekly film screening; one term
Prerequisite: Registration in Level III or IV of a programme in Drama, Literature or Art History, or permission of the Drama Department. Art History 2X06 is recommended.
Not available to students with credit in Art History 4B11 or 4B12.
Same as Comparative Literature 3C3, Drama 4H03, and English 3C3.

ART HIST 3P03 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.
2 lects., plus one weekly film screening; one term
Prerequisite: Art History 2X06, or permission of the Drama Department.
Same as Drama 3P03.

ART HIST 3SF3 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.
2 lects., plus one weekly film screening; one term
Prerequisite: Art History 2X06, or permission of the Drama Department.
Same as Drama 3SF3.
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).
3 lects.; one term
Prerequisite: Art History 2C03 or 2G03; or permission of the Department.
Same as Classical Civilisation 3G03.
Alternates with Art History 3H03.

ART HIST 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.
3 lects.; one term
Prerequisite: Art History 2B03 or permission of the Department.
Alternates with Art History 3G03.
Same as Classical Civilisation 3H03.

ART HIST 3J03  JAPANESE ART
An introduction and discussion of major aspects of the visual arts of Japan.
3 lects.; one term
Prerequisite: Art History 1A06; or permission of the instructor.

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.
3 lects.; one term
Prerequisite: Art History 2M03.
Offered in alternate years.

ART HIST 3Q03  THE HISTORY OF PRINTMAKING
A survey of the history of printmaking from the fifteenth to the present century.
3 lects.; one term
Prerequisite: Registration in Level III or IV of any programme, or permission of the Department.
Offered in alternate years.

ART HIST 3T03  TOPICS IN NATIONAL CINEMAS I
Previous topics include: Soviet and East European Cinema, French Cinema. Consult the Department concerning topic to be offered.
2 lects., plus one weekly film screening; one term
Prerequisite: Art History 2X06, or permission of the Department. Art History 3T03 may be repeated if on a different topic, to a total of six units.
Same as Drama 3T03.

ART HIST 3T13  TOPICS IN NATIONAL CINEMAS II
Previous topics include: Canadian Cinema. Consult the Department concerning topic to be offered.
2 lects., plus one weekly film screening; one term
Prerequisite: Art History 2X06, or permission of the Department. Art History 3T13 may be repeated if on a different topic, to a total of six units.
Same as Drama 3T13.

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 I 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. Not open to students taking Art 4D03.
3 lects.; one term
Prerequisite: Art History 2N03.

ART HIST 3W03  THE ART OF PHOTOGRAPHY
An historical and critical discussion of photography and its contribution to modern visual culture.
3 lects.; one term
Prerequisite: Registration in Level III or IV of any programme.
Offered in alternate years.

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 (2 hrs.); one term
Prerequisite: Art History 2B03 or 2C03, and registration in Level III or IV of a programme in Art History or Classical Studies; or permission of the Department of Classics.
Offered in alternate years.
Same as Classical Civilisation 3X03.

ART HIST 4A03  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 (2 hrs.); one term
Prerequisite: Art History 3A03 or permission of the instructor.
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 (2 hrs.); one term
Prerequisite: Art History 2M03, and permission of the instructor.
Offered in alternate years.
Enrolment is limited.

ART HIST 4P03  DUTCH PAINTING OF THE SEVENTEENTH CENTURY
A study of the so-called "minor masters" of Holland's Golden Age of painting.
Seminar (2 hrs.); one term
Prerequisite: Art History 3B03; or permission of the instructor.
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.
3 lects.; one term
Prerequisite: Art History 2P03.
Offered in alternate years.

ART HIST 4X03  TOPICS IN NATIONAL CINEMAS
A study of the works of a different group of films, or a different topic, if one is approved by the Department.
2 lects., plus one weekly film screening; one term
Prerequisite: Registration in Level III or IV of any Honours in Art History, and a grade of at least B- in a previous course in the chosen field; or permission of the Department.

ART HIST 4G03  PICASSO
A study of the art and architecture of Raphael, Michelangelo and their contemporaries in Rome in the early 16th century.
Seminar (2 hrs.); one term
Prerequisite: Art History 2M03, and permission of the instructor.
Offered in alternate years.
Enrolment is limited.

ART HIST 4R03  PAINTING AND SCULPTURE OF FIFTEENTH-CENTURY ITALY
An examination of the representational arts of the early Renaissance with emphasis on the Florence contribution.
3 lects.; one term
Prerequisite: Art History 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.
2 lects., plus one weekly film screening; one term
Prerequisite: Art History 2X06, or permission of the Department. Art History 4S03 may be repeated, if on a different topic, to a total of six units.
Same as Drama 4S03.

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 (2 hrs.); one term
Prerequisite: Registration in Level III or IV of a programme in Art or Art History; or permission of the instructor.
Offered in alternate years.
Enrolment is limited.

ART HIST 4W03  MODERN LANDSCAPE ART
A discussion of the origins, development and significance of landscape art from the late eighteenth century to the present. The main emphasis will be on painting in England and France.
Seminar (2 hrs.); one term
Prerequisite: Registration in Level III or IV of a programme in Art or Art History; or permission of the Department.
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 (2 hrs.); one term
Prerequisite: Registration in Level III or IV of a programme in Art or Art History, and permission of the Department.
Offered in alternate years.
Enrolment is limited.

ART AND ART HISTORY
ARTS AND SCIENCE

Arts and Science

Council of Instructors
Barbara M. Ferrier (Biochemistry/Director)
Richard Bourbonniere (Inland Waters)
Sylvia Bowerbank (English)
James Deaville (Music)
David Goodings (Physics)
Louis Greenspan (Religious Studies)
H. Hansen (Visiting Professor)
Fred M. Hoppe (Mathematics and Statistics)
Robert C. Hudapth (Mechanical Engineering)
Elizabeth Inman (Drama)
Atif Kubursi (Economics)
Cyril Levitt (Sociology)
Alan Maudetson (Religious Studies)
P. K. Banagachari (Medicine)
Michael Ross (English)
James Stewart (Mathematics and Statistics)

Department Notes:
1. Prerequisites: The prerequisite for all Level I, II, III and IV courses is normally registration in the Arts and Science Programme.

2. Limited Enrolment: Enrolment in Level I of the Arts and Science Programme is limited to approximately 50 students.

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, Auguste and Descartes. Topics considered will include the legitimacy of the state, the scope and limits of reasoning, and the foundations of morality. Through 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 engaging with written texts. 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 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 & 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. Mathematics 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 2E06 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 a variety of 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 3B06 TECHNOLOGY AND SOCIETY
The role of technology in culture will be examined. Consideration will be given to models of the technology-society relationship and to problems encountered in the attempt to control technology.

ARTS & SCI 3C06 INQUIRY TOPIC: Society in the Nuclear Age
Examination of such phenomena as the arms race, the growth of a military-industrial complex, and the peace movement, since 1945.

ARTS & SCI 3D06 INQUIRY TOPIC: Environment
Examination of the impact of economic, social, and political decisions on our local and regional environment.

ARTS & SCI 3E06 INQUIRY TOPIC: Phenomenon of Work
Development of a critical perspective on the phenomenon of work, and an examination of contemporary issues in the contemporary world of work.

ARTS & SCI 3F06 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 3G06 CREATIVE ARTS
The nature of the graphic arts and music, and their 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 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 4B06 INDIVIDUAL STUDY
Same as Arts and Science 4A06.

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 & SCI 4D06 THESIS
Same as Arts and Science 4C06.

Asian Studies

(See Thematic Areas of Study)

Biochemistry

Faculty as of January 15, 1991

H.P. Ghosh/Chair

Professors Emeriti

Ross H. Hall/Ph.D. (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. Anantharayan/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. Brande/B.Sc., D.Sc. (Uruguay)
William W. Chan/Ph.D. (Cambridge)
Richard M. Eapand/A.B. (Yale), Ph.D. (Columbia)
Barbara M. Ferrier/B.Sc., Ph.D. (Edinburgh)
Karl B. Freeman/B.A., Ph.D. (Toronto)
Haru P. Ghosh/M.Sc., Ph.D. (Calcutta)
Radhey S. Gupta/M.Sc. (New Delhi), Ph.D. (Bombay)
Richard J. Haslam/M.A., Ph.D. (Oxford), Professor of Pathology
John A. Hassell/B.Sc. (Brooklyn College), Ph.D. (Connecticut)
Ewart Nibber/M.Sc. (McMaster), Ph.D. (Waterloo)

Associate Professors

Gerhard E. Gerber/Ph.D. (Toronto)
Colvin 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
John P. Caprona/B.Sc. (Western), Ph.D. (McMaster)
Daniel S.-C. Yang/B.Sc., M.Sc. (Alberta), Ph.D. (Pittsburgh)


BIOCHEMISTRY

Associate Members

Stephanie A. Atkinson (Pediatrics) B.A. (Western), Ph.D. (Toronto)
Stanley T. Bayley (Biophysics) B.Sc., Ph.D. (London)
Gurmit Singh (Pathology) B.Sc., Ph.D. (Dalhousie)
Thillaiselvan Sivanaran (Pathology) B.Sc. (Ceylon) M.Sc., Ph.D.
(Queen's), F.R.C.S. (London)
Bradley N. White (Biology) B.Sc. (Nottingham), Ph.D. (McMaster)

**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 3A06.

2 lects.; 1 lab (3) or tut.; two terms

**Prerequisite:** Credit or registration in one of Chemistry 2F03, 2B06, 2G06, and registration in Honour's Biological Chemistry or a programme in which Biochemistry 2A06 is required. Not open to students who have credit or are registered in Biochemistry 2A03, 2B03 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.

3 lects.; one term

**Prerequisite:** Credit or registration in one of Chemistry 2F03, 2B06, 2G06. Not open to students who have completed Biochemistry 3B06, 3C06, 3D06, 3E06, 3F06, 3G06.

**BIOCHEM 3A06 PRINCIPLES OF BIOCHEMISTRY II**

Major themes of biochemistry based on current concepts and methodology. An extension of the principles covered in Biochemistry 2A06.

3 lects.; two terms

**Prerequisite:** Biochemistry 2A03 or 2A06. Not open to students who have completed Biochemistry 3B03, 3C03, 3D03 or 3G03.

**BIOCHEM 3G06 COMPREHENSIVE BIOCHEMISTRY**

Major concepts of biochemistry, and modern methods used in biochemical investigations, nature of cellular processes, structure and function of macromolecules, metabolism and its regulation.

3 lects.; two terms

**Prerequisite:** Chemistry 2B06 or 2G06. Not open to students who have completed Biochemistry 2A03, 2A06, 3A06, 3B03, or 3C03. Students who receive special permission to register in this course after completing Biochemistry 2E03 will not retain credit for Biochemistry 2E03 on completion of this course.

**BIOCHEM 3H03 CLINICAL BIOCHEMISTRY**

An overview of clinical chemistry, its relation to disease and relevance to health care.

3 lects.; one term

**Prerequisite:** Credit or registration in Biochemistry 3A06 or 3G06.

**BIOCHEM 3L06 BIOCHEMISTRY LABORATORY**

Illustration of fundamental principles of biochemistry.

2 labs (3); one term

**Prerequisite:** Biochemistry 2A03 or 2A06 and registration in a programme in which Biochemistry 3L06 is required.

**BIOCHEM 3L03 BIOCHEMISTRY LABORATORY**

Identical to first part of Biochemistry 3L06.

1 lab (3); one term

**Prerequisite:** Biochemistry 2A03 or 2A06 and registration in a programme in which Biochemistry 3L03 is required.

**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.

3 lects.; one term

**Prerequisite:** Credit or registration in Biochemistry 3A06 or credit in Biochemistry 3C06. Not open to students with credit in Biochemistry 4N03.

**BIOCHEM 3A03 RECENT ADVANCES IN BIOCHEMISTRY**

Student presentation and critical evaluation of selected topics from the current research literature in Biochemistry and Molecular Biology.

Seminar (5); 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. Enrollment 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.

3 labs (3); two terms

**Prerequisite:** Students registered in Level IV Biochemistry or Molecular Biology and Biochemistry programs who have a CAA of at least 10.0 are eligible. Potential registrants should consult the Chair before June 1st. Enrollment is limited.

**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.

3 lects.; one term

**Prerequisite:** One of Biochemistry 3A06, 3G06. Same as Molecular Biology 4D03.

**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.

3 lects.; one term

**Prerequisite:** One of Biochemistry 3A06, 3G06. Same as Molecular Biology 4E03 and Biology 4N03.

**BIOCHEM 4F03 MOLECULAR ASPECTS OF EUKARYOTIC CHROMOSOMES**

Chromatin structure, repeated DNA sequences, concerted evolution of gene families, telomeres, centromeres, gene transfer, oncogenes, transposable elements.

3 lects.; one term

**Prerequisite:** Biochemistry 3A06 or 3G06. Same as Molecular Biology 4F03 and Biology 4M03.

**BIOCHEM 4G03 BIOTECHNOLOGY AND GENETIC ENGINEERING LABORATORY**

This lab is complementary to Biochemistry 4D03. Experiments may involve cloning, engineered mutagenesis, DNA sequencing, expression of cloned genes and fermentation.

2 labs (4); one term

**Prerequisite:** One of Biochemistry 3A06, 3G06 and one of Biochemistry 3L03 or 3L06. Permission of the Department is required before September 15. Same as Molecular Biology 4A03.

Enrollment is limited.

**BIOCHEM 4H03 REPLICATION AND RECOMBINATION**

Replication, recombination, repair and mutagenesis of DNA.

3 lects.; one term

**Prerequisite:** Biochemistry 3A06 and one of Biochemistry 3A06, 3G06. Same as Molecular Biology 4E03 and Biology 4M03.

**BIOCHEM 4I03 STRUCTURAL AND MECHANISTIC ASPECTS OF MACROMOLECULES**


3 lects.; one term

**Prerequisite:** One of Biochemistry 3A06, 3G06, and one of Chemistry 3D03, 3D06, 3F03; or permission of the instructor.

**BIOCHEM 4L03 ADVANCED BIOCHEMISTRY LABORATORY**

Fundamental principles of experimental biochemistry with emphasis on modern methods in enzymology, membrane biochemistry and molecular biology.

2 labs (4); one term

**Prerequisite:** Biochemistry 3A06, 3G06 and one of Biochemistry 3L03, 3L06. Not open to students who are registered in or have completed Biochemistry 4G03.

**BIOCHEM 4M03 MEMBRANE STRUCTURE AND FUNCTION**

Chemical structure and molecular organization of membrane constituents. Molecular basis of the biological activity of membranes.

3 lects.; one term

**Prerequisite:** One of Biochemistry 3A06, 3G06.

**BIOCHEM 4P03 RESEARCH PROJECT**

A research project will be supervised by a member or associate member of the Department of Biochemistry.

3 labs (3); one term

**Prerequisite:** One of Biochemistry 3A05, 3G06 and registration in Level IV Biochemistry or Molecular Biology and Biotechnology. Permission of the Department is required before September 15. Not open to students who have credit or are registered in Biochemistry 4B06 or 4L06. Enrollment is limited.

**BIOCHEM 4Q03 BIOCHEMICAL PHARMACOLOGY**

Interactions of drugs with living systems. Drug absorption, distribution, mechanism of action, metabolism and elimination will be discussed.

3 lects.; one term

**Prerequisite:** One of Biochemistry 3A06, 3G06. Not open to students who have credit or are registered in Biology 3A03.

**BIOCHEM 4U06 ADVANCED EXPERIMENTATION**

Fundamental experimental principles of biochemistry and chemistry including modern instrumental methods. Three units selected from Chemistry 4T06 plus Biochemistry 4P03.

2 labs (4); two terms

**Prerequisite:** Registration in Level IV Honours Biochemistry and Chemistry. Not open to students who have credit, or are registered in, one of Biochemistry 4L06, 4P03, Chemistry 4T04, 4T06. Same as Chemistry 4U06.

For Graduate Courses, see Calendar of School of Graduate Studies.
BIOLOGY

Biology

Faculty as of January 15, 1991

B.N. White/Chair

Professors Emeriti

Douglas Davidson/B.Sc. (Durham), D.Phil. (Oxford)
Douglas M. Davies/B.A., Ph.D. (Toronto), P.E.S.C.
Kenneth A. Kenny/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 Oakes/B.A. (Toronto), M.A., Ph.D. (Saskatchewan), F.R.S.C.
Jean E.M. Westman/B.Sc. (Western), M.A. (Mount Holyoke), Ph.D. (Toronto)

Professors

Stanley T. Bayley/B.Sc., Ph.D. (London)
Frederick L. Graham/Pathology M.A., Ph.D. (Toronto)
John H. Hassell/B.Sc. (Brooklyn College), Ph.D. (Connecticut)
John N.A. Lott/B.Sc. (British Columbia), M.S. (British Columbia, Davis)
D. Gordon McDonald/B.Sc. (Western), M.Sc., Ph.D. (Calgary)
Richard A. Morton/M.S., Ph.D. (Chicago)
Ludwik Przeworowski/M.A., Ph.D. (Toronto)
Andrew J. Rainbird/Radiology B.Sc. (Manchester), M.Sc. (London), Ph.D. (McMaster)
Rama S. Singel/B.Sc. (Agra), M.Sc. (Kanpur), Ph.D. (California, Davis)
George J. Sorger/B.Sc. (McGill), M.S., Ph.D. (Yale)
Iwao Takahashi/B.A. (Hakodate), M.S.A. (Kyushu), Ph.D. (Montreal)
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)
Doris E.N. Jensen/M.A. (Toronto), Ph.D. (British Columbia)
Jurek Kolasa/M.Sc., Ph.D. (Posnan)
Colin A. Kumer/B.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 Rolfe/B.Sc., M.Sc. (Guelph), Ph.D. (British Columbia)

Assistant Professors

J. Roger Jacobs/B.Sc. (Calgary), M.Sc., Ph.D. (Toronto)
Raymond W.H. Lee/B.Sc., Ph.D. (McGill)
Herbert E. Schellhorn/B.Sc., M.Sc. (Guelph), Ph.D. (North Carolina)
Elizabeth A. Weretilnyk/B.Sc., Ph.D. (Alberta)

Instructional Assistants

Beryl Pickett/B.Sc. (Mount Allison), M.Sc. (McMaster)
Herbert Pohl/B.Sc., M.Sc. (McMaster)
Raymond Procziak/B.Sc. (McMaster), B.Ed. (Toronto)

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.
3 lects., or 2 lects., 1 lab. (3); two terms
Prerequisite: Registration in, or completion of, Natural Sciences I or Arts and Science I; completion of Engineering 1. Chemistry 1A06 is strongly recommended; in addition, students intending to take Level II, III, IV Biology courses should note that Chemistry 1A06 is a prerequisite for many of the courses. Not open to students registered in the Faculties of Humanities and Social Sciences.

BIOLOGY 1C06 INTRODUCTION TO BIOLOGY
Basic concepts in cell biology, animal physiology and genetics. The course covers cell structure, organelle function, metabolism, growth, division, endocrinology, muscle function, circulation, excretion, and immunology.
3 lects., or 2 lects., 1 lab. (3); two terms
Prerequisite: At least a 60% average in two Grade 13 or OAC science or mathematics courses; or a grade of at least C+ in Physical Education 2C06. Not open to students registered in the Faculty of Science.

BIOLOGY 1J03 HUMAN PHYSIOLOGY
Physiology of respiration, circulation, energy and muscle metabolism and reproduction.
3 lects., or 2 lects., 1 lab. (3); one term
Prerequisite: Registration in Physical Education 1.

BIOLOGY 2B03 CELL BIOLOGY
Basic treatment of cell structure and function, including transport and chemical signals; adaptation of structure and function in specialized cells.
3 lects.; 2 lects., 1 lab. (3); or 2 lects., 1 tut., one term
Prerequisite: Biology 1A06; or a grade of at least B in Biology 1G06, and one of Chemistry 1A06, 1B06.

BIOLOGY 2C03 GENETICS
Structure, function and transmission of genes; chromosomal basis of inheritance; mono- and dihybrid crosses; sequential steps in gene function; linkag maps; sex chromosome inheritance.
3 lects., or 2 lects., 1 lab. (3); one term
Prerequisite: Biology 1A06, or a grade of at least B in Biology 1G06, and completion of one of Chemistry 1A06 or 1B06.

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.
2 lects., 1 lab. (3); one term
Prerequisite: Completion of Biology 1A06; or a grade of at least B in Biology 1G06.

BIOLOGY 2F03 THE ANIMAL KINGDOM
Selected aspects of design in the major animal groups, with emphasis on adaptations to terrestrial versus aquatic environments.
2 lects., 1 lab. (3); one term
Prerequisite: Completion of Biology 1A06; or a grade of at least B in Biology 1G06; or registration in a programme for which Biology 2F03 is required.

BIOLOGY 2F03 FUNDAMENTALS OF ECOLOGY
A broad overview of ecology at the level of organisms, populations and communities.
3 lects.; one term
Prerequisite: Completion of Biology 1A06; or a grade of at least B in Biology 1G06.

BIOLOGY 3A06 STRUCTURE, FUNCTION AND DEVELOPMENT OF PLANTS
Ultrastructure, anatomy and development of higher plants in relation to growth conditions and physiological activities.
2 lects., 1 lab. (3); two terms
Prerequisite: Biology 2B03 and Biology 2D03.

BIOLOGY 3A03 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.
3 lects., or 2 lects., 1 tut.; one term
Prerequisite: Chemistry 2006 or 2B06, and registration or credit in Biology 3U06, or registration or credit in Biology 3P03 and one of Biochemistry 3A06 or 3G06. Not open to students who have credit or are registered in Biochemistry 4Q03. Not open to students registered in Honours Biology and Pharmacology.

BIOLOGY 3C03 MICROBIOLOGY I
Basic energy-yielding mechanisms; biochemical and genetic regulation of morphogenesis; microbial life under extreme conditions.
3 lects.; one term
Prerequisite: Biology 3E03.

BIOLOGY 3D03 ANIMAL PARASITOLOGY
Parasites of animals, dealing with life histories, host-parasite relationships, and arthropod vectors.
2 lects., 1 lab. (3); one term
Prerequisite: Biology 2E03.

BIOLOGY 3E03 MICROBIOLOGY II
2 lects., 1 lab. (3); one term
Prerequisite: Chemistry 2006, 2008, 2D03 or 2D04, or 2B06.

BIOLOGY 3F06 COMPARATIVE ANATOMY AND EVOLUTION OF VERTEBRATES
An introduction to the development of structure and function in vertebrates.
2 lects., 1 lab. (3); two terms
Prerequisite: Biology 2E03; or permission of the instructor.

BIOLOGY 3H03 CELL NUCLEUS AND GENOME
Structure of the nucleus and of chromatin; organization of DNA sequences; DNA replication, transcription, gene expression; some relevant techniques.
3 lects., or 2 lects., 1 lab. (3); one term
Prerequisite: Biology 2B03.

BIOLOGY 3H03 CELL FUNCTION
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.
3 lects., or 2 lects., 1 lab. (3); one term
Prerequisite: Biology 2B03.
BIOLOGY 3103 CYTOGENETICS
Karyotype analysis—morphological and biochemical. Structural changes in chro- mosomes and their effects on fertility. Chromosome polymorphism in man and other organisms: inversions, translocation, deletions, duplications. 2 lects., 1 tut.; or 2 lects. 1 lab. (3); one term. Prerequisite: Biology 2B03 and 2C03.

BIOLOGY 3J03 THE GENETIC BASIS OF EVOLUTION
A survey of the conceptual foundations of evolutionary processes. 3 lects. or 2 lects. 1 tut.; one term. Prerequisite: Biology 2C03.

BIOLOGY 3K06 ANIMAL HISTOLOGY
The structure, function, and organization of cells, tissues, organs and organ systems. 2 lects., 1 lab. (3); two terms. Prerequisite: Biology 2E03; or a grade of at least B— in Biology 1G06; or permission of the instructor.

BIOLOGY 3M03 INTRODUCTION TO BIOLOGY OF INVERTEBRATES
Analysis of form, function and life cycle in selected groups. 2 lects., 1 lab. (3); one term. Prerequisite: Biology 2E03.

BIOLOGY 3N06 DEVELOPMENTAL BIOLOGY
Comparative and analytical studies of development. Processes of growth, cell differentiation and morphogenesis will be emphasized; similarities between plant and animal development will be discussed. 2 lects., 1 lab. (3); two terms. Prerequisite: Biology 2B03, 2C03.

BIOLOGY 3O03 MICROBIAL GENETICS
The genetics of bacteria, yeasts, fungi, algae, and other microorganisms. Special emphasis will be placed on relationships between microbial genetics and general problems in genetics. 2 lects., 1 tut.; one term. Prerequisite: Biology 2C03.

BIOLOGY 3P03 CELL PHYSIOLOGY
Cell function with emphasis on cell membranes and transport processes. A quantitative physiological interpretation of the electrical properties of cells. 2 lects., 1 tut.; one term. Prerequisite: Biology 2B03 and registration, or credit in one of Biochemistry 3A06 or 3G06; or permission of the instructor.

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. 3 lects.; one term. Prerequisite: Biology 1A06; or a grade of at least B— in Biology 1G06; and one of Physics 1A06, 1B06, 1C06; or permission of the instructor.

BIOLOGY 3S03 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. 2 lects., 1 tut.; one term. Prerequisite: Biology 2F03; or permission of the instructor. Computer Science 1ZA3 (or 1MA3) and Statistics 2F06 are highly recommended.

BIOLOGY 3T03 TUTORIAL IN BIOLOGY
Analysis of classical and current concepts in biological thought; methodology of studying original literature and essay preparation. Students will prepare and present essays and seminars. 3 lects. or sessions; one term. Prerequisite: Only students registered in Level III of a programme in Biology and who have a C.A.A. of at least 9.0 will be admitted. Not open to students who have credit or are registered in Psychology 3203.

BIOLOGY 3T3 COMMUNITY ECOLOGY
Community structure, succession, patterns of diversity and their relevance to conservation; elements of ecological control; energy flow; nutrient cycling and climatic influences. 2 lects., 1 lab. (3); one term. Prerequisite: Biology 2F03; or permission of the instructor. One of Biology 2D03 or 2E03 and Computer Science 1ZA3 (or 1MA3) and Statistics 2F06 is highly recommended.

BIOLOGY 3U06 PRINCIPLES OF ANIMAL PHYSIOLOGY
Animal physiological systems including: circulation, respiration, acid base and electrolyte balance, renal function, nervous and hormonal control systems. 2 lects., 1 lab. (3); two terms. Prerequisite: Biology 2B03 with a grade of at least B— ; or registration in a programme for which Biology 3U06 is required. Biochemistry 3G06 is recommended. As enrolment is limited, if space is available, permission of the instructor may be sought in September by students with credit in Biology 2B03.

BIOLOGY 4B06 PLANT PHYSIOLOGY
Principles of physiology and metabolism in plants. Topics include: aspects of photosynthesis, nitrogen assimilation, cell wall biosynthesis, hormone action and biotechnology as related to plants. 2 lects., 1 tut. or 1 lab. (3); two terms. Prerequisite: Registration in, or completion of, Biochemistry 3A06 or 3G06; or completion of Biochemistry 2A03; or permission of the instructor.

BIOLOGY 4B03 PLANT PHYSIOLOGY
The regulation of plant metabolism with a major emphasis on carbon flow, light reactions of photosynthesis and the relationship of these reactions to chloroplast development. 2 lects., 1 tut.; one term. Prerequisite: Registration in or completion of, Biochemistry 3A06 or 3G06; or completion of Biochemistry 2A03. Not open to students registered in, or who have completed Biology 4B04 or 4B06. To be given concurrently with 4B06.

BIOLOGY 4C08 SENIOR THESIS
A thesis based upon a research project carried out under the direction of a member of the Faculty. Prerequisite: Approval by the Chair in the preceding spring term. Open to students who have obtained a C.A. of at least 9.0 and are registered in Level IV Honours Biology or Honours Biology and Psychology. Not open to students with credit, or registration, in Biology 4F04 or Psychology 4F06.

BIOLOGY 4D03 THE ECOLOGICAL DESIGNS OF ORGANISMS
Principles of organism design from an ecological/evolutionary perspective. Overview of the evolutionary changes in the ecological designs of plants and animals. Dependent on the approval of the department and open to students registered in Level IV Honours Biology. Prerequisite: Approval of the Chair in the preceding spring term. Open to students who have obtained a C.A. of at least 9.0 and are registered in Level IV Honours Biology or Honours Biology and Psychology. Not open to students with credit, or registration, in Biology 4F04 or Psychology 4F06.

BIOLOGY 4E03 PRINCIPLES OF EVOLUTIONARY, POPULATION AND QUANTITATIVE GENETICS
Experimental and theoretical aspects of the genetic basis of evolutionary changes in populations. 2 lects., 1 tut.; one term. Prerequisite: Biology 3J03 and Biology 2C03 and one of Mathematics 1A06, 1C06.

BIOLOGY 4F04 SENIOR PROJECT
Students may enrol 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. Open to students registered in a Level IV Biology programme. Not open to students with credit, or registration, in Biology 4C06 or Psychology 4F06.

BIOLOGY 4G06 HUMAN ANATOMY
A study of the human body by dissection, self-teaching modules and videos. 2 labs. (2.5); two terms. Prerequisite: A grade of at least B+ in Biology 3F03 or 3K06, or a B+ in Biology 2E03 and current registration in Biology 3F06 or 3K06. These are minimal requirements, and final selection by the Chair of the Department of Biology will be based on academic merit. Enrolment limits: 16. Offered in alternate years.

BIOLOGY 4I03 PLANT DEVELOPMENT
An experimental analysis of development in plants: cytological, genetic, and biochemical studies. 3 lects.; one term. Prerequisite: Biology 2D03.

BIOLOGY 4I03 IMMUNOLOGY
An introduction to humoral and cellular immunity. The molecular and cellular basis of immunity, and an introduction to immunological techniques. 2 lects., 1 tut. (2); one term. Prerequisite: Registration or credit in one of Biochemistry 3A06, 3B03 or 3G06; or permission of the instructor.

BIOLOGY 4I13 ADVANCED TOPICS IN IMMUNOLOGY
Current topics in immunology including cell-cell interactions, immune mechanisms of resistance to pathogens, self-recognition and autoimmunity. 2 lects., 1 tut. (2); one term. Prerequisite: Biology 4I03; or permission of the instructor.

BIOLOGY 4J03 FIELD EXERCISES IN ECOLOGY
Field projects focusing on local plants and animals in terrestrial and aquatic habitats. Students may propose a specific topic for approval. 1 tut., 1 lab. (3); one term. Prerequisite: Biology 2F03, and registration or credit in one of Biology 3S03, 3T3, 3G06; or permission of the instructor.

BIOLOGY 4K03 FIELD COURSE IN TROPICAL BIOLOGY
Ecology, behaviour, and physiology of selected tropical marine and coastal organisms, emphasizing terrestrial and marine interaction. The course comprises field work and a research paper. Prerequisite: Biology 2F03 and permission of the instructor. Enrolment is limited.

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.

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BIOLOGY 4M03  MOLECULAR ASPECTS OF EUKARYOTIC CHROMOSOMES
Chromatin structure, repeated DNA sequences, concerted evolution of gene families, telomeres, centromeres, gene transfer, oncogenes, transposable elements. 3 lects.; one term. Prerequisite: Completion of Biology 3G03 and either Biochemistry 3A06 or 3G06. Same as Molecular Biology 4E03 and Biochemistry 4F03.

BIOLOGY 4M04  REPLICATION AND RECOMBINATION
Replication, recombination, repair and mutagenesis of DNA. 3 lects.; one term. Prerequisite: Completion of Biology 3G03 and either Biochemistry 3A06 or 3G06. Same as Molecular Biology 4E03 and Biochemistry 4F03.

BIOLOGY 4N03  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. 3 lects.; one term. Prerequisite: Biochemistry 3A06, 3C03 or 3G06. Same as Molecular Biology 4C03 and Biochemistry 4E03.

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. 2 lects.; 1 lab. (3); one term. Prerequisite: Registration, or credit, in Biochemistry 3A06, 3B03 or 3G06; or permission of the instructor.

BIOLOGY 4X03  ENVIRONMENTAL PHYSIOLOGY
Advanced physiology of animals with an emphasis on interactions with and adaptation to the environment. 2 lects.; 1 lab. (3); one term. Prerequisite: A grade of at least B in Biology 3U06; or 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. 2 lects.; 1 lab. (3); one term. Prerequisite: Biology 2F03 and one of Biology 2D03 or 2E03.

BIOLOGY 4Z03  SYSTEMATIC BOTANY
Processes of speculation in higher plants: cytological, mathematical, and biochemical methods in plant classification. 2 lects.; 1 lab. (3); one term. Prerequisite: Biology 2D03. Offered in alternate years.

PHARMAC 4B03  DRUGS AND BEHAVIOUR
Behavioural measures to study drug action and the use of drugs to study the organization and physiological mechanisms in normal and abnormal behaviour. 3 lects.; 2 lecture and 1 tutorial; one term. Prerequisite: Pharmacology 3A06 or Biology 3AA3.

Business
Faculty Notes:
1. The following courses are offered by the Faculty of Business as electives for students in other Faculties. Eligible students will be registered in courses on a first-come/first-served basis.

2. Business courses 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.

BIOLOGY 3X03  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. 3 lects.; one term. Prerequisite: Economics 1A06. Not open to students who have received credit for Commerce 4P03. Enrolment limit: 45.

BIOLOGY 3Z06  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. 3 lects.; two terms. Prerequisite: Economics 1A06. Not open to students who have received credit for 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. 3 lects.; one term. Prerequisite: Business 3W06 or Commerce 2A03, and Economics 1A06. Business 3W06 may be taken concurrently with 3X03. Not open to students who have received credit for 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. 3 lects.; one term. Prerequisite: Economics 1A06. Not open to students who have received credit for 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. 3 lects.; one term. Prerequisite: Economics 1A06. Not open to students who have received credit for Commerce 3BA3, or 3BB3. Enrolment limit: 45.

Canadian Studies
(See Thematic Areas of Study)

Ceramics
(See Materials Science and Engineering, Ceramics)

Chemical Engineering
Faculty as of January 15, 1991
J.F. MacGregor/Chair
Professor Emeritus

Professors
John L. Brash/B.Sc., Ph.D. (Glasgow)
Irwin A. Feuerstein/B.Chem.Eng. (City College of New York), M.S. (Newark College of Engineering), Ph.D. (Massachusetts)
Avlon E. Hamilo/B.Sc., M.A.Sc., Ph.D. (Toronto), F.R.S.C., P.Eng./NSERC Industrial Research Chair in Polymer Production Technology.
Kenneth D. Hester/B.A.Sc., B.A.Sc. (British Columbia), M.B.A. (McMaster)/part-time
Terence W. Hoffman/B.Sc., M.Sc. (Queen's), Ph.D. (McGill), F.C.I.C., P.Eng./part-time
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)
Phillip E. Wood/B.A.Sc. (Waterloo), Ph.D. (California Inst. Tech.)
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
Department Note:

The Department of Chemical Engineering reserves the right to withdraw permission to take a second term course if a prerequisite first term course is not completed.

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. 3 lects., 1 tut.; second term
Corequisite: Chemical Engineering 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. 1 lect., both terms; 1 lab both terms, a semester weeks
Prerequisite: Registration in Level II Chemical Engineering or Chemical Engineering and Management; or permission of the Department.

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.
3 lects., 1 tut.(3); first term
Prerequisite: Registration in Level II Chemical Engineering, Chemical Engineering and Management or Honours Applied Chemistry; or permission of the Department.

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.
3 lects., 1 tut.(3); second term
Prerequisite: Credit or registration in Chemical Engineering 2D04.

CHEM ENG 2G02  PROBLEM SOLVING
Developing awareness, strategies, creativity, analysis and interpersonal skills in the context of solving homework problems and projects.
2 tuts.(2); first term
Prerequisite: Credit or registration in Chemical Engineering 2D04, 2F04, 2C02.

CHEM ENG 3D03  CHEMICAL ENGINEERING THERMODYNAMICS
Review of the total energy balance and mechanical energy balance. Theoretical and practical cycles, including compression and refrigeration. Chemical reaction and phase equilibria of multicomponent systems, with emphasis on non-ideality. Thermodynamic analysis of processes.
2 lects., 1 tut.; first term
Prerequisite: Chemical Engineering 2F04.

CHEM ENG 3E03  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.
3 lects.; first term
Prerequisite: Chemical Engineering 2F04.

CHEM ENG 3G03  SIMULATION, MODELING AND PROBLEM SOLVING
Executive programs modeling heat exchangers, separators and reactors. Creativity, analysis, heuristics and defining open-ended problems.
1 lect., 2 tuts.(2); second term
Prerequisite: Chemical Engineering 2G03 or 3G03 and credit or registration in Chemical Engineering 2A04, 3E03, 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. 3 lects.; 1 tut.(2); second term
Prerequisite: Credit or registration in Chemical Engineering 3D03, 3E03; 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.
1 lect., 1 lab.(3); third term
Prerequisite: Chemical Engineering 2A04, and credit or registration in Chemical Engineering 3D03, 3M04, 3K04.

CHEM ENG 3M04  MASS TRANSFER AND STAGIWESE OPERATIONS
Stagewise operations, diffusion, mass transfer coefficients, distillation, differential contact and absorption. 3 lects., 1 tut.; first term
Prerequisite: Chemical Engineering 2F04.

CHEM ENG 3N04  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. Simulants, unsteady flow, measuring devices and fluid machinery.
3 lects., 1 tut. or lab.(3); first term
Prerequisite: Mathematics 2M06, or 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.
3 lects.; second term
Prerequisite: Mathematics 2M06, and credit or registration in Chemical Engineering 3E03; or permission of the Department.

CHEM ENG 3Q03  INTRODUCTION TO POLYMER SCIENCE
3 lects.; second term
Prerequisite: Chemistry 2004 or 3P03, or permission of the Department.

CHEM ENG 4B03  POLYMER REACTION ENGINEERING AND POLYMER PROCESSING
Kinetics of polymerization: free radical, ionic and anionic coordination polymerization; copolymerization; emulsion polymerization; emulsion polymerization; reaction design for polymerization. Polymer rheology and mechanical behaviour. Melt and reactive processing.
3 lects., first term
Prerequisite: Chemical Engineering 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.
3 lects.; second term
Prerequisite: One of Statistics 3M03, 3N03, 3Y03, and permission of the Department.

CHEM ENG 4D03  DISPERSED PHASE AND PARTICLE PROCESSING
Particle size characterization, filtration, fluidization, sedimentation, centrifugation and flotation.
3 lects.; second term
Prerequisite: Registration in Level IV Chemical Engineering or Level V Chemical Engineering and Management.

CHEM ENG 4E03  DIGITAL COMPUTER PROCESS CONTROL
Sampled data control systems. z-transforms methods, design of digital controllers; advanced digital control techniques: dead time compensation, feedforward, multivariable systems.
3 lects.; first term
Prerequisite: Chemical Engineering 3P03 and permission of the Department.

CHEM ENG 4K03  REACTOR DESIGN FOR HETEROGENOUS SYSTEMS
Catalyst kinetics, mass transfer limitations, packed and fluidized bed reactors, two phase reactors.
3 lects.; second term
Prerequisite: Chemical Engineering 3K04; or permission of the Department.

CHEM ENG 4L02  ADVANCED LABORATORY SKILLS
Experiments and projects in transport phenomena, reaction kinetics and reactor design.
1 lab., 1 lect.; first term
Prerequisite: Chemical Engineering 3L02, and registration in Level IV Chemical Engineering or Level V Chemical Engineering and Management.

CHEM ENG 4M03  SEPARATIONS
Distillation column design; transport phenomena; laminar, turbulent and unsteady state mass transfer; analogies; adsorption, extraction, absorption, ion exchange, drying, humidification, crystallization.
3 lects.; first term
Prerequisite: Chemical Engineering 2A04, 2004 or 3D04, 3M04.

CHEM ENG 4N04  ENGINEERING ECONOMICS AND PROBLEM SOLVING
3 lects., 1 tut.(2); first term
Prerequisite: Chemical Engineering 2A04 or 3A04, 3E03, 3G03, 3K04, 3M04, 3P03.
CHEM 4103 TRANSPORT PROCESSES IN BIOMEDICAL ENGINEERING
Analytical, experimental and design principles and chemical engineering skills for solving problems in biological flow systems, e.g. haemodynamics, extracorporeal oxygenator, artificial kidney and artery design. 3 lects.; second term
Prerequisite: Chemical Engineering 2004 or 3004; or permission of the Department.

CHEM 4W04 CHEMICAL PLANT DESIGN AND SIMULATION
Projects, often in cooperation 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. 2 project labs.; 3, 4.5 lects.; 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.

CHEM ENG 4Y04 UNDERGRADUATE RESEARCH PROJECT
Research projects with students working on their own under the direction of a faculty member.
2 labs.; 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, and a Cumulative Engineering Average of at least 9.5.

CHEM ENG 4203 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, floculation, coagulation, surface equations of change, particle size measurements. 3 lects.; second term
Prerequisite: Registration in Level IV Chemical Engineering or Level V Chemical Engineering and Management, and a Cumulative Engineering Average of at least 9.5.

CHEMICAL, ENVIRONMENTAL, AND OPERATIONS ENGINEERING

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. 3 lects., 1 tut.(1), 1 lab.(3) every other week; first term
Prerequisite: Environmental Engineering 1B03 or Civil Engineering 2A04 or Mechanical Engineering 2B04, 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, 1991
B.E. McCarty/Chair

Professors Emeriti
Albo Corsini/B.Sc., Ph.D. (McMaster), F.C.I.C.
Donald R. Eaton/M.A., D.Phil. (Oxford)
Ronald P. Graham/M.A. (Queen's), A.M., Ph.D. (Columbia), F.C.I.C.
David B. MacLean/Ph.D. (Acadia), Ph.D. (McGill), F.R.S.C., 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, Queen's, McMaster, York), F.R.S., F.R.S.C., F.C.I.C.
Richard H. Tomlinson/B.Sc. (Bishop's), Ph.D. (McGill), F.C.I.C.

Professors
Russell A. Bell/M.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.Sc., B.Ed. (Boulang Green State), Ph.D. (Case Institute of Technology), F.C.I.C.
Adam P. Hitchcock/B.Sc. (McMaster), Ph.D. (British Columbia)
Herbert L. Holland/M.Sc. (Warwick), Ph.D. (Queen's) part-time
David A. Humphrey/B.Sc., M.Sc. (London), Ph.D. (McMaster)
Joseph D. Laposa/B.Sc. (St. Louis), M.S. (Chicago), Ph.D. (Loyola)
Michael J. McGinty/B.Sc., Ph.D. (Manchester), F.C.I.C.
K. Santry/B.Sc., Ph.D. (London)
Gary J. Schrodt/B.Sc. (Dubuque, Iowa), M.Sc. (Brock), Ph.D. (McMaster)
Johan K. Theil/B.Sc., M.Sc., Ph.D. (Utrecht)
John Warkentin/B.Sc., M.Sc. (Manitoba), Ph.D. (Iowa State), F.C.I.C.
Nick H. Westink/B.Sc. (Alberta), M.A., Ph.D. (Johns Hopkins), F.C.I.C.

Associate Professors
Alexander D. Bair/B.Sc. (Toronto), M.Sc. (British Columbia), Ph.D. (Cambridge)
William J. Legh/B.Sc. (Toronto), Ph.D. (Western)
Brian E. McCarty/B.Sc. (British Columbia), Ph.D. (Stanford)
A. John Yanwood/B.Sc., Ph.D. (Birmingham)

Assistant Professors
Jacques Barhier/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)
Timothy A. Wildman/B.Sc., M.Sc., Ph.D. (Manitoba)

Lecturer
Michael G. Malloy/B.Sc.(McMaster)

Associate Members
I. David Brown/Physics) B.Sc., Ph.D. (London) F.C.I.C.
Richard M. Eppand/Biochemistry) AB (Johns Hopkins), Ph.D. (Columbia)
Walter F. Keas/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:
1. * Course not necessarily offered every session.
2. Students not in a Science programme should note that Chemistry I A06 is a prerequisite for Chemistry 2D03 and Chemistry 2D03 is a prerequisite for Biochemistry 2E03.

CHEM IA06 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. 3 lects., 1 tut., 1 lab.(3) every other week; two terms
Prerequisite: Grade 13 or OAC Chemistry

CHEM I C03 GENERAL CHEMISTRY
A general interest course in Chemistry discussing topics relevant to society and the environment. 3 lects.: one term
Prerequisite: A minimum of one High School Chemistry course. Not open to students in Science or Engineering. Not open to students with credit in Chemistry I A06, IB06 or IE03.

CHEM IE03 GENERAL CHEMISTRY FOR ENGINEERING
An introductory course for Engineering students, emphasizing molecular structure and equilibria. A laboratory provides experience in experimental techniques and accurate measurement. 3 lects., 1 tut.(1), 1 lab.(3) every other week; first term
Prerequisite: Grade 13 or OAC Chemistry and registration in an Engineering programme. Not open to students who are registered in or have credit in Chemistry I A06.

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CHM 2A03 ANALYTICAL CHEMISTRY I
An introduction to the basic principles of analytical chemistry, with particular emphasis on solution equilibria. Applications to classical methods of analysis. 2 lects., 2 labs.; one term
Prerequisite: Registration in a Chemistry programme. Not open to students who are registered in, or who have credit in any of Chemistry 2K03, 2M05, 2N03, 3K03.

CHM 2B06 ORGANIC CHEMISTRY
A systematic treatment of mono- and di-functional organic compounds and an introduction to spectroscopic techniques for structure determination. 2 lects., 1 lab.; two terms
Prerequisite: Registration in a Chemistry programme. Not open to students who are registered in, or who have credit in Chemistry 2B06.

CHM 2C03 STRUCTURE AND REACTIONS OF THE MAIN GROUP ELEMENTS
Comparative chemistry of the non-transition elements; introduction to symmetry. 3 lects., 1 lab.; one term
Prerequisite: Registration in a Biochemistry or Chemistry programme; permission of the instructor. Not open to students who are registered in, or have credit in, Chemistry 2F03 or 2W03.

CHM 2D03 INTRODUCTORY ORGANIC CHEMISTRY
An introduction to the chemistry of monofunctional aliphatic and aromatic compounds. 3 lects., 1 lab.; one term
Prerequisite: Chemistry 1A06 or registration in a Chemical Engineering Programme.

CHM 2E05 ANALYTICAL CHEMISTRY
An introduction to classical and modern analytical techniques with an emphasis on applications in Engineering. 1 lect, 1 lab.; first term; 2 lects., 1 lab.; second term
Prerequisite: Registration in a Programme in Chemical Engineering. Not open to students who are registered in, or have credit in, any of Chemistry 2A03, 3K03, 2N03, 3K03.

CHM 2F03 ANALYTICAL CHEMISTRY
An introduction to the basic principles of analytical chemistry; application to selected classical and instrumental methods of analysis. 2 lects., 1 lab.; one term
Prerequisite: One of Chemistry 2P06, 2Q06, 2B06, 2G06 or 2T06, any of which may be taken concurrently. Not open to students who are registered in, or have credit in, any of Chemistry 2A03, 2K03, 2M05, 3K03.

CHM 2G06 ORGANIC CHEMISTRY
An introduction to organic chemistry with emphasis on the reactions of functional groups. 3 lects., 1 lab.; one term
Prerequisite: Chemistry 1A06 with a grade of at least C-; or registration in a programme in which Chemistry 2G06 is required. Not open to students who are registered in, or have credit in, Chemistry 2B06 or 2D03.

CHM 2H06 THERMODYNAMICS
An introduction to the basic principles of thermodynamics, with applications to physical and chemical equilibria, including electrochemistry. 2 lects., 1 lab.; one term or 2 lects., 1 lab.; two terms
Prerequisite: Chemistry 1A06 and one of Mathematics 1A06, 1C06; or registration in a programme in Ceramics, Materials or Metallurgical Engineering. Not open to students who are registered in, or have credit in, any of Chemistry 2G06, 2T03, 2T06, Physics 2H03.

CHM 2I03 GENERAL PHYSICAL CHEMISTRY
A survey of thermodynamic and kinetic principles and their application to biological systems. 3 lects.; one term
Prerequisite: Chemistry 1A06 and Mathematics 1A06 or 1C06 or Arts and Science 1D06. Not open to students who are registered in, or have credit in, Chemistry 2P06, 2Q06, 2T06 or Physics 2H03.

CHM 2J03 INORGANIC CHEMISTRY
Introductory inorganic chemistry of the aluminosilicates, metals, their oxides and sulphones. 3 lects.; one term
Prerequisite: Chemistry 1A06 or registration in a Ceramic, Chemical, Materials or Metallurgical Engineering Programme. Not open to students who are registered in, or have credit in, any of Chemistry 2C03, 2T03, 3E06, 3Q03.

CHM 2K03 ANALYTICAL CHEMISTRY II
An introduction to modern instrumental methods of analysis. 3 lects., 1 lab.; one term
Prerequisite: Chemistry 2A03.

CHM 2L03 QUANTUM CHEMISTRY
An introduction to quantum mechanics and spectroscopy. 2 lects., 1 tut. or 1 lab.; one term
Prerequisite: Chemistry 2P06 and one of Mathematics 2G03, 2N03 or 2P04. Not open to students who have credit in Chemistry 3I03 or 3L03.

CHM 3C03 CHEMICAL REACTION KINETICS
Chemical reaction rates and transport properties. First half of Chemistry 3K06. 2 lects., and 1 tut.; first term
Prerequisite: Chemistry 2F06 and registration in, or completion of, Chemistry 3B03. Not open to students who are registered in, or have credit in Chemistry 3K06 or 4K06.

CHM 3D03 ORGANIC CHEMISTRY
A mechanistically-oriented discussion of mono- and polyfunctional organic compounds with emphasis on applications to synthesis. 3 lects., 1 lab.; one term
Prerequisite: Chemistry 2B06 and registration in a programme in which Chemistry 3D03 is required. Not open to students who are registered in, or have credit in, any of Chemistry 3D06 or 3P03.

CHM 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 Chemistry 3Q03 plus 3P03. 2 lects., 1 lab.; two terms
Prerequisite: Chemistry 2C03 and registration in a programme in which Chemistry 3E06 is required. Not open to students who are registered in, or have credit in, Chemistry 3Q03 or 3P03.

CHM 3F03 BIO-INORGANIC CHEMISTRY
Topics in bi-inorganic chemistry; a sequel to Chemistry 2E06. 2 lects., 1 lab.; one term
Prerequisite: Chemistry 2E06.

CHM 3G03 INDUSTRIAL CHEMISTRY
An introduction to the chemical industry. Products obtained from petroleum, natural gas and soda ash. Petrochemicals, synthetic and natural polymers. 3 lects.; one term
Prerequisite: One of Chemistry 2B06, 2D03, 2006, and one of Chemistry 2C03, 2D03 or 2T03, or registration in Level IV of a Chemical Engineering programme.

CHM 3H06 CHEMICAL KINETICS, STATISTICAL MECHANICS AND REACTION RATE THEORY
The rates of chemical reactions in gaseous, condensed and interfacial systems and the molecular processes by which reactions occur. Introduction to statistical mechanics, kinetic theory, transport properties and chemical reaction rate theory. 2 lects., 1 tut. or 1 lab.; two terms
Prerequisite: One of Chemistry 2P06, 2Q06 or 2T06, and registration in or completion of one of Chemistry 3E06, Physics 3Q03, 3M06 or 3M03 and 3M43. Not open to students who are registered in, or have credit in, Chemistry 3C03 or 4K06.

CHM 3I03 TRANSITION METAL CHEMISTRY
The chemistry of the heavier transition elements. An introduction to organometallic chemistry and bio-inorganic chemistry. The second half of Chemistry 3E06. 2 lects., 1 lab.; second term
Prerequisite: Chemistry 3C03. Not open to students who are registered in, or have credit in, Chemistry 3E06.

CHM 3J03 INORGANIC CHEMISTRY
The properties, structures and reactions of inorganic compounds with emphasis on transition metal chemistry. First half of Chemistry 3E06. 2 lects., 1 lab.; one term
Prerequisite: Chemistry 2C03, or registration in a programme in which Chemistry 3J03 is required. Not open to students who are registered in, or have credit in, Chemistry 3C03, 3Q03 or 3P03.

CHM 3K03 ADVANCED ORGANIC CHEMISTRY
A discussion of some modern advances in organic chemistry including such topics as aromaticity, molecular rearrangements, and organic photochemistry. 2 lects.; one term
Prerequisite: One of Chemistry 3D03, 3D06, 3P03.

CHM 3L03 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. 2 lects.; second term
Prerequisite: Chemistry 3B03 or 3L03 and one of Chemistry 3G03, 3L03 or 4L03.

CHM 3M03 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. 2 lects.; one term
Prerequisite: One of Chemistry 3E06, 3Q03, and registration in Level IV of a Chemistry programme.

CHM 3N03 ORGANIC STRUCTURE AND SYNTHESIS
Application of spectroscopic methods to structure determination. Synthetic methodology in organic chemistry. 2 lects.; one term
Prerequisite: One of Chemistry 3D03 or 3P03.

CHM 3O03 MECHANISTIC BIOLOGICAL CHEMISTRY
Amino acid, nucleic acid, enzyme and coenzyme chemistry with emphasis on molecular reaction mechanisms. 2 lects.; one term
Prerequisite: One of Chemistry 3D03 or 3P03.
CHEM 4C06  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. Students registered in Level IV of the Chemistry Major programme, with a CGPA of at least 8.5 will also be considered, if sufficient projects are available.

CHEM 4L03  SPECTROSCOPY
A course introducing group theory and aspects of molecular spectroscopy.
2 lects.; first term
Prerequisite: One of Chemistry 3B03, 3U03. Not open to students with credit in Chemistry 3G03 or 3J03.

CHEM 4P03  ADVANCED ANALYTICAL CHEMISTRY
A course dealing with modern topics of analytical chemistry.
2 lects.; one term
Prerequisite: One of Chemistry 3B03 or 3J03 or Physics 3M06 or 3M03 and 3M03, and registration in Level IV of an Honours or Major programme.

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.
2 lects.; one term
Prerequisite: One of Chemistry 3J06, 3Q03, and registration in Level IV of a Chemistry programme.

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.
2 lects.; one term
Prerequisite: One of Chemistry 3E06, 3Q03, and registration in Level IV of a Chemistry programme.

CHEM 4T03  INSTRUMENTATION AND RADIOMETERS
Instrumentation, interfacing and measurement system theory. Radiochemistry. The first half of Chemistry 4T06
1 lect., 1 lab (4); first term
Prerequisite: Registration in Level IV of a Chemistry programme or permission of the instructor.

CHEM 4T03  ADVANCED INSTRUMENTAL ANALYSIS
Advanced instrumental methods of analysis, with emphasis on general principles and applications of computers to chemical analysis. The second half of Chemistry 4T06
1 lect., 1 lab (4); second term
Prerequisite: Registration in Level IV of a Chemistry programme or permission of the instructor.

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.
1 lect., 1 lab (4); two terms
Prerequisite: Registration in Level IV of a Chemistry programme or permission of the instructor.

CHEM 4U06  ADVANCED EXPERIMENTATION
Fundamental principles of biochemistry and chemistry including modern instrumental methods. Three units selected from Chemistry 4U06 plus Biochemistry 4K03.
2 labs (4); two terms
Prerequisite: Registration in Level IV Honours Biochemistry and Chemistry. Not open to students who are registered in or have credit in any of Biochemistry 4L03, 4R03, Chemistry 4T04, 4T06. Same as Biochemistry 4K06.

CHEM 4V03  STATISTICAL THERMODYNAMICS
Principles of statistical thermodynamics and their applications in chemistry.
2 lect., one term
Prerequisite: Chemistry 3K06 or 4K06, which may be taken concurrently. Not open to students with credit in Chemistry 3Y03, or Physics 3K04.

For Graduate Courses see Calendar of 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).

CHINESE

CHEMISTRY 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. 550 Chinese characters will be taught.
5 hrs. (including lab. practice); two terms
Prerequisite: Open, except to dialect speakers. Not available to students with credit in, or registered in, Chinese 1Z26.

CHINESE 1Z26  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.
5 hrs. (including lab. practice); two terms
Prerequisite: Open. Not available to students with credit in, or registered in, Chinese 1Z26.

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 in Chinese through speaking, listening, reading and writing practice. Emphasis is on a more refined knowledge of Chinese grammar and expansion of vocabulary.
4 hrs.; two terms
Prerequisite: Chinese 1Z26 or 1Z26, or permission of the instructor.

CHINESE 3Z03  ADVANCED CHINESE
This course continues the study of written and spoken Standard Chinese as begun in Chinese 1Z26 and 2Z26. Particular attention will be focused on the further development of the following language skills: conversational practice based on situational drills; study of advanced grammar structures; development of reading ability based on selected literary materials; writing short essays.
3 hrs.; one term
Prerequisite: Chinese 2Z26, or permission of the instructor.

Civil Engineering and Engineering Mechanics

Faculty as of January 15, 1991
A. Gobaharah/Chair

Professors
Robert G. Drysdale/B.Sc. (C.E.) (Manitoba), M.A.Sc., Ph.D. (Toronto), P.Eng.
Ahmed Gobaharah/B.Sc. (Cairo), M.Eng., Ph.D. (McMaster), P.Eng.
Frederick L. Hal/B.A. (Amherst), M.Sc. (M.I.T.), Ph.D. (Chicago)
Farouque A. Mirza/B.Sc. (Karachi), B.Eng. (McGill), M.Eng., Ph.D. (British Columbia)
Gilles G. Patri/B.A.Sc., M.A.Sc. (Ottawa), Ph.D. (California, Davis), P.Eng.

Associate Professors
Peter L. Dold/B.Sc. Eng., Ph.D. (Capetown)
Stan Pietruszczak/B.Sc., M.Sc. (Warsaw), Ph.D. (Polish Acad., Sci.)

Assistant Professors
Brian Baetz/B.A.Sc., M.A.Sc. (Toronto), Ph.D. (Duke), P.Eng.
Syed Mohon/B.Sc. (Osmania), M.S. (Nevada), Ph.D. (McMaster)/part-time
Blagrav P. P. (Isawa), M.Eng., Ph.D. (Toronto)/part-time
CIV ENG 2A02 SURVEYING AND MEASUREMENT
Introduction to measurement and computational techniques of surveying, the theory of measurement and error, adjustment of observations.
1 lect., 1 lab.(3) or 1 tut.(2); second term
Prerequisite: Registration in a programme in Civil Engineering.

CIV ENG 2C04 STRUCTURAL MECHANICS
Unsymmetrical bending, combined axial and flexural loading, shear stresses in thin-walled members, shear centre, plastic deformation, residual stress. Transfer- ments of stress and strain; failure criteria; deflections of statically indeterminate beams; energy method; Castigliano's theorem, column stability; introduction to plate bending.
3 lects., 1 lab.(3); second term
Prerequisite: Engineering 2P04.

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, eigen- values and differential equations.
2 lects., 1 tut.(2); first term
Prerequisite: Engineering ID04, and Physics ID03, and credit or registration in Engineering 2P04, and registration in a Civil Engineering programme. Not open to students with credit in Civil Engineering 2002.

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.
2 lects., 1 lab.(3) or 1 tut.(2); every other week; second term
Prerequisite: Registration in or completion of Engineering 2C04. Not open to students with credit in Civil Engineering 3A03.

CIV ENG 2F03 COMMUNICATIONS IN CIVIL ENGINEERING
Oval and written communication in context of civil engineering activity. A professional liaison programme involving site visits.
2 lects., 1 lab. or 1 tut.; first term
Prerequisite: Registration in or completion of Engineering 2P04 and registration in a Civil Engineering programme. Not open to students with credit in Civil Engineering 2Z02.

CIV ENG 2G03 ECOLOGICAL ASPECTS OF ENVIRONMENTAL ENGINEERING
2 lects., 1 tut.(2); second term
Prerequisite: Completion of Level I Engineering and registration in Civil Engineering, or completion of Level I Science and permission of the Department. Limited Enrolment.

CIV ENG 2G03 FLUID MECHANICS
Fluid properties: hydrostatics; continuity, momentum and energy equations and principles; potential flow; laminar and turbulent flow; flow in closed conduits; open channel flow.
2 lects., 1 tut.(1), 1 lab.(2); every other week; second term
Prerequisite: Registration in, or completion of, Engineering 2P04 and Mathematics 2M04.

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.
2 lects., 1 lab.(3) or 1 tut.(2); every other week; first term
Prerequisite: Civil Engineering 2F03.

CIV ENG 3D03 GEOLOGY FOR ENGINEERING
Composition of earth; classification of rocks and minerals; weathering; geomorphology; subsurface exploration; groundwater; earth movements; case studies. 2 lects. each week, 1 lab.(3) or tut.(2), every other week; second term
Prerequisite: Civil Engineering 2D03 and 3B03. Not open to students with credit in Civil Engineering 2D03.

CIV ENG 3G03 STRUCTURAL ANALYSIS
Energy methods, moment area, virtual work; analysis of determinate structures; moment distribution, influence lines.
2 lects., 1 lab.(3); first term
Prerequisite: Civil Engineering 2G03. Not open to students with credit in Civil Engineering 3G03.

CIV ENG 3J04 REINFORCED CONCRETE DESIGN
Introduction to concrete technology; design: limit state methods to ensure adequate capacities for bending moment, shear and diagonal tension, axial force, bond and anchorage; and design to satisfy serviceability requirements for deflec- tion and cracking; practical design requirements; interpretation of building codes for behaviour of structures.
3 lects., 1 lab.(3); second term
Prerequisite: Credit or registration in Civil Engineering 3G04 or 3G03.

CIV ENG 3K03 INTRODUCTION TO TRANSPORTATION ENGINEERING
Traffic flow characteristics, capacity and control for interrupted and uninterrupted flow roadways, travel demand forecasting.
2 lects., 1 tut.(2); second term
Prerequisite: Engineering 1D03 or ID04.

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.
3 lects., 1 lab.(3); second term
Prerequisite: Civil Engineering 2G03 and Mathematics 2M06, and registration in, or completion of, Mathematics 3G04.

CIV ENG 3Q03 WATER QUALITY MODELLING
2 lects., 1 lab.(3); first term
Prerequisite: Civil Engineering 2J03, 2003 and Mathematics 2M06.

CIV ENG 4A04 ENGINEERING HYDROLOGY
Hydrologic cycle; precipitation; hydrologic abstractions; streamflow analysis; unit hydrograph; frequency analysis; hydrologic routing; rainfall-runoff modelling; urban runoff models; design storms; snow and ice hydrology.
3 lects., 1 lab.(3); first term
Prerequisite: Civil Engineering 2J03 and 3M04.

CIV ENG 4B03 ENGINEERING SYSTEMS
Mathematical models and systems; economic comparison of projects; optimization; linear, non-linear and dynamic programming; simulation and computer-aided design.
2 lects., 1 lab.(3) or 1 tut.(2); third term
Prerequisite: Completion of, or registration in, Civil Engineering 3B03, one of 3G04, 3J04, 3M03, 3Q03 or 3Q04. Not open to students with credit in Civil Engineering 3C04.

First time offered in 1991-92.

CIV ENG 4C03 ENVIRONMENTAL PROTECTION
Environmental assessment; energy and elemental cycles; population control; global environmental concerns; solid waste management; hazardous material management; air quality and control; environmental legislation; environmental economics.
2 lects., 1 tut.(2); second term
Prerequisite: Permission of the Department.

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.
3 lects., 1 lab.(2); first term
Prerequisite: Civil Engineering 2J03 and 3G03.

CIV ENG 4G03 PAVEMENT MATERIALS DESIGN
Components of highway pavements; ground water and drainage for highway facilities; soil compaction and stabilization; culvert design; aggregates; bituminous and concrete materials, flexible pavement design; concrete pavement design; interlocking pavement structures.
3 lects., 1 lab.(3); second term
Prerequisite: Civil Engineering 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.
3 lects., first term
Prerequisite: Civil Engineering 3K03.

Same as Geography 4H03.

CIV ENG 4K04 MODERN METHODS OF STRUCTURAL ANALYSIS
Stiffness analysis, development and application of structural analysis. Finite ele- ment method. Influence lines, elastic stability analysis of frames and sway effects. Application of computer programs.
3 lects., 1 tut.(2); first term
Prerequisite: Civil Engineering 3G03 or 3G04 and Mathematics 3J04.
CLASSICS

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.
2 lect., 1 tut., 1 lab (3); second term
Prerequisite: Civil Engineering 2L03 and 3M04; or permission of the Department.

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.
3 lect., 1 lab (3); first term
Prerequisite: Civil Engineering 2103, 3G03 or 3G04, 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.
3 lect., 1 tut (2); first term
Prerequisite: Civil Engineering 3G03 or 3G04, 3J04, 3S03.

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.
3 lect., 1 tut (2); second term
Prerequisite: Civil Engineering 3G03 or 3G04, 3J04, 3S03.

CIV ENG 4Y04 BRIDGES AND OTHER HEAVY CIVIL STRUCTURES
Introduction to bridge engineering; design of post-tensioned prestressed concrete structures; calculation of ultimate strength and serviceability. Plate girders, composite construction. Applications to heavy civil structures.
3 lect., 1 lab (3) or 1 tut (2); second term
Prerequisite: Civil Engineering 3G03 or 3G04, 3J04, 3S03.

For Graduate courses, see Calendar of the School of Graduate Studies.

Classics

Faculty as of January 15, 1991
Peter Kingston/Chair

Professors Emeriti
Thomas F. Hoey/B.A. (Montreal), M.A. (Toronto), Ph.D. (Harvard), S.T.L., Ph.L (Immaculate Conception Seminary, Montreal)
Murgatroyd/M.A. (Queen's), Ph.D. (Chicago)

Professors
Katherine M. D. Dunbabin/B.A., D. Phil. (Oxford)
Howard Jones/B.A. (London), M.A., Ph.D. (Indiana)
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
Aileen Ajoosten/B.A. (New York, Ossego), M.A. (Oregon), Ph.D. (Bryn Mawr)
Johnson B. Clad/B.A. (North Carolina), M.A. (Columbia), Ph.D. (North Carolina)
Evan Hailey/A.B. (Dartmouth), Ph.D. (Columbia)

Lecturer
Karen Bos/A.B. (Bryn Mawr), A.M., Ph.D. (Michigan)/part-time

Associate Members
Daniel J. Geagav I (History) B.A. (Boston College), Ph.D. (Johns Hopkins)
Byron D. Mangum/Art and Art History B.A. (Swarthmore), M.F.A. (Princeton)

Department Note:
The following courses are available as electives to qualified students in any programme:

a. Classical Archaeology and Art History
Classical Civilization 2A03, 2B03, 2C03, 2E03, 3G03, 3H03, 3R03, 3S03
b. Ancient History and Society
Classical Civilization 2G06, 2J03, 2K03, 2L03, 3L3, 3M3, 3N3, 3P3, 3W3
c. Classical Literature in Translation
Classical Civilization 2D03, 2H03, 2I03, 3C03, 3N3
d. Greek Studies
Greek 1Z06, 2A03, 2F03, 2G03, 2R03, 3AA3, 3BB3, 3R03, 4AA3, 4R03
e. Latin Studies
Latin 1Z06, 2A03, 2F03, 2G03, 2R03, 3AA3, 3BB3, 3R03, 4AA3, 4R03

CLASSICAL CIVILIZATION
No language other than English is required for courses listed under Classical Civilization.

CLAS CIV 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.
2 lect., 1 tut.; two terms
Prerequisite: Open. Not available to students with credit in Classical Civilization 1A06.

CLAS CIV 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.
3 lect.; two terms
Prerequisite: Open
Same as History 1L06

CLAS CIV 2A03 INTRODUCTION TO CLASSICAL ARCHAEOLOGY
A study of the history and methodology of Greek and Roman archaeology illustrated with materials from excavated sites.
3 lect.; one term
Prerequisite: Open to students in Level II and above.

CLAS CIV 2B03 GREEK ART
The architecture, sculpture and painting of the Greek and Hellenistic world.
3 lect.; one term
Prerequisite: Open to students in Level II and above.
Same as Art History 2B03.

CLAS CIV 2C03 ROMAN ART
The architecture, sculpture, and painting of the Roman World.
3 lect.; one term
Prerequisite: Open to students in Level II and above.
Same as Art History 2C03.

CLAS CIV 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.
3 lect.; one term
Prerequisite: Open to students in Level II and above.
Same as Comparative Literature 2D03.

CLAS CIV 2F03 GREEK AND ROMAN SCIENCE AND TECHNOLOGY
A study of the achievements and the theoretical and social implications of science and technology in the Greek and Roman world. The topics surveyed include agriculture, architecture, engineering, medicine, metallurgy, power, surveying and transport.
3 lect.; one term
Prerequisite: Open to students in Level II and above.
Offered in alternate years.

CLAS CIV 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.
3 hrs. (lects. and discussion groups); two terms
Prerequisite: Open to students in Level II and above.
Same as History 2G06.

CLAS CIV 2H03 THE THEATRE OF GREECE AND ROME
The history of theatres and theatrical production in Greece and Rome.
3 lect.; one term
Prerequisite: Open to students in Level II and above. Not available to students with credit in Clas. Civ. 2E03.
Same as Comparative Literature 2H03 and Drama 2H03.
CLAS CIV 2H3S  GREEK AND ROMAN DRAMA
Readings of selected Greek and Roman tragedies and comedies.
3 lects.; one term
Prerequisite: Open to students in Level II and above. Clas. Civ. 2H3S is recommended. Not available to students with credit in Clas. Civ. 2E03.
Same as Comparative Literature 2H3S and Drama 2H3S.

CLAS CIV 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.
3 lects.; one term
Prerequisite: Open to students in Level II and above. Alternates with Classical Civilization 2U03.

CLAS CIV 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.
3 lects.; one term
Prerequisite: Open to students in Level II and above. Alternates with Classical Civilization 2V03.

CLAS CIV 3G03  GREEK AND ROMAN EPIC
A survey of epic poetry, including the epics, Homer and Greek epic, Vergil and Roman epic.
3 lects.; one term
Prerequisite: Classical Civilization 1A06 or 1B06 or 2D03 or permission of the Department.
Offered in alternate years.

CLAS CIV 3G03  LATE ANCIENT AND EARLY CHRISTIAN ART
The art and architecture of the later Roman Empire, and the birth of Christian art (A.D. 280-500).
3 lects.; one term
Prerequisite: Classical Civilization 2C03 or Art History 2G03 or permission of the Department.
Alternates with Classical Civilization 3H03.
Same as Art History 3G03.

CLAS CIV 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 relation to the art of the Near East.
3 lects.; one term
Prerequisite: Classical Civilization 2B03; or permission of the Department.
Alternates with Classical Civilization 3G03.

CLAS CIV 3I03  TOPICS IN GREEK AND ROMAN LITERATURE
Previous topics include: The Poet and Society, Greek and Roman Epic and Lyric Poetry, The Legend of the Trojan War. Consult the Department concerning the topic to be offered.
3 lects.; one term
Prerequisite: Six units of Classical Civilization, or permission of the Department.
Same as Comparative Literature 3I03.
Classical Civilization 3I03 may be repeated, if on a different topic, a total of 6 units.

CLAS CIV 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.
3 hrs. (lects. and discussion groups); one term
Prerequisite: Open to students in Level II and above. Offered in alternate years.
Same as History 3L13.

CLAS CIV 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, defense and economy; the Romanization of the provinces. Archaeological evidence and new approaches to problems will be considered.
3 hrs. (lects. and discussion groups); one term
Prerequisite: Six units of Classical Civilization, or permission of the Department.
Offered in alternate years.
Same as History 3M33.

CLAS CIV 3RR3  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.
3 lects.; one term
Prerequisite: One of Classical Civilization 2A03, 2B03, 2F03, 3S03; or permission of the Department.
Alternates with Classical Civilization 3R03.

CLAS CIV 3SG03  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.
3 lects.; one term
Prerequisite: One of Classical Civilization 2A03, 2C03, 2F03, 3S03, or permission of the Department.
Alternates with Classical Civilization 3SG03.

CLAS CIV 3U03  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 Classical Civilization 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.
3 lects.; one term
Prerequisite: Six units of Classical Civilization courses including 2U03; or Classical Civilization 1L06 or 2G06.
Alternates with Classical Civilization 3U03.
Same as History 3U03.

CLAS CIV 3V03  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 Classical Civilization 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.
3 lects.; one term
Prerequisite: Six units of Classical Civilization courses including 2V03; or Classical Civilization 1L06 or 2G06.
Alternates with Classical Civilization 3V03.
Same as History 3V03.

CLAS CIV 3WW3  TOPICS IN GREEK AND ROMAN SOCIETY
Previous topics include: Women in Society, Slavery in Greek and Roman Antiquity. Consult the Department concerning the topic to be offered.
3 lects.; one term
Prerequisite: Classical Civilization 2G06, or six units of Classical Civilization courses including 2U03 or 2V03.
Offered in alternate years.
Same as History 3WW3.
Classical Civilization 3WW3 may be repeated, if on a different topic, a total of six units.

CLAS CIV 3X03  TOPICS IN ANCIENT ART AND ARCHAEOLOGY
Previous topics include: Hellenistic and Roman Painting. Consult the Department concerning the topic to be offered.
3 lects.; one term
Prerequisite: Six units from Classical Civilization 2G06, 2U03, 3L13, 3U03, and registration in Level III or IV of any Honours programme in Classical Studies, Classics or Art History; or permission of the Department of Classics.
Offered in alternate years.
Same as Art History 3X03.
Classical Civilization 3X03 may be repeated, if on a different topic, a total of six units.

CLAS CIV 4D06  SPECIAL TOPICS IN GREEK HISTORY
Investigations into Greek social history and its interpretation.
Seminar (2 hrs.); two terms
Prerequisite: Six units from Classical Civilization 2G06, 2U03, 3L13, 3U03, and registration in Level III or IV of any Honours programme in Classical Studies, Classics, or History; or permission of the Department of History.
Same as History 4D06.
Enrolment is limited.

CLAS CIV 4I06  SPECIAL TOPICS IN ROMAN HISTORY
The central theme will be development and change throughout the Roman Empire in the 3rd and 4th Centuries A.D.
Seminar (2 hrs.); two terms
Prerequisite: Six units from Classical Civilization 2G06, 2U03, 3M33, 3V03, and registration in Level III or IV of any Honours programme in Classical Studies, Classics, or History; or permission of the History Department.
Same as History 4I06.
Enrolment is limited.

CLAS CIV 4LL6  THEMES IN ANCIENT HISTORY
An examination of at least two selected themes in Ancient History, particularly the history of the Greek Roman world, with emphasis on the use of source materials, primary and secondary, literary and non-literary.
Seminar (2 hrs.); two terms
Prerequisite: Six units from Classical Civilization 2G06, 3L13, 3M33, 3U03, 3V03 and registration in Level IV of any Honours programme in Classical Studies, Classics, or History with a Cumulative Average of at least 9.0; or permission of the History Department.
Same as History 4LL6.
Enrolment is limited.
CLASSICS

CLAS CIV 4X03  SUPervised Study in Greek and Latin Language and Literature

Advanced study of themes in Greek and Latin Language and Literature supervised by a Department member. At least three short papers and a written examination are required.

Prerequisite: Registration in Level IV of any Honours program in Classical Studies or Classics, and a grade of at least B— in at least one Level III or IV Latin course, and permission of the Department. Students may take only one of 4X03, 4X06, 4Y03, 4Y06, 4Z03, 4Z26.

CLAS CIV 4X16  Thesis in Greek and Latin Language and Literature

Reading and research in the area of Greek and Latin Language and Literature supervised by a Department member. A major paper is required as well as a formal oral examination.

Prerequisite: Registration in Level III or IV of any Honours program in Classical Studies or Classics, and a grade of at least A— in at least one Level III or IV Latin course, and permission of the Department. Students may take only one of 4X03, 4X16, 4Y03, 4Y16, 4Z03, 4Z26.

CLAS CIV 4Y03  Supervised Study in Classical Archaeology and Art History

Advanced study of themes in Classical Archaeology and Art History supervised by a Department member. At least three short papers and a written examination are required.

Prerequisite: Registration in Level IV of any Honours program in Classical Studies or Classics, and a grade of at least A— in at least one of Classical Civilization 3G03, 3H03, 3R03, 3S03, 3U03, and permission of the Department. Students may take only one of 4X03, 4X16, 4Y03, 4Y16, 4Z03, 4Z26.

CLAS CIV 4Y16  Thesis in Classical Archaeology and Art History

Reading and research in the area of Classical Archaeology and Art History supervised by a Department member. A major paper is required as well as a formal oral examination.

Prerequisite: Registration in Level IV of any Honours program in Classical Studies and Classics, and a grade of at least A— in at least one of Classical Civilization 3G03, 3H03, 3R03, 3S03, 3U03 and permission of the Department. Students may take only one of 4X03, 4X16, 4Y03, 4Y16, 4Z03, 4Z26.

CLAS CIV 4Z03  Supervised Study in Ancient History and Society

Advanced study of themes in Ancient History and Society supervised by a Department member. At least three short papers and a written examination are required.

Prerequisite: Registration in Level IV of any Honours program in Classical Studies and Classics, and a grade of at least A— in at least one of Classical Civilization 3L03, 3M03, 3U03, 3V03, 3W03 and permission of the Department. Students may take only one of 4X03, 4X16, 4Y03, 4Y16, 4Z03, 4Z26.

CLAS CIV 4Z26  Thesis in Ancient History and Society

Reading and research in the area of Ancient History and Society supervised by a Department member. A major paper is required as well as a formal oral examination.

Prerequisite: Registration in Level IV of any Honours program in Classical Studies and Classics, and a grade of at least A— in at least one of Classical Civilization 3L03, 3M03, 3U03, 3V03, 3W03 and permission of the Department. Students may take only one of 4X03, 4X16, 4Y03, 4Y16, 4Z03, 4Z26.

RELATED CLASSICAL CIVILIZATION COURSES OFFERED BY OTHER DEPARTMENTS

Philosophy 2A06  Ancient Greek Philosophy
Philosophy 3E03  Plato
Philosophy 3J03  Aristotle

Religious Studies 2E06  Introduction to the Study of the New Testament
Religious Studies 2F03  The Spread of Christianity
Religious Studies 2H03  Christianity in the Patriotic Period (100-800)
Religious Studies 3K03  Introduction to Hellenistic Judaism
Religious Studies 3P03  The Fourth Gospel
Religious Studies 3R03  The Letters of Paul

GREEK

Beginner's Language Course

(Students with Grade 13 or OAC Greek should normally register in Greek 2A03, but, with special permission, may register in Greek 1206.)

GREEK 1206  Beginner's Intensive Greek

A rapid introduction to the grammar of Classical Greek. Passages of simple Greek are read in the second term.

5 hrs. (lects. and tuts.); two terms

Prerequisite: Open except to graduates of Grade 13 or OAC 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 Classical Studies or Classics, or, with a grade of at least C—, for admission to the B.A. programme in Classical Studies.

Intermediate and Advanced Language and Literature Courses

GREEK 2A03  Introduction to Reading Greek Authors

A study of selected passages from Greek authors designed to develop a student's proficiency in reading Greek.

3 lects.; one term

Prerequisite: Grade 13 or OAC Greek or Greek 1206; or permission of the Department. Not available to students with credit in Greek 2Q03. Students using this course as a Humanities I requirement will also register for an additional 3 units of Level II Greek to be taken in Term II.

GREEK 2F03  Euripides

Selected readings from the tragedies.

3 lects.; one term

Prerequisite: Greek 2A03 or 2Q03; or permission of the Department.

Alternates with Greek 2G03.

GREEK 2G03  Plato

Selected readings from the dialogues.

3 lects.; one term

Prerequisite: Greek 2A03 or 2Q03; or permission of the Department.

Alternates with Greek 2F03.

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.

2 lects.; two terms

Prerequisite: Greek 1206 with a grade of at least B— or Greek 2A03 or 2Q03; or permission of the Department.

GREEK 3A03  Homer

Selected readings from the Iliad or the Odyssey.

3 lects.; one term

Prerequisite: Six units of Level II Greek including Greek 2A03 or 2Q03; or permission of the Department. Not available to students with credit in Greek 4G03 (1998-99).

Alternates with Greek 4A03.

GREEK 3B03  Topics in Greek Literature

Previous topics include: Homer, Sophocles, Greek Tragedians. Consult the Department concerning topic to be offered.

3 lects.; one term

Prerequisite: Six units of Level II Greek including Greek 2A03 or 2Q03; or permission of the Department.

Greek 3B03 may be repeated, if on a different topic, up to a total of six units.

GREEK 3R03  Advanced Greek Language Study I

A study of Greek grammar and style, and practice in Greek composition.

1 lect., 1 tut.; two terms

Prerequisite: Nine units of Level II Greek including Greek 2R03; or permission of the Department.

Alternates with Greek 4R03.

GREEK 4A03  Greek Historians

Selected readings from the Histories of Herodotus or the Peloponnesian War of Thucydides.

3 lects.; one term

Prerequisite: Six units of Level II Greek including Greek 2A03 or 2Q03; or permission of the Department.

Alternates with Greek 3A03.

GREEK 4D03  Guided Reading in Greek Authors

Reading of selections from Greek authors supervised by a member of the Department.

Tuts.; one term

Prerequisite: Six units of Level II Greek including Greek 2A03 or 2Q03 and registration in Level III or IV of any Honours program in Classical Studies or Classics, and permission of the Department.

Greek 4D03 may be repeated, if on a different topic, up to a total of six units.

GREEK 4R03  Advanced Greek Language Study II

A study of Greek grammar and style, and practice in Greek composition.

1 lect.; 1 tut.; two terms

Prerequisite: Nine units of Level II Greek including Greek 2R03; or permission of the Department.

Alternates with Greek 3R03.

LATIN

Beginner's Language Course

(Students with Grade 13 or OAC Latin should normally register in Latin 2A03, but, with special permission, may register in Latin 1206.)

LATIN 1206  Beginner's Intensive Latin

An introduction to the grammar of Classical Latin. Practice in reading simple Latin passages followed by the study of selections from the speeches of Cicero.

5 hrs. (lects. and tuts.); two terms

Prerequisite: Open except to graduates of Grade 13 or 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 Classical Studies or Classics, or, with a grade of at least C—, for admission to the B.A. programme in Classical Studies.
Intermediate and Advanced Language and Literature Courses

LATIN 2A03  INTRODUCTION TO READING LATIN AUTHORS
A study of selected passages from Latin authors designed to develop a student's proficiency in reading Latin.
3 lects.; one term
Prerequisite: Grade 13 or OAC Latin or Latin 1Z06; or permission of the Department. Not available to students with credit in Latin 2Q03. Students using this course as a Humanities I requirement will also register for an additional 3 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.
3 lects.; one term
Prerequisite: Latin 2A03 or 2Q03; or permission of the Department.
Alternates with Latin 2R03.

LATIN 2G03  VERGIL
Selected readings from the Aeneid.
3 lects.; two terms
Prerequisite: Latin 2A03 or 2Q03; or permission of the Department.
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.
3 lects.; one term
Prerequisite: Latin 1Z06 with a grade of at least B-, or Latin 2A03 or 2Q03; or permission of the Department.

LATIN 3AA3  CICERO
Selected readings from the speeches.
3 lects.; one term
Prerequisite: Six units of Level II Latin including Latin 2A03 or 2Q03; or permission of the Department. Not available to students with credit in Latin 3Q03.
Alternates with Latin 3A03.

LATIN 3BB3  TOPICS IN LATIN LITERATURE
Previous topics include: Roman Elegy, Roman Verse Satire, Poetry of the Neronian Age. Consult the Department concerning topics to be offered.
3 lects.; one term
Prerequisite: Six units of Level II Latin including Latin 2A03 or 2Q03; or permission of the Department.
Latin 3BB3 may be repeated, if on a different topic, a total of six units.

LATIN 3R03  ADVANCED LATIN LANGUAGE STUDY I
A study of Latin grammar and style, and practice in Latin composition.
1 lect., 1 tut.; two terms
Prerequisite: Nine units of Level II Latin including Latin 2R03; or permission of the Department.
Alternates with Latin 4R03.

LATIN 4A03  ROMAN HISTORIANS
Selected readings from the Ab Urbe Condita of Livy or the Annales of Tacitus.
3 lects.; one term
Prerequisite: Six units of Level II Latin including Latin 2A03 or 2Q03; or permission of the Department.
Alternates with Latin 3A03.

LATIN 4K03  GUIDED READING IN CLASSICAL LATIN AUTHORS
Reading of selections from Classical Latin authors supervised by a member of the Department.
Tuts.; one term
Prerequisite: Six units of Level II Latin including Latin 2A03 or 2Q03 and registration in Level III or IV of any Honours programme in Classical Studies or Classics and permission of the Department.
Latin 4K03 may be repeated, if on a different topic, a total of six units.

LATIN 4KX3  GUIDED READING IN MEDIEVAL LATIN AUTHORS
Reading of selections from Medieval Latin authors supervised by a member of the Department.
Tuts.; one term
Prerequisite: Six units of Level II Latin including Latin 2A03 or 2Q03 and registration in Level III or IV of any Honours programme in Classical Studies or Classics and permission of the Department.
Latin 4KX3 may be repeated, if on a different topic, a total of six units.

LATIN 4R03  ADVANCED LATIN LANGUAGE STUDY II
A study of Latin grammar and style, and practice in Latin composition.
1 lect., 1 tut.; two terms
Prerequisite: Nine units of Level II Latin including Latin 2R03; or permission of the Department.
Alternates with Latin 3R03.

For Graduate Courses see Calendar of School of Graduate Studies.

Commerce

Faculty as of January 15, 1991

Robert G. Cooper/Chair, Marketing Area
Ilzhak Kirsch/Chair, Finance and Business Economics Area
Bernadette F. Lyons/Chair, Accounting Area

Joseph B. Rose/Chair, Human Resources and Labour Relations Area
George Steiner/Chair, Management Science and Information Systems Area

Professors Emeriti

Robert C. Joyner/B.A., M.A., Ph.D. (Toronto)/Organizational Behaviour
William J. Schlatter/A.B., A.M., Ph.D. (Illinois), C.P.A/Accounting
Andrew Z. Szedrovitz/M.A., Ph.D. (Kolozsvár)/Production and Management Science/Professor (Part-time) of Production and Management Science
George W. Torrance/B.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
Nareen C. Agarwal/B.A., M.A. (Delhi), Ph.D. (Minnesota)/Human Resources/Associate Dean (Academic)
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 of the Marketing Area/Lawson Marden Chair in Industrial Marketing and Technology Management
Haim Falk/B.Sc. (Hebrew), M.B.A. (Tel-Aviv), Ph.D. (Hebrew), C.P.A./Accounting/Professorial Chair in Accounting
Harald G. Jain/B.Com. (Delhi), M.B.A. (Indiana), Ph.D. (Wisconsin)/Human Resources and Labour Relations

Clarence C.Y. Kwok/B.Sc. (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

Winston H. Mahatao/B.A. (London), B.Sc., M.Sc. (McGill), Ph.D. (Montréal)/Marketing

Mahnut Parlar/B.Sc., M.Sc. (Middle East Technical University), Ph.D. (Waterloo)/Management Science/Co-ordinator, Ph.D. Program (Management Science/Systems)

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


William G. Truscott/B.S.E. (Princeton), M.B.A. (McMaster), D.B.A. (Indiana), P.Eng./Production and Management Science/Dean of the Faculty

George O. Wesolowski/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

Christopher K. Bart/B.A., M.B.A. (York), Ph.D. (Western Ontario), C.A./Business Policy

Min S. Basadu/B.A.Sc. (Toronto), M.B.A. (Xavier), Ph.D. (Cincinnati), P.Eng./Organizational Behaviour (Half-time)

Trevor W. Chambers/B.Sc. (California, Berkeley), M.B.A. (McGill), Ph.D. (Toronto), C.A./Finance

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

James C. Gas/B.A. (Michigan State), A.M., Ph.D. (Washington, St. Louis), Ph.D. (Illinois)/Accounting

Elko J. Kleinenschmidt/Dip. Ing. (Staatliche Ingenieurschule, Hannover), M.B.A., Ph.D. (McGill)/Marketing and International Business

Ilzhak Krinsky/B.A., M.A. (Tel Aviv), Ph.D. (McMaster)/Finance and Business Economics/Chair of the Finance and Business Economics Area

John W. Medcof/B.A. (New Brunswick), M.A. (Toronto), M.B.A. (York), Ph.D. (Toronto)/Organizational Behaviour
COMMERCE

John G. Millenburger/B.Eng., M.B.A. (McMaster), M.Eng. (Toronto), Ph.D. (Waterloo), P.Eng./Production and Management Science
Ali R. Montazeri/Ph.D. (Teesside Polytechnic, U.K.), M.Sc. (Southampton), Ph.D. (Waterloo)/Information Systems
Dean C. Mountain/B.A. (McMaster), M.A., Ph.D. (Western Ontario)/Finance and Business Economics
Thomas E. Muller/M.B.A. (Simon Fraser), Ph.D. (British Columbia)/Marketing
George Steinert/M.Sc. (Budapest), Ph.D. (Waterloo)/Production and Management Science (Chair of the Management Science and Information Systems Area)
Yulie Yuan/B.Sc. (Fudan), Ph.D. (Michigan)/Information Systems

Assistant Professors

Y.C. Lillian Chan/B.B.A./Chinese University of Hong Kong, Ph.D. (Virginia Polytechnic Institute and State University)/Accounting
Richard W. Deaves/B.A., M.A. (Toronto)/Finance


Diwakar Gupta/B.Tech. (Indian Institute of Technology), M.A.Sc. (Waterloo), Ph.D. (Waterloo)/Production and Management Science
Rick D. Hackett/B.Sc., M.A. (Toronto), M.A. (Waterloo), Ph.D. (Bowling Green State)/Human Resources

Jason Lee/B.Sc. (Calgary)/Finance

Bemadette E. Lynn/B.A. (Carlow College), M.A. (Pittsburgh), Ph.D., M.B.A. (McMaster), C.M.A./Accounting/Acting Chair of the Accounting Area

S.M. Khaleel Naiman, B.A., M.A. (Delhi), Ph.D. (Florida)/Accounting
Mohammad M. Shehata/B.Com. (Tanta), M.S. ( Ain-Shams), M.B.A. (North Texas State), Ph.D. (Florida)/Accounting

Mannsoon Shin/B.B.A. (Korea), M.B.A. (Florida at Manoa)/International Business

Willi Wiesner, B.A. (Wilfrid Laurier), M.A.Sc., Ph.D. (Waterloo)/Human Resources.

F. Isik Zeytinoglu/B.A., M.A., (Bogazici), M.S., Ph.D. (Pennsylvania)/Industrial Relations

Lecturers

Mottis M. Casey/B.Sc., M.B.A. (McMaster)/Finance
Christopher C. Costianes/B.Com., M.B.A. (McMaster), C.A./Accounting (Half-time)

Elizabeth A. Cordas/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)/Management Science/Assistant to the Dean (Administrative)

Nicholas A. Maistrouris/B.Sc. (Western Ontario), M.B.A (McMaster), C.A./Taxation (Half-time)

Rote J. McKeown, B.Sc. (Sir George Williams), M.B.A. (Queen's)/Marketing and International Business

Barbara M.C. Pitts/B.A. (McMaster), B.Ed., (Brock), M.B.A. (McMaster)/Organizational Behaviour and Human Resource Management

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

Paul M. Stillman/B.Sc. (McMaster), LL.B. (Osgoode Hall)/Business Law (Half-time)

Linda White/B.Com., M.B.A. (McMaster)/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 3 lects.; one term, while Level IV Commerce courses are 2 lects.; one term. Courses offered in evenings are 1 lect.; 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.

COMMERCE 2A01 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: Economics 1A06 or Business 1A06.

COMMERCE 2A03 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 leader-ship, design and development of organizations.

COMMERCE 2B03 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: Economics 1A06 and Commerce 2A03.

COMMERCE 2M03 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: Economics 1A06.

COMMERCE 2Q03 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: Mathematics 1E03, and one of Mathematics 1M03 or 1A06, and one of Computer Science 1A03 or 1B03.

COMMERCE 3A03 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 2A03.

COMMERCE 3A03 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 2A03.

COMMERCE 3B03 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 2B03.

COMMERCE 3B03 HUMAN RESOURCE MANAGEMENT
An introduction to the major facets of the Human Resource Management function, including planning, staffing, training and development, performance appraisal, career planning, compensation, health and safety, and labour relations.
Prerequisite: Commerce 2B03.

COMMERCE 3P03 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 2P03.

COMMERCE 3P03 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 2P03.

COMMERCE 3M03 INTRODUCTION TO MARKETING RESEARCH
An introduction to the logic and methods of marketing research. Among topics considered are measurement, sample selection, questionnaire development, data collection, and analysis and interpretation of data.
Prerequisite: Commerce 2M03, and 2Q03 or Statistics 3Y02 or 3Y03.

COMMERCE 3M03 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 2M03.
An advanced accounting course considering specific problems of accounting for systems; and the analysis and design of such systems.

Prerequisite: Computer Science 1A03 or 1B03, and/ or registration in a Commerce or an Engineering and Management program.

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.

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 3A3.

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 applied to items such as bonds, leases and pensions.

Prerequisite: Commerce 3A3.

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 audit 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 and practices of information systems in management planning and control. Emphasis is placed on the use of computerized systems in management decision making.

Prerequisite: Commerce 3A3.

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: Completion of, or concurrent registration 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 auditing accounting.

Prerequisite: Commerce 4AC3 and Commerce 4AF3.


Continuing Students refer to Faculty 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 and Commerce 4AD3.


Continuing Students refer to Faculty 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 and Commerce 4AD3.


Continuing Students refer to Faculty of Business: Continuing Students.

COMMERCE 4BA3  BEHAVIOURAL ISSUES IN MANAGEMENT
An examination of employee motivation and reward systems, organizational structure, leadership and decision making, group processes, and management of conflict and change.

Prerequisite: Commerce 3B3.

COMMERCE 4BB3  PERSONNEL SELECTION
This course considers the strategies and processes 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 the personnel recruitment and selection, and assessment centres.

Prerequisite: Commerce 3B3.

COMMERCE 4BC3  COLLECTIVE BARGAINING
A survey of the processes of collective bargaining in Canada. Both the procedural and substantive aspects of collective bargaining will be studied.

Prerequisite: Commerce 3B3, or Labour Studies 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 3B3, or Labour Studies 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 professional employees.

Prerequisite: Commerce 3B3.

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 3B3 and subject to space availability.

Same as Labour Studies 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.

Same as Labour Studies 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 3B3 and subject to space availability.

Same as Labour Studies 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. Topics include economic and behavioural theories of compensation, job evaluation, incentive systems, fringe benefits, and compensation plans for managerial and professional employees.

Prerequisite: Commerce 3B3.

COMMERCE 4FB3  FINANCIAL THEORY
This course explores the theoretical and conceptual foundations of Finance. Topics include: utility maximization and choice 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 3F3.

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 3F3.

COMMERCE 4MD3  PRODUCT MARKETING
This course covers concepts, methods and strategies for both new and existing products. Topics include: the new product process, launch strategies, product policy, portfolio analysis and product positioning.

Prerequisite: Commerce 3M3.

COMMERCE 4ME3  INDUSTRIAL MARKETING
To give the student an overview 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 3M3.
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 upon the application of the law to the situations of individuals and businesses. Topics include: administrative, 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 COMMERICAL 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. Prerequisite: Open to students who have received credit for Commerce 4MB3.

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. Not open to students registered in or with credit for Mechanical Engineering 4C03.

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 may be selected from among: layout and location of facilities, scheduling, inventory control and quality control. Prerequisite: Commerce 4QA3, or Mechanical Engineering 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.

Gerald Chapple (Modern Languages)/Co-ordinator, Togo Salmon Hall, Room 614.

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:
   - Literary and Cultural History of Comparative Literature 1A06, 2D03, 2G03, 2M03, 3I03, 4AA3
   - Literary Forms
     - Comparative Literature 2H03, 2H13, 3CC3, 3D03, 3DD03, 3E03
   - Cultural Periods
     - Comparative Literature 2A03, 2AA3, 3B06, 3J03, 4AA3
   - Literary Theory
     - Comparative Literature 3Q03, 3Q03, 4B03
   - Literature and Other Disciplines
     - Comparative Literature 3L03, 4C03
   - General
     - Comparative Literature 4E03

3. No language other than English is required for courses listed under Comparative Literature.

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. 2 lects., 1 tut., two terms. Prerequisite: Grade 13 or OAC English, or the permission of the Co-ordinator.

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. 3 lects., one term. Prerequisite: Comparative Literature 1A06; or permission of the Co-ordinator.

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. 3 lects., one term. Prerequisite: Comparative Literature 1A06; or permission of the Co-ordinator.

COMP LIT 2D03 BIBLICAL TRADITIONS IN LITERATURE
A survey 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. 3 lects., one term. Prerequisite: Open to students in Level II and above. Same as English 2D03. Enrollment is limited.

COMP LIT 2G03 BIBLICAL LITERATURE
A survey introduction to biblical literature (Old Testament, New Testament and selected Apocrypha and Pseudepigrapha) and the history of biblical interpretation to meet the particular needs of students of Western literature. 2 lects., 1 tut., one term. Prerequisite: Open to students in Level II and above. Same as Religious Studies 2V03.

COMP LIT 2H03 THE THEATRE OF GREECE AND ROME
The history of theatre and theatrical production in Greece and Rome. 3 lects., one term. Prerequisite: Open to students in Level II and above. Not available to students with credit in Comparative Literature 2B03. Same as Classical Civilisation 2H03 and Drama 2H03.

COMP LIT 2H13 GREEK AND ROMAN DRAMA
Reading of selected Greek and Roman tragedies and comedies. 3 lects.; one term. Prerequisite: Open to students in Level II and above. Comparative Literature 2H03 is recommended. Not available to students with credit in Comparative Literature 2B03. Same as Classical Civilisation 2H13 and Drama 2H13.

COMP LIT 2M03 GREEK AND ROMAN MYTHOLOGY
A study of the myths of Greek and Roman gods and heroes, their explanation according to the nature of myths and their use by Greek and Roman authors particularly Homer and Vergil. 3 lects., one term. Prerequisite: Open to students in Level II and above. Same as Classical Civilisation 2D03.

COMP LIT 3B06 FROM ROMANTICISM TO MODERNISM
An introduction to the major intellectual and aesthetic currents in Europe from the beginning of the nineteenth century to approximately 1920. 3 lects.; 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, Brecht, Ibsen, Genet, Sartre, Weiss, Dario Fo. Consult the Department concerning topic to be offered. Seminar (2 hrs.), plus playreadings; one term. Prerequisite: Drama 1A06; or permission of the instructor. Alternates with Comparative Literature 3E02. Some as Drama 3CC3.

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 (2 hrs.); one term. Prerequisite: Registration in Level III or IV of a Comparative Literature programme; or permission of the Co-ordinator. Comparative Literature 3D03 may be repeated, if on a different topic, to a total of 6 units.
A study of representative plays by eight major dramatists, including Strindberg, Pirandello.

Comparative Literature 3D03 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, Chekov, Gerli, Wedekind and Kaiser.
Seminar (2 hrs.); one term
Prerequisite: Registration in Level III or IV of a Comparative Literature programme; or permission of the Co-ordinator.
Comparative Literature 3E03 may be repeated, if on a different topic, to a total of six units.

COMP LIT 3F03 TOPICS IN LITERARY GENRES II
Previous topics include: The Nineteenth-Century Novel, The Renaissance Epic. Consult the Department concerning topic to be offered.
Seminar (2 hrs.); one term
Prerequisite: Registration in Level III or IV of a Comparative Literature programme; or permission of the Co-ordinator.
Comparative Literature 3F03 may be repeated, if on a different topic, to a total of six units.

COMP LIT 3I03 TOPICS IN GREEK AND ROMAN LITERATURE
Previous topics include: The Poet and Society, Greek and Roman Epic and Lyric Poetry, The Legend of the Trojan War. Consult the Department concerning topic to be offered.
3 lects.; one term
Prerequisite: Six units of Classical Civilization; or permission of the Department of Classics.
Same as Classical Civilization 3I03;
Comparative Literature 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 Petronius, Pico, Erasmus, Castiglione, Machiaveli and Montaigne.
3 lects.; one term
Prerequisites: Registration in Level III or IV of a Comparative Literature programme.
Same as English 3J03;
Comparative Literature 3J03 may be repeated, if on a different topic, to a total of six units.

COMP LIT 3K03 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.
3 lects. plus one weekly film screening; one term
Prerequisite: Registration in Level III or IV of a programme in Drama or Literature; or permission of the Drama Department. Drama 2K06 is recommended. Not available to students with credit in Comparative Literature 4K03.
Same as English 3K03, Art History 3K03 and Drama 4K03.

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.
3 lects.; one term
Prerequisite: Registration in Level III or IV of a Comparative Literature programme.
Same as English 3Q03.

COMP LIT 3Q03 MODERN CRITICAL THEORY
The theory and practice of literary criticism from Eliot to the present.
3 lects.; one term
Prerequisite: Registration in Level III or IV of a Comparative Literature programme.
Same as English 3Q03.

COMP LIT 4A03 TOPICS IN LITERARY MOVEMENTS
Previous topics include: European Romanticism. Consult the Department concerning topic to be offered.
Seminar (2 hrs.); one term
Prerequisite: Registration in Level III or IV of a Comparative Literature programme; or permission of the Co-ordinator.
Comparative Literature 4A03 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 (2 hrs.); one term
Prerequisite: Registration in Level III or IV of a Comparative Literature programme; or permission of the Co-ordinator.
Comparative Literature 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 Anthropology, Literature and Philosophy. Consult the Department concerning topic to be offered.
Seminar (2 hrs.); one term
Prerequisite: Registration in Level III or IV of a Comparative Literature programme; or permission of the Co-ordinator.
Comparative Literature 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. Some as English 3P03 when the topic is Southeast Asian Literature in English. Consult the Department concerning topic to be offered.

Prerequisite: Registration in Level III or IV of a Comparative Literature programme; or permission of the Co-ordinator.
Offered in alternate years.

Comparative Literature 4E03 may be repeated, if on a different topic, to a total of six units.

OTHER COURSES RELEVANT TO COMPARATIVE LITERATURE

Anthrop 3G03 Comparative Mythology
Classical Gv. 3C03 Greek and Roman Epic
Drama 1A06 Introduction to Drama
Drama 2K06 The Art of the Film
Drama 3R03 American Cinema I
Drama 3R03 American Cinema II
Drama 3T03 Topics in National Cinemas I
Drama 3T03 Topics in National Cinemas II
Drama 4S03 Special Studies in Film
English 2C03 Contemporary Canadian Fiction
English 2D03 Topics in Medieval and Renaissance Literature
English 2X03 Psychoanalytic Approaches to Literary Texts
English 3A03 Topics in Fiction II
English 3K03 Topics in Critical Approaches
English 3P03 Topics in World Literature in English
English 3X03 Topics in 20th-Century Literature II
English 3Z03 Contemporary Canadian Poetry
French 3D03 African and Caribbean French Literature
French 4L03 Topics in French African and Caribbean Literature
French 4R03 Studies in Medieval French Literature
French 4X03 Linguistics and Modern French Literary Criticism (from Structuralism to Semiotics)

Philosophy 2I03 Aesthetics
Religious Studies 2D03 The Five Books of Moses
Religious Studies 2T06 Introduction to the Study of the New Testament
Religious Studies 2E03 The Prophets
Religious Studies 2H03 Christianity in the Patristic Period, 100-800
Religious Studies 2H03 Christianity in the Medieval Period (800-1500)
Religious Studies 2K03 Christianity in the 16th Century
Religious Studies 2L03 Christianity after 1600
Religious Studies 3M03 Imitatio Poetry and Wisdom
Russian 2A03 19th-Century Russian Literature in Translation I
Russian 2A03 19th-Century Russian Literature in Translation II
Russian 3D03 Russian Drama Since 1800
Russian 3K03 Twentieth-Century Russian Literature in Translation
Russian 3K03 Contemporary Russian Literature in Translation

Computer Engineering
(See Electrical and Computer Engineering)

Computer Science and Systems

Faculty as of January 15, 1991
Gerald L. Keech/Chair

Professors
Gerald L. Keech/B.A.Sc. (Torrone), M.Sc., Ph.D. (McMaster)
Peter E. Laue/B.A. (Alabama), M.A. (Emory), Ph.D. (Queen's, Belfast)
Patrick J. Ryan/B.Sc. (Toronto), Ph.D. (Brown)

Associate Professors
Ivan Buihi/Dipl. Ing. (CVUT, Prague), RNDr (Charles, Prague), Ph.D. (CVUT, Prague)
Frantisek Franek/M.Sc., RNDr (Charles, Prague), Ph.D. (Torrone)
Robin E. Griffin/B.Sc., Ph.D. (McMaster)/part-time
Ryszard Janicki/M.Sc. (Warsaw), Ph.D., D.Hab. (Polish Acad. Sci.)
Derek J. Keenworth/B.A., M.A., D.Phil. (Oxford)
Kenneth A. Redish/B.Sc. (Toronto), M.Sc. (Ottawa), Ph.D. (Curtin), C.Eng., F.B.C.S., F.I.C.A.
Nicholas Solvejfi/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)
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)

Lecturers
Anthony Hurst/B.L.A. (Guelph), M.Sc. (McMaster)
David R. Walker/Mus.B. (Toronto) part-time

Associate Members
Norman P. Archen/ (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.
Ali R. Montazemil/ (Business) H.N.D. (Teesside Polytechnic, U.K.), M.Sc. (Southampton), Ph.D. (Waterloo)
Alexander Ross (Mathematics)/M.Sc. (Ries), Ph.D. (Slovak Acad. Sciences)

Prerequisite: Registration in the Faculty of Business and one Grade 13 or Mathematics credit, or Mathematics 1006, 1K03, 1L03, 1M03.

Department Notes:
1. The following are suggested Computer Science options for students not in Computer Science programs:
   - For Science-oriented students: Computer Science 1MA3, 1MB3, 2MF3 and 2SB3, 3MG3, 3SC3, 3CA3, 3SD3.
   - For Business-oriented students: Computer Science 1BA3, 1MB3, 2ME3, 4EC3.
   Social Sciences and Humanities students: Computer Science 1ZA3 provides an introduction to computer use.
2. Either Mathematics 1C06 or Arts and Science 1D06 can serve as an equivalent prerequisite for upper level Computer Science courses in which Mathematics 1A06 is a prerequisite.

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.
3 lects., 1 tut., one term

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, subprograms, input/output, style, and program testing.
3 lects., 1 lab, one term
Prerequisite: Grade 13 or both Mathematics 1A06, 1K03 and Mathematics 1M03. Not open to students who are registered in, or have received credit for Computer Science 1MA3 or Engineering 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.
3 lects., one term
Prerequisite: One of Computer Science 1MA3, Engineering 1D04, or have received a grade of B, or better in Computer Science 1B83 or a grade of A, or better in Computer Science 1ZA3, and credit for, or concurrent registration in, one of Mathematics 1A06, 1K03, or both Mathematics 1L03, 1M03. Students having credit in 2SB3 will lose that credit.

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.
3 lects., 1 tut., one term
Prerequisite: One Grade 13 or OAC Mathematics credit, or Mathematics 1K03, 1L03, or 1M03 is recommended. Not open to students who are registered in the Faculty of Business, or who are registered in, or have received credit for, any of Computer Science 1BA3, 1MA3, Engineering 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.
3 lects., one term
Prerequisite: Computer Science 1ME3, and either one of Mathematics 1A06, 1C06, 1N06 or both Mathematics 1L03 and 1M03.

COMP SCI 2MD3 DATA STRUCTURES AND ALGORITHMS II
3 lects., one term
Prerequisite: Computer Science 2MC3. Not open to students with credit in Computer Science 3A03.

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 IFEM, COBOL.
3 lects., one term
Prerequisite: Computer Science 1ME3.

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.
3 lects., one term
Prerequisite: One of Computer Science 1MA3, Engineering 1D04, or a grade of at least B in Computer Science 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.
3 lects., one term
Prerequisite: Two Grade 13 or OAC Mathematics credits, or one Grade 13 or OAC Mathematics credit and one of Mathematics 1K03, 1L03, or both Mathematics 1K03 and 1L03, or Mathematics 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.
3 lects., one term
Prerequisite: One of Computer Science 1MA3, Engineering 1D04, or a grade of at least B in Computer Science 1BA3 or 1ZA3 and one of Mathematics 1A06, 1M03, 1N06 and one of Mathematics 1K03, 1H05, 1L03. Not open to students with credit in Computer Science 1MA3.

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.
2 lects., one lab, one term
Prerequisite: Computer Science 3MG3 or 3D03. Not open to students with credit in Computer Science 3T03.

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.
2 lects., 1 lab, one term
Prerequisite: Computer Science 2MC3. Not open to students with credit in Computer Science 3D03.

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.
3 lects., one term
Prerequisite: Completion of or registration in Mathematics 3B03, and one of Computer Science 2D03, 2A03.

COMP SCI 3IA3 LIST PROCESSING AND LOGIC PROGRAMMING
Data and control structures for AI systems: symbolic expressions; LISP lists, list processing functions; FOR; POP-11 (user stack, structures, matching, macros, backtracking); resolution principle, basic PROLOG.
3 lects., one term
Prerequisite: Computer Science 2D03 and 2M3, or 3A03.

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.
Prerequisite: Computer Science 1MB3 and 2MF3, or Electrical Engineering 2H03 or Computer Engineering 2HA3. Not open to students with credit in Computer Science 3D03.

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. 3 lects.; one term
Prerequisite: One of Computer Science 2MD3, 3A03, and one of Computer Science 3MG3, 3D03. Not open to students with credit in Computer Science 3C03.

COMP SCI 3M13 ORGANIZATION OF PROGRAMMING LANGUAGES
A comparative study of programming languages emphasizing the run-time behaviour of programs. Introduction to formal methods of language definition. 3 lects.; one term
Prerequisite: Computer Science 2MD3 or 3A03. Not open to students with credit in Computer Science 3D03.

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 and Systems.

COMP SCI 3SC3 SCIENTIFIC DATA PROCESSING
Basic techniques of constructing large scientific data processing systems and managing large volumes of data. Computer graphics; file organization; data representation and system design will be discussed. 3 lects.; one term
Prerequisite: Computer Science 1MB3 or 2SB3. Not open to students with credit in Computer Science 3P03.

COMP SCI 3SD3 COMPUTER SIMULATION TECHNIQUES
Techniques for the application of computer simulation software to scientific and engineering problems, especially queueing and network problems. 3 lects.; one term
Prerequisite: One of Computer Science 1MB3, 2SB3, or Computer Engineering 2YA4. Not open to students with credit in Computer Science 4W03.

COMP SCI 3TA3 INTRODUCTION TO FORMAL LANGUAGE THEORY
Mathematical properties of formal languages; tools for language classification and definition. Grammars and automata. Finite and deterministic automata. The properties of regular and context-free languages. 3 lects.; one term
Prerequisite: One of Computer Science 2MD3, 3A03, and one of Mathematics 2F03, 2J06 and Computer Science 2M03. Not open to students with credit in Computer Science 4J03.

COMP SCI 4CB3 ADVANCED COMPUTER SYSTEM ARCHITECTURE
A study of traditional performance enhancement techniques: pipelining, RISC, VLIW, prefetch, cache; modern high-performance systems: supercomputers, array processors, clusters, networking architectures; compiler vectorization methods. 2 lects.; 1 lab; one term
Prerequisite: Computer Science 3MG3 or 3D03, or Computer Engineering 3HB3 or registration in, or completion of, Physics 4D06.

COMP SCI 4CC3 ADVANCED OPERATING SYSTEMS
Modern operating systems: large-scale interactive to small real-time systems; microcomputer/mainframe interconnections; message passing techniques; network languages for implementation of distributed operating systems. 3 lects.; one term
Prerequisite: Computer Science 3M13 or 3C03.

COSC SCI 4CD3 TOPICS IN COMPUTER COMMUNICATIONS
Communication topics include: wide area networks; local area networks; name and file servers; software; instrumentation buses; distributed real-time systems; electronic messaging. 2 lects.; 1 lab; one term
Prerequisite: Computer Science 3MG3 or 3D03 and Computer Science 3M13 or 3C03.

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. 3 lects.; one term
Prerequisite: Computer Science 2MD3 or 3A03 or Computer Engineering 2YA4. Not open to students with credit in Computer Science 4L03.

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. 3 lects.; one term
Prerequisite: Computer Science 2ME3. Not open to students with credit in Computer Science 4L03.
Drama

Faculty as of January 15, 1991
Antony D. Hammond/Chair

Professors
Antony D. Hammond/B.A. (New Zealand), M.A., Ph.D., (Auckland)
Daniel Lupton/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

Assistant Professors
Stephen B. Johnson/B.A. (Guelph), M.A. (Toronto), Ph.D. (New York)

Lecturer
Elizabeth M. Inman/B.A. (London)

Instructors
Gillian Helfield/B.A. (Western), M.F.A. (York)
Lizzie Rae/B.A. (McMaster), M.A. (Guelph)/part-time
N. Terry D. Shive/part-time

Associate Members
Fiorigio Minelli/Modern Languages/B.A., M.A. (Western), Ph.D (Brown)/Hispanic Studies
Brian S. Pocknell/French/B.A., M.A. (Manchester), Doctorat de l’Université (Sorbonne)

George Thomas/Modern Languages/B.A., Ph.D (London)/Russian

Department Notes:
1. All courses that include a practical component – acting, producing, stage managing, or technical design and execution – have restricted enrolment. Any student wishing to take Drama 2A06, 3A06, 3D03, 3E03, or 4A06 should speak to a Department Counsellor as soon as possible.
2. Practicum Courses: Practicum courses are open only to students registered in Drama programmes. Each practicum course carries one unit of academic credit, and requires twenty-four hours of instruction over a six-week or a twelve-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 will be classified as “Area” courses, but 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 2GO1/Modern Dance I (Same as PR 21)
Drama 3GO1/Mime (Same as PR 27)
Drama 3GL1/Jazz Dance I (Same as PR 25)
Drama 3HH1/Dance Exercise (Same as PR 28)
Drama 3HH2/Social Dance (Same as PR 22)
Drama 3001/Folk Dance (Same as PR 30)

DRAMA 1A06 INTRODUCTION TO DRAMA
An exploration of the theatrical medium through the study of plays from major periods of Western drama, including plays featured in the year’s Drama productions.
2 lects., 1 tut., two terms
Prerequisite: Open.

DRAMA 2A06 DRAMA IN PERFORMANCE: INTRODUCTION TO ACTING
Contemporary methods of acting. Study and presentation of scenes from modern drama. Basic skills of voice, speech and movement. Participation in campus drama by arrangement with the instructor.
2 studio practice (2 1/2 hrs.); two terms
Prerequisite: Registration in a programme in Drama or permission of the Department. Department permission slip required for all students. Enrolment is limited and is by selection based on academic achievement.

DRAMA 3B06 THE DEVELOPMENT OF ENGLISH DRAMA
English drama from the medieval period to the close of the 18th century (excluding Shakespeare). 3 lects., two terms
Prerequisite: Registration in a programme in Drama; or permission of the Department. Same as English 2B06.

DRAMA 2DD3 TOPICS IN MEDIEVAL AND RENAISSANCE LITERATURE
Same as English 2DD3 when the topic is Medieval drama or Christopher Marlowe. Seminar (2 hrs.); one term
Prerequisite: Open to students in Level II and above. Enrolment is limited.

Drama 2DD3 may be repeated, if on a different topic, to a total of six units.

DRAMA 2F03 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.
3 lects.; one term
Prerequisite: Open to students in Level II and above.

DRAMA 2H03 THE THEATRE OF GREECE AND ROME
The history of theatre and theatrical production in Greece and Rome.
3 lects.; one term
Prerequisite: Open to students in Level II and above. Not available to students with credit in Drama 2E03.

Same as Clas. Cin. 2H03 and Comp. Lit. 2H03.

DRAMA 2H13 GREEK AND ROMAN DRAMA
Reading of selected Greek and Roman tragedies and comedies.
3 lects.; one term
Prerequisite: Open to students in Level II and above. Drama 2H03 is recommended. Not available to students with credit in Drama 2E03.

Same as Clas. Cin. 2H13 and Comp. Lit. 2H13.

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.
3 hrs.; (lects. and discussion groups); two terms
Prerequisite: Drama 1A06, or permission of the Department.

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.
2 lects. plus one weekly film screening; two terms
Prerequisite: six units from the Faculty of Humanities and registration in Level II and above.

Same as Art History 2X06.

DRAMA 3A06 DRAMA IN PERFORMANCE: STYLES OF ACTING
Study and presentation of scenes from various historical theatres from the Greeks to the present. Extension of acting skills to include stylized versatility. Participation in campus drama by arrangement with the instructor. Class meets twice a week, total 5 hrs.; two terms
Prerequisite: Drama 2A06; or permission of the Department. Department permission slip required for all students. Enrolment is limited.

DRAMA 3B03 INDEPENDENT STUDY IN DRAMA
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 3BB3 CONTEMPORARY QUEBEC THEATRE
Contemporary experimental theatre, and representative playwrights such as Marcel Dubé and Michel Tremblay.
3 lects.; one term
Prerequisite: French 2F03 or 2FF3; or permission of the Department. French 2F03; or permission of the Department. French 2FF3.

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.
1 seminar (2 hrs.), plus playreadings; one term
Prerequisite: Drama 1A06, or permission of the Department.

Same as Comparative Literature 3B03.

DRAMA 3CC3 MODERN EUROPEAN DRAMA FROM BRECHT TO THE PRESENT
A study of representative plays by ten major dramatists, including Garcia Lorca, Coceas, Frisch, Sartre, Weiss, Genet, Darío Fo.
1 seminar (2 hrs.), plus playreadings; one term
Prerequisite: Drama 1A06, or permission of the Department.

Same as Comparative Literature 3CC3.
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.
2 hrs.; first term, 1 hr. (workshop); second term
Prerequisite: Registration in a programme in Drama and permission of the Department; Departmental permission slip required for all students.
Enrolment is limited.

DRAMA 3D03  RUSSIAN DRAMA SINCE 1900
An introduction to the major works of Russian theatre in translation.
3 lects.; one term
Prerequisite: Open to students in Level II and above. Same as Russian 3D03.

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.
2 hrs.; first term, 1 hr. (workshops); second term
Prerequisite: Registration in a programme in Drama and permission of the instructor. Departmental permission slip required for all students.
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.
3 lects.; one term
Prerequisite: Open to students in Level II and above. Drama 2F03 is recommended.

DRAMA 3FF3  STUDIES IN OPERA
Previous topics include: Giuseppe Verdi, The Gesamtpakete and the Voice. Consult the Department concerning topic to be offered.
3 lects.; one term
Prerequisite: Open to students in Level II and above. One of Drama 2F03 or 3F03 is recommended.
Drama 3FF3 may be repeated, if on a different topic, to a total of six units.

DRAMA 3K06  SHAKESPEARE
An extensive critical reading and discussion of selected plays.
3 lects.; two terms
Prerequisite: Registration in Level III or IV of a programme in Drama; or permission of the Department.
Same as English 3K06.

DRAMA 3M03  RENAISSANCE AND BAROQUE THEATRE
The classical revival and its influence on scene design and theatre architecture, dramatic theory and genre; the interaction of classical and medieval conventions in theatres of England and Spain.
3 lects.; one term
Prerequisite: Drama 2M06 or permission of the Department. Alternates with Drama 2M33.

DRAMA 3M33  NEOCLASSICAL AND ROMANTIC THEATRE
A survey of the neoclassical theatre of England and France; the influence of neoclassical doctrine on European theatre; and the reactions to it in the Romantic theatres of Germany and France.
3 lects.; one term
Prerequisite: Drama 2M06 or permission of the Department. Alternates with Drama 3M33.

DRAMA 3N03  PERFORMANCE AND THE IDEA OF THEATRE IN THE MIDDLE AGES
A survey of popular, courtly and religious modes of Western performance from the tenth to the sixteenth centuries.
3 lects.; one term
Prerequisite: Drama 3N06, or permission of the Department. Not available to students with credit in Drama 2N03.

DRAMA 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.
3 lects.; one term
Prerequisite: Drama 1A06, or English 1D06. Same as English 3P03.
Enrolment is limited.

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 2-hour lects/seminars weekly, Term C
Prerequisite: Open to students in Level II and above. Drama 3P06 may be repeated, if on a different topic, to a total of 12 units.

DRAMA 3Q03  SEVENTEENTH-CENTURY FRENCH DRAMA
A study of selected plays of Corneille, Moliere and Racine.
3 lects.; one term
Prerequisite: Drama 1A06 and French 1A06 or 1B06; or permission of the Department of French. Note that texts and instruction are in French. Students taking this course must be registered in a programme in Drama and may offer written work in English.
Same as French 3Q03.

DRAMA 3RR3  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.
2 lects.; plus one weekly film screening; one term
Prerequisite: Drama 2X06; or permission of the Department. Same as Art History 3R3.

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.
2 lects.; plus one weekly film screening; one term
Prerequisite: Drama 2X06; or permission of the Department. Same as Art History 3R3.

DRAMA 3T03  TOPICS IN NATIONAL CINEMAS I
Previous topics include: Soviet and East European Cinema, French Cinema. Consult Department concerning topic to be offered.
2 lects.; plus one weekly film screening; one term
Prerequisite: Drama 2X06; or permission of the Drama Department. Drama 3T03 may be repeated, if on a different topic, to a total of six units.
Same as Art History 3T3.

DRAMA 3T03  TOPICS IN NATIONAL CINEMAS II
Previous topics include: Canadian Cinema. Consult Department concerning topic to be offered.
2 lects.; plus one weekly film screening; one term
Prerequisite: Drama 2X06; or permission of the Drama Department. Drama 3T03 may be repeated, if on a different topic, to a total of six units.
Same as Art History 3T3.

DRAMA 3X03  TOPICS IN 20TH-CENTURY DRAMA
Previous topics include: British Drama: 1950 to the Present, Modern Canadian Drama. Consult Department concerning topic to be offered.
3 lects.; one term
Prerequisite: Drama 1A06, or English 1D06. Drama 3X03 may be repeated, if on a different topic, to a total of six units.
Same as English 3X03.
Enrolment is limited.

DRAMA 3X03  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 5 hrs.; two terms
Prerequisite: Drama 3A06 and registration in an Honours programme in Drama; or permission of the Department. Departmental permission slip required for all students.
Enrolment is limited.

DRAMA 4A03  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 4D03  SPANISH DRAMA OF THE GOLDEN AGE
A study of plays by major Spanish playwrights of the period 1550-1680, including works by Calderon, Lope, and Cervantes. Consult Department concerning topic to be offered.
3 lects.; one term
Prerequisite: Open to students in Level II and above. Offered in alternate years.
Same as Hispanic Studies 4D03.

DRAMA 4E03  THEORY OF DRAMA AND THEATRE
A study of the major theoretical documents from the Greeks to the present.
3 lects.; one term
Prerequisite: Registration in Level III or IV of a programme in Drama; or permission of the Department.

DRAMA 4F03  STUDIES IN THEATRE HISTORY
Selected topics for research, analysis and discussion, with particular attention to the theatre historian's sources and methods.
3 lects.; one term
Prerequisite: Registration in Level III or IV of a programme in Drama; or permission of the Department.

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DRAMA 4H03 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. 3 lec., plus one weekly film screening; one term
Prerequisite: Registration in Level III or IV of a programme in Drama or Literature or Art History; or permission of the Department. Drama 2X06 is recommended.
Same as Art History 3H03; Comparative Literature 3H03; English 3C03.

DRAMA 4J03 PERSPECTIVES IN DANCE. DANCE IN CONTEMPORARY SOCIETY
A study of dance forms in the 20th century. Students will view films, dance performances and participate in dance workshops.
3 hrs. (lec., seminars); one term
Prerequisite: Permission of the instructor.
Same as Physical Education 4J03.

DRAMA 4M03 MODERN EUROPEAN THEATRE HISTORY
A study of the major influences that have shaped the growth of modern theatrical movements in Europe from the late nineteenth century to the present. 1 seminar (2 hrs.); one term
Prerequisite: Drama 2M06 or permission of the Department.
Offered in alternate years.

DRAMA 4N03 THE HISTORY OF THEATRE IN CANADA AND THE UNITED STATES
A study of the development of theatrical performance in the United States and Canada from the colonial period to the present, with emphasis on nationalism, and on the economic and cultural relationships between the two countries.
Seminar (2 hrs.); one term
Prerequisite: Drama 2M06, or permission of the Department.

DRAMA 4S03 SPECIAL STUDIES IN FILM
Previous topics include: Genre Studies, Film Comedy. Consult the Department concerning topic to be offered.
2 lec., plus one weekly film screening; one term
Prerequisite: Drama 2X06, or permission of the Department. Drama 4S03 may be repeated, if on a different topic, to a total of six units.
Same as Art History 4S03.

Economics

Faculty as of January 15, 1991

Stuart Meselson/Chair
Alan J. Harrington/Associate Chair

Professors Emeriti
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)

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. Burbridge/B.A., Ph.D. (McGill)
Kenneth S. Chan/B.Sc. (Toronto), M.A., Ph.D. (Brown)
Frank T. Denton/M.A. (Toronto), F.R.S.C.
Peter J. George/B.A., M.A., Ph.D. (Toronto)
Alan J. Hartmann/B.A., M.A., Ph.D. (Essex)
James A. Johnson/M.A., Ph.D. (Minnesota)
Atil A. Kubursi/B.A. (American University, Beirut), M.A., Ph.D. (Purdue)

Stuart Meselson/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)

A. Leslie Robb/B.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)
James R. Williams/M.A., Ph.D. (Minnesota)

Associate Professors
David W. Butterfield/B.S., M.S. Eng. (Calif. Inst. of Tech), J. A.B., M.A., Ph.D. (California-Berkeley)
Donald A. Dawson/A.M. (Chicago), Ph.D. (Western), N.D.C.
Martin D. Dooley/B.A. (Indiana), M.S., Ph.D. (Wisconsin-Madison)
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)
Ronnie J. Magee/B.A. Math. (Waterloo), M.A., Ph.D. (Western)
R. Andrew Muller/B.A. (McGill), M.A., Ph.D. (Toronto)
Michael R. Veall/B.A. (McMaster), M.A. (Western), Ph.D. (M.I.T.)
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/ (Epidemiology and Biostatistics) B.A. (John Carroll), M.A., Ph.D. (Wisconsin-Madison)
Lars Krinsky/ (Business) B.A., M.A., (Tel-Aviv), Ph.D. (McMaster)
D.C. Mountain /B.A. (McMaster), M.A., Ph.D. (Western)
Gregory L. Stoddard/ (Epidemiology and Biostatistics) B.A., (Western), Ph.D. (British Columbia)

Department Notes:
1. 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.
2. 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. Such students must have the permission of the instructor.
3. 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.

ECON 1A06 INTRODUCTORY ECONOMICS
An introduction to the method and theory of economics, and their application to the analysis of contemporary economic problems.
3 hrs.; two terms
Prerequisite: Open.

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.
3 hrs.; one term
Prerequisite: Economics 1A06 with a grade of at least C, and Mathematics 1K03 (or Grade 13 or OAC Calculus) and 1L03. Not open to students with credit or concurrent registration in any of Economics 3C06, Chemical Engineering 3C03, Commerce 2Q3A, Geography 2L03, Political Science 2P06, Psychology 2G03 or 2O06, Sociology 2Y03 or 3H06, or any Statistics course other than Statistics 2D03. Not open to students who are required to take Commerce 2Q03.

ECON 2G03 INTERMEDIATE MICROECONOMICS I
Elements of consumer behaviour; production and cost; price and output determination under various market structures; employment of inputs.
3 hrs.; one term
Prerequisite: Economics 1A06 with a grade of at least C—, and Mathematics 1K03 (or Grade 13 or OAC Calculus) and 1L03. Not open to students with credit or concurrent registration in any of Economics 3C06, Chemical Engineering 3C03, Commerce 2Q3A, Geography 2L03, Political Science 2P06, Psychology 2G03 or 2O06, Sociology 2Y03 or 3H06, or any Statistics course other than Statistics 2D03. Not open to students who are required to take Commerce 2Q03.

ECON 2G03 INTERMEDIATE MICROECONOMICS II
Price and output determination under various non-competitive market structures; factor input markets; general equilibrium; welfare; topics in consumer theory.
3 hrs.; one term
Prerequisite: Economics 2G03. Not open to students with credit in Economics 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.
3 hrs.; one term
ECON 2HI3  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.
3 hrs.; one term.
Prerequisite: Economics 2H03. Not open to students with credit in Economics 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 and the impact of emerging domestic markets and industrialization; government's role in promoting the development of the national economy.
3 hrs.; one term.
Prerequisite: At least C- in Economics 1A06. Not open to students with credit in Economics 2K06.

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 union and the state.
Lectures and discussion; one term.
Prerequisite: Economics 1A06. Same as Labour Studies 3B03.
Enrolment is limited.

ECON 3A03  ADVANCED ECONOMIC THEORY I
Mathematically oriented approaches to the analysis of the behavior of individual consumers, workers and firms.
3 hrs.; one term.
Prerequisite: Mathematics 1M03 and an average of at least 7.0 in Economics 2G03, 2G06 or 3G03 (or 2L06), 2M06, 2H13 (or 2M06), or permission of the instructor. Mathematics 2L03 is recommended.

ECON 3A03  ADVANCED ECONOMIC THEORY II
Comparative static and dynamic analysis of macroeconomic models.
3 hrs.; one term.
Prerequisite: At least C- in Economics 3A03.

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 analyses, intergovernmental fiscal relations, government budgeting.
3 lects.; one term.
Prerequisite: Economics 2G03 or 2L06. Not open to students receiving credit for Economics 3C06.

ECON 3C03  PUBLIC SECTOR ECONOMICS: TAXATION
Theory and practice of public finance: analysis and comparison of the efficiency, equity and distributional effects of the taxation of income, wealth and expenditure, analysis of social insurance, intergovernmental fiscal relations.
3 hrs.; one term.
Prerequisite: Economics 2G03 or 2L06. Not open to students receiving credit for Economics 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.
3 hrs.; one term.
Prerequisite: Economics 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.
3 hrs.; one term.
Prerequisite: Economics 3D03, and Economics 2B03 or 3006.

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 literary research and an introduction to computers.
3 hrs.; one term.
Prerequisite: Registration in Level III or Level IV of an Honour Economics or Combined Honours Economics programme, or permission of the Department.

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.
3 hrs. (lects. and seminars); one term.
Prerequisite: Economics 2H03 or 2M06, and registration in any programme in Economics; or permission of the instructor.

ECON 3H13  INTERNATIONAL TRADE
Real theory of international trade; interregional and international specialization; effect of commercial and industrial policies.
3 hrs.; one term.
Prerequisite: Economics 2G03 or 2L06, and registration in any programme in Economics or permission of the instructor.

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.
3 lects.; one term.
Prerequisite: Economics 2G03 or 2L06; or permission of the instructor. Economics 2H03 or 2M06 is recommended.

ECON 3J06  ECONOMIC DEVELOPMENT
Analysis of economics of less developed countries. Topics include structural change, dual economies, agriculture, population, savings, financial development, income distribution, trade and policy.
3 hrs.; two terms.
Prerequisite: Economics 2G03 or 2L06, and Economics 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.
3 hrs.; one term.
Prerequisite: Economics 2G03 or 2L06, and Economics 2H03 or 2M06.

ECON 3L03  MARXIAN ECONOMICS
An examination of the foundations of Marxian economic thought; Marxism as a theory of the capitalist system; the place of Marxian doctrine in contemporary economic analysis.
3 lecs.; one term.
Prerequisite: Economics 2G03 or 2L06.

ECON 3M03  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.
3 hrs.; one term.
Prerequisite: Economics 2G03 or 2L06. Economics 2H03 or 2M06. Not open to students with credit in Economics 3C06.

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.
3 hrs.; one term.
Prerequisite: Economics 2G03 or 2L06. Not open to students receiving credit for Economics 3N06.

ECON 3O06  ECONOMIC STATISTICS
Statistical analysis as a basic research technique in economics, emphasizing estimation and statistical inference, including linear regression models. Applications are drawn from micro and macroeconomics.
3 lecs.; two terms.
Prerequisite: Economics 2G03 or 2L06, Economics 2H03 or 2M06. Not open to students with credit or concurrent registration in Statistics 3106. Students with credit in any of Chemical Engineering 4C03, Commerce 2G03, Geography 2L03, Political Science 3H03 or 3H06, Psychology 2G03 or 2R06, Sociology 2G03 or 3H06, or any Statistics courses other than Statistics 2D03, may receive only 3 additional units for Economics 3006.

ECON 3P03  THE INTERNATIONAL ECONOMY SINCE 1945
International finance, commercial policy, changing national and industrial structures and relations between development and the developing countries.
3 hrs.; one term.
Prerequisite: At least C- in Economics 1A06.

ECON 3Q03  INDUSTRIAL ORGANIZATION
A study of the structure, conduct and performance of industrial markets.
3 lecs.; one term.
Prerequisite: Economics 2G03 or 2L06. Not open to students receiving credit for Economics 3Q06.

ECON 3R03  ANALYSIS OF ECONOMIC DATA II
Elaboration of regression techniques developed in Economics 2B03. Problems of inference and interpretation in the analysis of economic data. Introduction to forecasting in economics.
3 hrs.; one term.
Prerequisite: Economics 2G03 or 2L06, and Economics 2H03 or 2M06, and Economics 2B03 or permission of the instructor. Not open to students with credit or concurrent registration in Economics 4G03.

ECON 3V03  APPLICATIONS OF SOCIAL COST-BENEFIT ANALYSIS
The identification of opportunity costs, measurement of shadow prices, role of time preference, and treatment of intangibles in evaluating projects are applied to alternative private and public sector expenditure decisions and tax policies.
3 hrs.; one term.
Prerequisite: At least C- in Economics 2G03.
ECON 3X03**  URBAN MODELS AND POLICY ANALYSIS II
A survey of modern literature on urban issues. Topics include welfare criteria, externalities, public goods and fiscal policies. Lect.; one term
Prerequisite: Economics 3X03, or Geography 3X03, or permission of the instructor.
Same as Geography 4X03.
For Graduate courses, see the Calendar of the School of Graduate Studies.

Eighteenth-Century Studies
(See Thematic Areas of Study)

Electrical and Computer Engineering

Faculty as of January 15, 1991

K.M. Wong/Chair

Professors Emeriti
Arthur S. Gladwin/D.Sc. (Glasgow), Ph.D. (London)
Reuen Kita/M.Sc., D.Sc. (Witswatersand), F.I.E.E.

Professors
Raymond D. Findlay/B.Sc. (Eng.), Ph.D. (Warwick), part-time
Charles R. Carter/B.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.

Simon Haykin/B.Sc., Ph.D., D.Sc. (Birmingham), F.R.S.C., F.I.E.E.
John Lita/B.Sc. (British Columbia), M.Sc., Ph.D. (Western Ontario)/NSERC Industrial Research Chair in Communication Antennas
Barna Szabolos/Dipl.Ing. (Grenoble), M.Eng., Ph.D. (McMaster), P.Eng.

Associate Professors
Stephen H. Chisholm/B.A.Sc. (Toronto), Ph.D. (London)
Mohamed A. El-Kady/B.Sc. (Eng.), M.Sc. (Eng.) (Cairo), Ph.D. (McMaster), S.M.I.E.E., P.Eng./part-time
Graham J. Rogers/B.Sc. (Southampton), P.Eng./part-time
Terence D. Todd/B.A.Sc., M.A.Sc., Ph.D. (Waterloo)

Assistant Professors
Youssif H. Dabeih/B.Sc.Eng., M.Sc.Eng. (New Brunswick), Ph.D. (McMaster), P.Eng./part-time
T.Z.-Q. Luo/B.Sc. (Peking), Ph.D. (M.I.T.)
Daniel C. McCrackin/B.Eng., M.Eng., Ph.D. (McMaster)
Peter M. Smith/B.Eng.M.Eng., M.Eng., Ph.D. (McMaster)
Q.T. Zhang/B.Eng. (Tsinghua), M.Eng. (S.C.T.C.), Ph.D. (McMaster)/part-time

Associate Members
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.Ed./Eng. (Japan), Ph.D. (York)
Hubert deBruyn/M.Eng., Ph.D. (McMaster), P.Eng.
ELECTRICAL AND COMPUTER ENGINEERING

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.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Registration in a program in Computer or Electrical Engineering or Physics.

COMP ENG 2KA3 COMPUTATIONAL METHODS I
Computational techniques for solving electrical engineering problems; linear and non-linear equations; eigen decomposition; numerical integration; differential equations; interpolation; numerical stability and computational efficiency.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Engineering 1D04, Mathematics 1H05, 1N06, and registration or credit in Electrical Engineering 2BA3.

COMP ENG 2YA3 DATA STRUCTURES AND COMPUTER ALGORITHMS
Data structures: lists, stacks, trees, file management; sorting algorithms; seminumerical algorithms; graph algorithms.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Engineering 1D04 and registration in a Computer Engineering programme.

COMP ENG 3HB3 DIGITAL COMPUTER PRINCIPLES
Elements of digital computers; registers; transfer logic; memory; organization, operation, control and central processor unit.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Computer Engineering 2HA3.

COMP ENG 3KB3 COMPUTATIONAL METHODS II
Large-scale network analysis; formulation of equations and their solution; introduction to optimization.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Computer Engineering 2KA3 and Computer Engineering 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.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Computer Engineering 2VA4 and registration in a Computer Engineering programme.

COMP ENG 3WA3 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.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Computer Engineering 2WA4 and registration in a Computer Engineering programme.

COMP ENG 4HC3 MICROPROCESSOR SYSTEMS
Microprocessor architecture, programming, timing, memory interfacing and interrupt handling using 8088; peripheral interfaces including handshaking, PPI, UART, keyboards, CRT, timers and event counters; system bus structures.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Computer Engineering 3HB3.

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.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Computer Engineering 3HB3.

COMP ENG 4HE3 ADVANCED REAL-TIME COMPUTING SYSTEMS
Real time systems, jobs and tasks; disk management; real time implementation; multiprocessor systems.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Computer Engineering 3HB3.

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.
2 labs. (3); both terms
Prerequisite: Registration in Level IV of Computer Engineering or Level V of Computer Engineering and Management.

ELEC ENG 2BA3 ELECTRICAL SCIENCE
Electric static fields; Coulomb's Law, electric flux; potential; conductors and dielectrics; polarization; magnetic fields; magnetic flux, magnetic circuits, forces and torques; energy concepts; inductance.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Mathematics 1H05, 2N06, Physics 1E04 or 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.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Mathematics 1H05, 2N06, Physics 1E03 or 1E04, and registration in a programme in Computer Engineering or Electrical Engineering.

ELEC ENG 2FA3 DEVICES AND CIRCUITS I
Non-linear circuits; dependent sources; circuit models; applications; physical electronics; bipolar junction transistors and field effect transistors, operational amplifiers; integrated circuit technology.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Registration or credit in Electrical Engineering 2BA3 and 2DA3.

ELEC ENG 3CA3 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.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Registration or credit in Electrical Engineering 3DA3.

ELEC ENG 3CB3 ELECTROMAGNETIC FIELDS AND WAVES
Scalar and vector potential fields, Maxwell's equations, boundary conditions, electromagnetic energy and Poynting's theorem, transmission lines, waves.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Electrical Engineering 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.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Electrical Engineering 2DA3 and registration or credit in Electrical Engineering 3DA3.

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.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Electrical Engineering 2DA3 and Computer Engineering 2KA3.

ELEC ENG 3FB3 ELECTRONIC DEVICES AND CIRCUITS II
Advanced treatment of diode and transistor physical electronics, circuit models and characteristics; multi-transistor amplifiers and circuits; frequency response; feedback; computer simulation of electronic circuits.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Electrical Engineering 2DA3 and 2FA3, and registration or credit in Electrical Engineering 3CA3.

ELEC ENG 3FC3 ELECTRONIC DEVICES AND CIRCUITS II
Linear and non-linear operational amplifier circuits; signal generation; active filters; power amplifier; regulators; digital electronics; A/D and D/A conversion, multiplexers, sample and hold.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Registration or credit in Electrical Engineering 3FB3.

ELEC ENG 3NA3 AC POWER CONCEPTS
Polyphase circuits; transformers; voltage control and regulation; introduction to polyphase machines; synchronous generators and motors, single-cage induction motors; applications to small industrial plants.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Electrical Engineering 2BA3 and 2DA3.
ELECTRICAL ENGINEERING

ELEC ENG 3SA3 SMALL MOTORS AND DRIVES
Small motors; direct current, single-phase induction, wound rotor induction, hydromotors, universal, stepper and permanent magnet motors. Elementary speed control techniques.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Registration or credit in Electrical Engineering 3NA3.

ELEC ENG 4AB3 COMMUNICATION SYSTEMS II
Communication systems in noisy and imperfect channels; random processes; Shannon-I/antenna channel capacity law; noise in CW modulation systems including AM, DSBC and SSB; digital systems, line codes, multiplexing; technology issues.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Electrical Engineering 3AA3, 3BB3 and Statistics 2X03.

ELEC ENG 4AC3 DIGITAL COMMUNICATIONS
Fundamental limits on performance; detection and estimation; digital modulation techniques; error control coding.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Electrical Engineering 3AA3 and Mathematics 3K03.

ELEC ENG 4CB3 FEEDBACK CONTROL SYSTEMS II
Design and analysis 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.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Electrical Engineering 3DB3.

ELEC ENG 4DF3 ELECTRONICS IV
Selected advanced topics in physical electronics of semiconductor devices; integrated circuit fabrication technology; integrated circuit component design; analog integrated circuits; computer aids to design.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Electrical Engineering 3DB3.

ELEC ENG 4JA4 THESIS PROJECT
An experimental investigation or design project to be carried out by the student, with the discretion of the instructor; capacity for independent work.
2 lects.; 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.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Electrical Engineering 3BB3 and 3NA3.

ELEC ENG 4QA3 TECHNICAL WRITING AND ORAL COMMUNICATION
Writing for, and in speaking to, technical and management audiences: resumes, letters of inquiry, technical correspondence; technical description and definition; writing instructions; preparing audiovisual aids.
1 lect., 1 seminar, 1 tut. (3); first term
Prerequisite: Registration in Level IV of Computer Engineering or Electrical Engineering, and registration in Computer Engineering 4A04 or Electrical Engineering 4A4.

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.
2 lects., 1 lab. or tut. (3); first term
Prerequisite: Electrical Engineering 3BB3.

ELEC ENG 4SB3 POWER ELECTRONICS
Power circuits with switches; basic rectifier circuits; commutation; trijunctions; inversion; choppers; inverter control.
2 lects., 1 lab. or tut. (3); second term
Prerequisite: Electrical Engineering 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.
2 lects., 1 lab or tut. (3); second term
Prerequisite: Electrical Engineering 3FB3 or Engineering 3N03 or Physics 3N06.

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 or Engineering and Management may be limited.

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.
2 lects., 1 graphics lab. (3); 1 design lab. (2); 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.
3 lects., 1 lab. or tut.; first term
Prerequisite: Registration in an Engineering programme.

ENGINEER 2C03 ELECTRICAL CIRCUITS AND MEASUREMENTS
Electrical quantities and circuit elements; Kirchhoff's laws and network theory, transient response of circuits, simple measurement devices and transducers, characteristics of motors.
2 lects., 1 lab or tut.; second term
Prerequisite: Physics 1E03, and registration in Mathematics 2M06, or 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.
3 lects., 1 lab or tut.; first and second terms
Prerequisite: Physics 1E03, and registration in Mathematics 2M06, or 2P04 and 2Q04.

ENGINEER 2Q03 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. Not open to students who have credit or are registered in Materials 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
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.
3 lects., plus one unit comprising tutorials or lectures devoted to applications, at the discretion of the instructor; first term
Prerequisite: Physics 1E03.

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.
3 lects., 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 Engineering 2P04.

ENGINEER 2S03 MECHANICS FOR ELECTRICAL AND COMPUTER ENGINEERING
Three dimensional statics, equivalent force systems in statics and dynamics. Three dimensional and planar kinematics. Principles of mechanics: moments, work and energy. Dynamics of particles and planar motion of solid bodies.
3 lects.; first term
Prerequisite: Physics 1D03 and registration in any programme in Computer Engineering or Electrical Engineering.

ENGINEER 2V04 THERMODYNAMICS
An introduction to the principles of macroscopic, microscopic and statistical thermodynamics and the application of these principles to engineering.
2 lects.; both terms
Prerequisite: Chemistry 1A06 or 1E03, and credit or registration in Mathematics 2M06, or 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.
3 lects., 1 lab; second term
Prerequisite: Chemistry 1A06 or 1E03 and credit or registration in Mathematics 2M06, or 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.
2 lects. and 1 lab. or tut.; first term
Prerequisite: Engineering 2M04.
ENGINEER 3N03 ELECTRONICS AND INSTRUMENTATION
Semiconductor devices; diodes, transistors and silicon-controlled rectifiers. Transistor characteristics and load lines. Amplifier circuits with and without feedback. Rectifier and passive filter circuits. Operational amplifiers and active filters. Digital circuits. Microcomputers, interfacing. 2 lects.; 1 tut. (1) or 1 lab. (2); second term
Prerequisite: Engineering 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. 3 lects.; first term
Prerequisite: Mathematics 2M01, or 2P04 and 2Q04, and Engineering 2P04 or 2R04. Not open to 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 materials, insulators and semiconductors. 3 lects.; first term
Prerequisite: Physics 1E03 or 1E04 and Mathematics 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. 3 lects.; first term
Prerequisite: Engineering 2003. Not open to 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. 1 lect., 1 tut., 1 seminar; second term
Prerequisite: Registration in Level III or above in any programme in the Faculty of Engineering or registration in the Applied Studies minor in the Faculty of Humanities.

ENGINEER 4B03 ENGINEERING ECONOMICS
Prerequisite: Registration in Level IV of an Engineering programme. Not open to students registered in, or having credit for, Chemical Engineering 4N04. Not open to students registered in Engineering and Management programmes.

ENGINEER 4C03 REAL-TIME COMPUTER INTERFACING
Organization of real-time computer systems. Instrumentation and interfacing for data acquisition and control. Computer communication and local-area networks. Diagnostics for real-time operations. 2 lects., 1 lab. (3); first term
Prerequisite: Registration in Level IV of Manufacturing Engineering or Level V of Civil Engineering and Computer Systems. Not open to students with credit or registration in any of Computer Engineering 3H03, Electronic Engineering 3H03, Physics 4C06.

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. 2 lects., 1 tut. (2); second term
Prerequisite: Registration in Level III, IV, or V of any Engineering programme or registration in the Applied Studies minor in the Faculty of Humanities. Not open to students with credit in Civil Engineering 4A03.

ENGINEER 4I03 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 non-metallic materials. 3 lects.; first term (1991-92 only)
Prerequisite: Engineering 2003, and Mechanical Engineering 3A03 or Engineering 3P03 or Materials 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 quality. Emphasis on processes such as bio-oxidation, clarification, coagulation, sludge dewatering and disinfection. 2 lects., 1 tut. (2); first term
Prerequisite: Chemical Engineering 2004 or 3Q04, or Civil Engineering 3Q04, or Mechanical Engineering 3Q04, 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. 3 lects.; 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 Faculties of business and of Engineering and lead to the B.Eng./Mgt. degree. An Industrial Advisory Council also participates in the education process.

Faculty on the Operating Committee, as of July 1, 1990:
D.R. Woods/Programme Director
N.C. Agarwal (Associate Dean, Academic Programmes - Business)
R.T.H. Alden (Electrical and Computer Engineering)
M. Basadur (Faculty of Business)
J.L. Brash (Chemical Engineering)
K.R. Deal (Business)
M.A. Dokainish (Associate Dean, Academic Programmes - Engineering)
A.C. Hedebrecht (Provost and Vice-President (Academic))
D. Gupta (Faculty of Business)
P. Jessop (Engineering Physics)
G. Kerney-Wallace (President and Vice Chancellor)
B. Latto (Mechanical Engineering)
D.C. Mountain (Faculty of Business)
K. Nainar (Faculty of Business)
A. Petric (Materials Science and Engineering)
W. Petryshuk (Director, Management of Technology and Innovation Institute)
G.R. Purdy (Dean of Engineering)
W.G. Truscott (Dean of Business)
W.K. Tso (Civil Engineering and Engineering Mechanics)

Industrial Advisory Council Members 1990-91
M. Anys-Welsh (Ontario Hydro)
E.G. Bossance (Peat Marwick Thorne)
W. Piler (Filer Consultants, Ltd.)
H. Jaeger (Acres International Limited)
R.G. Keen (Stelco Technical Services Ltd.)
D. Ledingham (Shell Canada Products Ltd.)
C. Loney (Consultant)
R. Lopinski (Bell Northern Research Ltd.)
T. Magyaráro (Commercial Union Assurance Company of Canada)
L. Phillips (Canadian Pacific)
J. Reid (Nova Petrochemicals Inc.)
R.L. Reycraft (Pricer & Gamble)
G. Schneider (Hodgson Steel Inc.)/Chair
A. Skov (Union Gas)
H. Sonnenberg (Xerox Research Centre of Canada)
R. Tomlinc (Tridon Environmental)
J. Vice (Northern Telecom Canada Ltd.)
P. Vitk (Westinghouse Canada Inc.)
K. Woodhouse (McMaster University)

ENGMGT 2A01 ENGINEERING AND MANAGEMENT SEMINAR I
Discussion and lectures on issues important to the Engineering and Management programmes, such as communication skills and self-assessment. 1 seminar, alternate weeks; both terms
Prerequisite: Registration in Level II of any Engineering and Management programme.

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ENGIN MGMT 3A01 ENGINEERING AND MANAGEMENT SEMINAR II Discussion and lectures on issues important to the Engineering and Management programmes, such as communication skills, interpersonal skills and group skills. 1 seminar, alternate weeks; both terms. Prerequisite: Engineering and Management 2A01.

ENGIN MGMT 4A01 ENGINEERING AND MANAGEMENT REPORT A written and oral report based on summer work experience and written assessments of communications are required. Guidelines and procedures must be obtained from the Program Director before the end of Level III. 1 seminar, alternate weeks; both terms. Prerequisite: Registration in Level IV of an Engineering and Management programme.

ENGIN 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, including Commerce 2B3A.

ENGIN MGMT 5A01 ENGINEERING AND MANAGEMENT REPORT Report on a topic related to career development is required of each student in an Engineering and Management programme; guidelines and evaluation procedures must be obtained from the Program Director before the end of Level IV. Prerequisite: Registration in Level V of an Engineering and Management programme.

ENGIN 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. 1 lect., 2 tut. (2); first or second term. Prerequisite: Registration in Level V of an Engineering and Management programme.

ENGIN MGT 5G01 TRAINING AND PROBLEM SOLVING An intensive workshop, involving such topics as: supervision and the principle of training; practice. Students supervise workshops in the course, Engineering and Management 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

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-defining 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. 1 lect., 1 tut.; 1 sem.; one term. Prerequisite: Registration in an Engineering and Society programme. First time offered in 1992-93.

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. 2 lect., 1 tut.; one term. Prerequisite: Registration in an Engineering and Society programme. First time offered in 1992-93.

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. 1 lect., 1 sem.; one term. Prerequisite: Engineering and Society 2X03. First time offered in 1993-94.

ENGSOCTY 3Y03 THE CULTURE OF TECHNOLOGY Current engineering practices and approaches are studied as a cultural activity with its own beliefs, values, social structures, and institutions. 1 lect., 1 tut., 1 sem.; one term. Prerequisite: Engineering and Society 2Y03. First time offered in 1993-94.nal.

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. 2 lect., 1 tut.; one term. Prerequisite: Registration in Level III of an Engineering and Society Programme. First time offered in 1992-93.

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. 1 lect., 1 sem.; one term. Prerequisite: Engineering and Society 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 social responsibility and the role of ethics as one approach to social responsibility in engineering. 1 lect., 1 sem.; one term. Prerequisite: Engineering and Society 3Z03. First time offered in 1994-95.

Engineering Physics

Faculty as of January 15, 1991

W.J. Garland/Chair

Professors
Edward A. Ballik/B.Sc. (Queen’s), D.Phil. (Oxford), P.Eng.
H. Douglas Barbor/B.Sc., M.Sc. (Saskatchewan), Ph.D. (London), P.Eng./part-time
Jen-Shih Chang/ B.Ed., M.Eng., M.Eng. (Musashi Int. of Tech.), Ph.D. (York)
John A. Davies/B.A., M.A., Ph.D. (Toronto)/part-time
Thomas E. Jackmari/B.Sc., M.Sc., Ph.D. (Guelph), Adjunct Professor/paid-time
David P. Jackson/B.Sc., M.A., M.Sc., Ph.D. (Toronto)/part-time
Terence J. Kettner/B.Sc., M.Sc., Ph.D. (McMaster)
Kris V.S. Krishnan/B.Tech. (Madras), M.S., Ph.D. (Toronto)/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
David A. Thompson/B.Sc., Ph.D. (Reading)
Cilie A. Trojan/B.A.Sc., M.A., Ph.D. (Toronto), P.Eng./part-time

Associate Professors
Alistair T. Burrell/B.Tech., M.S., Ph.D. (Leningrad State)
Paul E. Jessop/B.Sc. (Waterloo), M.A., Ph.D. (Harvard)
Walter T. Shemya/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
Adrian Kino/B.Eng (McMaster), Ph.D. (Cornell), P.Eng.
Peter Mascher/B.Sc., M.Sc., Ph.D. (Technical University of Graz)
John S. Preston/B.Eng. (McMaster), M.Sc., Ph.D. (Toronto)

ENG PHYS 2A03 ELECTRICAL SCIENCE I
An introduction to electricity and magnetism for Engineering Physics students. 2 lects., 1 lab. or tut. (3); first term.
Prerequisite: Physics 1E04 or 1E03, and credit or registration in Mathematics 2P04.

ENG PHYS 2B04 ELECTRICAL SCIENCE II
Analysis of ac circuits and ac power. Maxwell’s equations and electromagnetic theory. Introductory modern physics. 3 lects., 1 lab. or tut. (3); second term.
Prerequisite: Credit or registration in Engineering Physics 2A03.
ENG PHYS 3D03 PRINCIPLES OF NUCLEAR ENGINEERING
Introduction to fission and fusion energy systems. Energies of nuclear reactions, interactions of radiation with matter, radioactivity, design and operating principles of fission and fusion reactors.
3 lects. (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.
2 lects., 1 tut. or lab. (3); first term
Prerequisite: Engineering Physics 2A03 and 2E04.

ENG PHYS 3F03 FUNDAMENTALS OF SOLID STATE ELECTRONICS
Electronics in solids, with emphasis on semiconductors, carrier drift and diffusion, doped semiconductors; non-equilibrium carrier effects; optical properties of semiconductors.
2 lects., 1 lab or tut. (3); second term
Prerequisite: Engineering Physics 2A03 and 2E04.

ENG PHYS 3G03 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. Similarity and dimensional analysis, mass flow, fluid machinery and electromagnetic flow. Conduction and convection heat transfer.
2 lects., 1 lab or tut. (3); second term
Prerequisite: Mathematics 2M06, or 2P04 and 2Q04, any of which may be taken concurrently.

ENG PHYS 3H04 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, modeling and simulation is undertaken.
2 lects.; both terms
Prerequisite: Credit or registration in Mathematics 3C06 or 3C03 and 3D03 or permission of the Department.

ENG PHYS 3I03 HUMAN PHYSIOLOGY
Basic introduction and working knowledge of the human body. Includes study of the cellular level of organization.
3 lects.; second term
Prerequisite: Completion of a minimum of 30 units beyond Level I in any Engineering Science Programme.

ENG PHYS 3J04 DESIGN AND SYNTHESIS PROJECT
Design and synthesizes projects supervised by a faculty member in the Department of Engineering Physics.
2 labs. (3); both terms
Prerequisite: Completion of Level III or permission of the Department.

ENG PHYS 4A02 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.
1 lect.; first term and second term
Prerequisite: Registration in Level IV or V of any Engineering programme.

ENG PHYS 4B03 NUCLEAR REACTOR ANALYSIS
Introduction to nuclear energy, nuclear physics and chain reaction; reactor statics and kinetics; multigroup analysis, core thermal-hydraulics; reactor design.
3 lects. (including field trip); first term
Prerequisite: Engineering Physics 3D03.

ENG PHYS 4C03 SOLID STATE DEVICES
Electronic properties of semiconductors; contact phenomena; p-n junctions; Schottky diodes, photodetectors, bipolar transistors, field effect transistors.
2 lects. 1 tut.; first term
Prerequisite: Engineering Physics 3F03 or Engineering 3Q03.

ENG PHYS 4D03 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.
2 lects., 1 tut.; second term
Prerequisite: Credit or registration in Engineering Physics 4E03.

ENG PHYS 4E03 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.
2 lects., 1 tut.; first term
Prerequisite: Physics 3N03, or Engineering Physics 3E03.

ENG PHYS 4F03 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 survey, experiments, theoretical investigations, etc. A written report is required.
2 tuts., 1 lab. (3); both terms
Prerequisite: Permission of the Department.

ENG PHYS 4G03 OPTICAL COMMUNICATIONS SYSTEMS
2 lects., 1 tut.; second term
Prerequisite: Registration in Level IV or V of any programme in Engineering or Physics.

ENG PHYS 4H03 NUCLEAR REACTOR THERMALHYDRAULICS
Introduction to two phase flow and nuclear reactor thermal-hydraulics 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.
2 lects., 1 lab.; second term
Prerequisite: Chemical Engineering 2E04 or 3004 or Engineering Physics 3E03 or Mechanical Engineering 3E04.

ENG PHYS 4I03 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.
3 lects.; first term
Prerequisite: Engineering Physics 3D03.

ENG PHYS 4J04 LASERS AND ELECTRO-OPTICS
2 lects.; both terms
Prerequisite: Physics 3N03, or Engineering Physics 3E03.

ENG PHYS 4K04 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. 2 labs. (3); both terms
Prerequisite: Registration in Level IV Engineering Physics or Engineering Physics and Management.

ENG PHYS 4L03 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.
2 lects., 1 tut. (2); second term
Prerequisite: Credit or registration in Engineering Physics 4E03; or permission of the department.

PHYSICS 3A06 ELECTRONS
Network theory and filters, semiconductor devices, amplifier circuits, D.C. power supplies, integrated circuits, operational amplifiers and digital circuits.
2 lects.; both terms; 1 lab. (2); both terms
Prerequisite: Engineering Physics 2A03 and 2E04, or Physics 2B06.

PHYSICS 4A06 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.
2 lects., 1 lab. (3); both terms
Prerequisite: Engineering Physics 2A03 and 2E04, or Physics 2B06.

For Graduate courses, see the Calendar of the School of Graduate Studies.

English

Faculty as of January 15, 1991
Brian John/Chair

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., Ph.D. (Aberdeen)
Bemers A.W. Jackson/B.A. (McMaster), D.Phil. (Oxford)
Dorothy S. Murphy/B.A., M.A. (Toronto and Oxford)
W.J.B. Owen/M.A. (New Zealand and Oxford), Ph.D. (Wales), D.Litt. (McMaster), F.R.S.C.
F. Norman Shrieve/C.D., B.A. (McMaster), M.A. (Toronto), Ph.D. (Queen’s)

Professors
Carl P.A. Ballstad/B.A., M.A. (Western), Ph.D. (London)
Alain G. Bishop/B.A., D.Phil. (Rhodes, S. Africa), M.A., Ph.D. (Oxford)
David Blewett/B.A., M.A. (Manitoba), Ph.D. (Toronto)

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English

ENGLISH 3GG3 Topics in 19th-Century Literature

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 English 3JJ3 Topics in Fiction I
 English 3JF3 Topics in Fiction II
 English 3KF3 Topics in Critical Approaches
 English 3P03 Modern Drama in English
 English 3P03 Topics in World Literature in English
 English 3X03 Topics in 20th-Century Literature I
 English 3X03 Topics in 20th-Century Literature II
 English 3X03 Contemporary Canadian Poetry

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.

2 lectures, 1 tutorial, two terms.

Prerequisite: Grade 13 English or OAC English 1; or permission of the Department.

ENGLISH 2A06 BRITISH LITERATURE

A chronological survey of British literature. One Shakespeare play will be included.

3 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).

3 lectures, two terms

Prerequisite: Registration in a programme in English. Same as Drama 2B06.

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.

3 lectures; one term

Prerequisite: English 1D06, or permission of the Department.

Enrollment 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.

3 lectures; one term

Prerequisite: Open to students in Level II and above. Same as Comparative Literature 2D03.

Enrollment is limited.

ENGLISH 2D03 TOPICS IN MEDIEVAL AND RENAISSANCE LITERATURE

Previous topics include: Christopher Marlowe, George Herbert. Same as Drama 2D03 when the topic is Medieval Drama or Christopher Marlowe. Consult the Department concerning topics to be offered.

Seminar (2 hrs.); one term

Prerequisite: Open to students in Level II and above. Not available to students with credit in English 4D03.

English 2D03 may be repeated, if on a different topic, to a total of six units.

Enrollment 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.

3 lectures; one term

Prerequisite: English 1D06; or permission of the Department. Not available to students with credit in, or registration in, English 2F06.

Enrollment 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.

3 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.

3 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.

3 lectures; two terms

Prerequisite: Registration in a programme in English. Open only to students registered in a programme in English before September 1990. Same as English 3H06.
ENGLISH 2M03  PRACTICAL CRITICISM
The course gives the student the opportunity to write a piece of criticism once a week. This work is evaluated by members of the course and the instructor. 2 lects., first term; 1 lect.; second term  
Prerequisite: Permission of the Department; departmental permission slip required.  
Enrolment is limited.

ENGLISH 2R03  TOPICS IN RESTORATION AND 18TH-CENTURY LITERATURE
Previous topics include: William Blake, Jane Austen. Consult the Department concerning topic to be offered.  
Prerequisite: English 1D06; or permission of the Department.  
Enrolment may be repeated, if on a different topic, to a total of six units.  
Enrolment is limited.

ENGLISH 2V06/2V0V  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.  
3 lects.; two terms  
Prerequisite: 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 2V0V in which case it may not be used to fulfil the English area requirements.  
Same as English 3J06.

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 written assignments. (Students whose writing problems are remedial in nature should not attempt this course.)  
2 hrs. (lect.), 1 hr. (lab.); one term  
Prerequisite: Open to students 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.  
3 lects.; one term  
Prerequisite: Open to students in Level III and above.  
Same as Sociology 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.  
3 lects.; two terms  
Prerequisite: Registration in Level III or IV of a programme in English. Open only to students entering a programme in English as of September 1990. Not available to students with credit in English 4E06.

ENGLISH 3C33  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.  
3 lects., plus one weekly film screening; one term  
Prerequisite: Registration in Level III or IV of a programme in Drama or Literature or Art History; or permission of the Drama Department. It is recommended that students should already have taken Drama 2X06. Not available to students with credit in English 4H03.  
Same as Art History 3C33, Drama 4H03, and Comparative Literature 3L03.

ENGLISH 3D03  THE ELDEST 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.  
3 lects.; one term  
Prerequisite: Registration in Level III or IV of a programme in English.

ENGLISH 3D03  BEOWULF
An exploration of the Old English epic Beowulf, supplemented by related poetic and prose texts.  
3 lects.; one term  
Prerequisite: English 3D03.

ENGLISH 3E03  SHAKESPEARE: SELECTED PLAYS
A study of a representative selection of plays.  
3 lects.; one term  
Prerequisite: English 1D06 or Drama 1A06. Not open to students receiving credit for English/Drama 3J06.  
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.  
3 lects.; one term  
Prerequisite: Open to students in Level III and above. Not available to students with credit in English 2FF3.  
Same as Sociology 3J03.  
Enrolment is limited.

ENGLISH 3FF3  TECHNIQUES OF CREATIVE WRITING
This course will require the composition of verse and prose. Experiments with a variety of forms will be attempted in order to increase the student's mastery of verse and prose technique.  
2 lects. (first term); 1 lect. (second term)  
Prerequisite: A grade of at least B in six units of English; and permission of the Department.  
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.  
3 lects.; two terms  
Prerequisite: Registration in Level III or IV of a programme in English. Open only to students entering a programme in English as of September 1990. Not available to students with credit in English 4G06.

ENGLISH 3G03  TOPICS IN 19TH-CENTURY LITERATURE
Previous topics include: The Brontes, Henry James. Consult the Department concerning topic to be offered.  
3 lects.; one term  
Prerequisite: English 1D06; or permission of the Department.  
English 3G03 may be repeated, if on a different topic, to a total of six units.  
Enrolment is limited.

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.  
3 lects., two terms  
Prerequisite: Registration in Level III or IV of a programme in English. Open only to students entering a programme in English as of September 1990. Not available to students with credit in English 2H06.

ENGLISH 3H13  TOPICS IN POETRY
Previous topics include: Contemporary British Poetry, Women Poets of the 20th Century. Consult the Department concerning topic to be offered.  
3 lects.; one term  
Prerequisite: English 1D06; or permission of the Department.  
English 3H13 may be repeated, if on a different topic, to a total of six units.  
Enrolment is limited.

ENGLISH 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.  
3 lects.; one term  
Prerequisite: Registration in Level III or IV of a programme in English.  
Same as Comparative Literature 3L03.

ENGLISH 3J13  TOPICS IN FICTION I
Previous topics include: William Faulkner, James Joyce. Consult the Department concerning topic to be offered.  
3 lects.; one term  
Prerequisite: English 1D06; or permission of the Department.  
English 3J13 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.  
3 lects.; two terms  
Prerequisite: Registration in Level III or IV of a programme in English.  
Same as Drama 3J06.
ENGLISH

ENGLISH 3K33 TOPICS IN CRITICAL APPROACHES
Previous topics include: The Bloomsbury Group, Fiction by Women. Consult the Department concerning topic to be offered.
3 lects.; one term
Prerequisite: English 1D06; or permission of the Department.
English 3K33 may be repeated, if on a different topic, to a total of six units.
Enrolment is limited.

ENGLISH 3N03 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.
3 lects.; one term
Prerequisite: Registration in Level III or IV of a programme in English. Open only to students entering a programme in English as of September 1990. Not available to students with credit in English 4103.

ENGLISH 3M03 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.
3 lects.; one term
Prerequisite: Registration in Level III or IV of a programme in English. Open only to students entering a programme in English as of September 1990. Not available to students with credit in English 4M03.

ENGLISH 3Q03 THE BRITISH NOVEL
This course, in assessing and analysing 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.
3 lects.; two terms
Prerequisite: Registration in Level III or IV of a programme in English. Open only to students entering a programme in English as of September 1990. Not available to students with credit in English 4Q03.

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.
3 lects.; one term
Prerequisite: English 1D06 or Drama 1A06.
Same as Drama 3P03.
Enrolment is limited.

ENGLISH 3P33 TOPICS IN WORLD LITERATURE IN ENGLISH
Previous topics include: The Modern Indian Novel, West Indian Literature. Same as Comparative Literature 4P33 when the topic is South West Asian Literature in English. Consult the Department concerning topic to be offered.
3 lects.; one term
Prerequisite: English 1D06; or permission of the Department.
English 3P33 may be repeated, if on a different topic, to a total of six units.
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 present century. The course focuses on the varieties of narrative forms, while also exploring the intellectual, cultural and psychological contexts of criticism.
3 lects.; one term
Prerequisite: Registration in Level III or IV of a programme in English.
Same as Comparative Literature 3Q03.

ENGLISH 3Q33 MODERN CRITICAL THEORY
The theory and practice of literary criticism from Eliot to the present.
3 lects.; one term
Prerequisite: Registration in Level III or IV of a programme in English.
Same as Comparative Literature 3Q33.

ENGLISH 3T03 SPENSER
The main work of the course will be close study of The Faerie Queene, but The Shepherdes Calendar, Epithalamion and Protevangelion will also be read.
3 lects.; 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 poems and prose-writers of the period, with emphasis on the poetry of Donne, the 'metaphysical school', Jonson and Milton.
3 lects.; two terms
Prerequisite: Registration in Level III or IV of a programme in English.

ENGLISH 3X03 TOPICS IN 20TH-CENTURY LITERATURE I
Previous topics include: Evelyn Waugh, Forms in Fiction. Consult the Department concerning topic to be offered.
3 lects.; one term
Prerequisite: English 1D06; or permission of the Department.
English 3X03 may be repeated, if on a different topic, to a total of six units.
Enrolment is limited.

ENGLISH 3X33 TOPICS IN 20TH-CENTURY LITERATURE II
Previous topics include: British Drama: 1950 to the Present, Modern Canadian Drama. Consult the Department concerning topic to be offered.
3 lects.; one term
Prerequisite: English 1D06; or permission of the Department.
English 3X33 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 1940's to the present. Parallel developments in French-Canadian poetry (studied in translation) will also be considered.
3 lects.; one term
Prerequisite: English 1D06; or permission of the Department.

ENGLISH 4006 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.
3 lects.; two terms
Prerequisite: Registration in Level III or IV of a programme in English. Open only to students registered in a programme in English before September 1990.
Same as English 3G06.

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.
3 lects.; two terms
Prerequisite: Registration in Level III or IV of a programme in English. Open only to students registered in a programme in English before September 1990.
Same as English 3M03.

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.
3 lects.; one term
Prerequisite: Registration in Level III or IV of a programme in English. Open only to students registered in a programme in English before September 1990.
Same as English 3M03.

ENGLISH 4N06 THE BRITISH NOVEL
This course, in assessing and analysing 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.
3 lects.; two terms
Prerequisite: Registration in Level III or IV of a programme in English. Open only to students registered in a programme in English before September 1990.
Same as English 3G06.

ENGLISH 4Q03 HONOURS ESSAY
In consultation with members of the English Department, students will prepare an essay on an approved topic.
3 lects.
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. The seminars will be offered beginning in September 1992.

ENGLISH 4C03 Canadian Literature
Enrolment is limited

ENGLISH 4F03 American Literature
Enrolment is limited

ENGLISH 4G03 Genre Studies
Enrolment is limited

ENGLISH 4H03 Nineteenth Century British Literature
Enrolment is limited

ENGLISH 4L03 Twentieth-Century British Literature
Enrolment is limited

ENGLISH 4M03 Eighteenth-Century British Literature
Enrolment is limited

ENGLISH 4P03 Medieval Literature
Enrolment is limited

ENGLISH 4Q03 Critical Theory
Enrolment is limited

ENGLISH 4R03 Medieval Literature
Enrolment is limited

ENGLISH 4503 Seventeenth-Century Literature
Enrolment is limited
ENGLISH 4T03  Seminar A
Enrolment is limited

ENGLISH 4U03  Seminar B
Enrolment is limited

ENGLISH 4U03  Seminar C
Enrolment is limited

ENGLISH 4V03  Seminar D
Enrolment is limited

ENGLISH 4W03  Seminar E
Enrolment is limited

ENGLISH 4X03  Seminar F
Enrolment is limited

ENGLISH 4Y03  Seminar G
Enrolment is limited

ENGLISH 4Z03  Seminar H
Enrolment is limited

For Graduate Courses see Calendar of School of Graduate Studies.

French

Faculty as of January 15, 1991
Elaine Nardocchio/Chair

Professors Emeriti
Marie L. Stoeck/B.A. (Queen’s), M.A. (McGill), Ph.D. (Columbia)
G. Derek West/B.A. (Oxford), Ph.D. (London)

Professors
Owen R. Morgan/B.A., M.A. (Nottingham)
Cézar Bouchard/L.és S. (Paris-Sorbonne), B.A. (Sir George Williams),
M.A., Ph.D. (McGill)

Associate Professors
Caroline Bayard/L.és L. M. é L. (Toulouse), M.A., Ph.D. (Toronto)
(Edinburgh)
Madeleine Jeay/L.és L. Bordeaux, M.A., Ph.D. (Montreal)
Charles E. Jose/B.A. (Western), M.A. (Toronto)
Michael Kliffer/B.A. (British Columbia), M.A. (Michigan), Ph.D.
(Cornell)
Dominique Lepko/L.és L. (Caen), M.A. (Ottawa), Ph.D. (Toronto)
Gabriel Moye/B.A. (McGill), M.A., Ph.D. (Toronto)
Elinore Nardocchio/B.A. (St. Francis-Xavier), M.A. (Middlebury), Ph.D.
(Laval)
Brian S. Pocknell/M.A. (Manchester), D. de l’U. (Paris-Sorbonne)
Anna St. Leger Lucas/B.A. (Nottingham), M.A. Ph.D. (British
Columbia)

Assistant Professors
Vincent A. Beti/B.A., L. é L. (Laval)
Suzanne Crofts/B.A., M.A. (McMaster), Ph.D. (Toronto)/part-time
Christine Portelance/B.A., M.A., Ph.D. (Montréal)
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)

Instructors
Pauline Pocknell/B.A. (Manchester)/part-time
Simone Venisse-Fam/Licence Es-Lettres, Diplôme D’Études
Superieures, (Paris), Ph.D. (Montréal)/part-time

Senior Language Preceptor
Hélène Gallier-Morgan/D.U.E.L., Licences Lettres, Maîtrise ès Lettres,
D.E.A. (Sorbonne)

Department Notes:
1. 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.
2. Students with some elementary or secondary school French not
   exceeding Ontario Grade 11 French or equivalent should enrol in
   French 1206. The sequel to French 1206 is French 2NN6 which, in
   turn, leads into French 2M06.
3. Students who begin their studies with French 1206 or French 1NN6
   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.
4. Students with at least one OAC French and/or Grade 13 French
   should register in French 1A06 or 1NN6. Consult the prerequisite
   statements below for required minimum grades. The sequel to
   French 1A06 is French 2A03. The sequel for French 1NN6 is French
   2M06.
5. All students intending to register in French 1A06 or 1NN6 must take
   the French Language Placement Test on Thursday, September 5,
   1991 during their first class.
6. For language practice courses, francophone students with native
   fluency must select from French 2C03, 3CC3, 4BB3. Francophone
   students with native fluency are not permitted to enrol in either
   French 2C03 or French 3F03.
7. Students must complete French 4A03 in order to graduate with an
   Honours or Combined Honours degree in French.
8. 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.

Beginner’s Language Course
FRENCH 1206  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 2NN6.
5 hrs. (including lab. practice); two terms
Prerequisite: Open, except to graduates of Grade 12 French or Grade 13 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.

Intermediate and Advanced Language and Literature 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.
4 hrs.; two terms
Prerequisite: Grade 13 or OAC French with a grade of at least 80%. 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.
2 hrs.; two terms
Prerequisite: Grade 13 or OAC French with a grade of less than 80%. 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 2A03  FRENCH LANGUAGE PRACTICE: WRITTEN
Grammar and composition.
2 hrs.; two terms
Prerequisite: French 1A06, 1B06 or 2M06.

FRENCH 2C03  FRENCH LANGUAGE PRACTICE: ORAL
Development of conversational skills.
2 hrs.; two terms
Prerequisite: Registration in a programme in French; or permission of the Department. Departmental permission slip required. Not available to Francophone students with native fluency.
Enrolment is limited.

FRENCH 2F03  THE CIVILIZATION OF FRENCH CANADA I
The study of the socio-political and religious evolution of early French Canada and the reflection of these factors in French-Canadian culture. Journalism, music, architecture.
3 hrs.; one term
Prerequisite: French 1A06, 1B06 or 2M06; or permission of the Department.

FRENCH 2F04  THE CIVILIZATION OF FRENCH CANADA II
The study of the socio-political, cultural and linguistic evolution of contemporary French Canada and the reflection of these factors in French-Canadian literature, journalism, music and cinema.
3 hrs.; one term
Prerequisite: French 1A06, 1B06 or 2M06; or permission of the Department.
FRENCH

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.
3 tuts.; 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. Departmental permission slip required. 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.
3 tuts.; one term
Prerequisite: French 1A06, 1B06 or 2M06.

FRENCH 2J03  NINETEENTH-CENTURY FRENCH LITERATURE I
Selected novels, plays and poems representative of the main currents of 19th-century French literature.
3 lects.; one term
Prerequisite: French 1A06, 1B06 or 2M06.

FRENCH 2JJ3  NINETEENTH-CENTURY FRENCH LITERATURE II
Selected themes appearing in the works of the major French writers of the 19th century.
3 lects.; one term
Prerequisite: French 1A06, 1B06 or 2M06.

FRENCH 2W03  TWELFTH-CENTURY FRENCH LITERATURE I
Aspects of the development of 20th-century literature to the end of the Second World War.
3 lects.; one term
Prerequisite: French 1A06, 1B06 or 2M06.

FRENCH 2W05  TWELFTH-CENTURY FRENCH LITERATURE II
Aspects of the development of 20th-century literature since the Second World War.
3 lects.; one term
Prerequisite: French 1A06, 1B06 or 2M06.

FRENCH 3A03  THE MODERN FRENCH-CANADIAN NOVEL
Representative novels by contemporary authors with emphasis upon the relationship between technique and meaning.
3 lects.; one term
Prerequisite: French 2F03 or 2FF3; or permission of the Department.

FRENCH 3B03  FRENCH SEMANTICS
An introduction to various theories of meaning, treating issues such as reference, synonymy, paraphrase, cultural overlap, distinctive features and lexicography.
3 lects.; one term
Prerequisite: French 2H03 and 2A03; or permission of the Department. Alternates with French 4C03.

FRENCH 3BB3  CONTEMPORARY QUEBEC THEATRE
Contemporary experimental theatre, and representative playwrights such as Marcel Dubé and Michel Tremblay.
3 lects.; one term
Prerequisite: French 2F03 or 2FF3; or permission of the Department. Same as Drama 3BB3.

FRENCH 3C03  FRENCH LANGUAGE PRACTICE: WRITTEN
Advanced grammar and composition; introduction to stylistics.
2 tuts.; two terms
Prerequisite: A grade of at least C in French 2A03; or permission of the Department. 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 syntax, with special reference to problems in the translation of texts of a general nature.
3 tuts.; one term
Prerequisite: French 2A03 and 2G03. Departmental permission slip required. Enrolment is limited.

FRENCH 3E03  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.
3 lects.; one term
Prerequisite: French 2H03 and registration in Level III or IV of a programme in French; or permission of the Department. Alternates with French 3G03.

FRENCH 3F03  FRENCH LANGUAGE PRACTICE: FRENCH CIVILIZATION AND CULTURE
An introduction to contemporary French society through oral discussions and presentations.
2 tuts.; two terms
Prerequisite: French 2C03 and registration in Level III or IV of a programme in French; or permission of the Department. Departmental permission slip required. 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).
3 lects.; one term
Prerequisite: French 1A06, 1B06 or 2M06; or permission of the Department.

FRENCH 3H03  FRENCH SOCIOLINGUISTICS
The study of linguistic variations within French-speaking communities with special reference to the Canadian situation.
3 lects.; one term
Prerequisite: French 2H03 and registration in Level III or IV of a programme in French; or permission of the Department. Alternates with French 3I03.

FRENCH 3K03  EIGHTEENTH-CENTURY FRENCH LITERATURE I
The early 18th century with emphasis on Voltaire, Diderot, and Rousseau.
3 lects.; one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.

FRENCH 3K04  EIGHTEENTH-CENTURY FRENCH LITERATURE II
Texts representing the main aspects of Enlightenment thought and literature from the publication of the preliminary discourse of the Encyclopédie to the Revolution.
3 lects.; one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.

FRENCH 3Q03  SEVENTEENTH-CENTURY FRENCH LITERATURE I
A study of selected plays by Corneille, Racine and Molière.
3 lects.; one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department. Same as Drama 3Q03.

FRENCH 3Q05  SEVENTEENTH-CENTURY FRENCH LITERATURE II
A consideration of selected themes as they appear in the works of major French writers of the 17th century.
3 lects.; one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.

FRENCH 3R03  MEDIEVAL FRENCH LANGUAGE AND LITERATURE
An introduction to the Old French language and a study of selected medieval texts.
3 lects.; one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.

FRENCH 3S03  AFRICAN AND CARIBBEAN FRENCH LITERATURE
An introduction to French African and Caribbean literature from the origins of the Negritude movement to the present.
3 lects.; one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.

FRENCH 3Z03  APPLIED LINGUISTICS AND SECOND-LANGUAGE LEARNING
Practice in the translation into French of texts of a specialized nature (e.g., administration, business, politics).
3 lects.; one term
Prerequisite: French 3C03. Departmental permission slip required. 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. 3lects.; one term
Prerequisite: 18 units of French including French 2H03 and registration in a programme in French; or permission of the Department.

FRENCH 4F03  TOPICS IN EIGHTEENTH-CENTURY FRENCH LITERATURE
Previous topics include: Voltaire. Consult the Department concerning topic to be offered.
Seminar (2 hrs.); one term
Prerequisite: 18 units of French including French 3K03 or 3K53, and registration in a programme in French; or permission of the Department.
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 (3 hrs.); one term
Prerequisite: French 2H03 and registration in Level III or IV of a programme in French; or permission of the Department.
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 (2 hrs.); one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.
French 4I03 may be repeated, if on a different topic, to a total of six units.

FRENCH 4J03  FRENCH LITERATURE OF THE RENAISSANCE
Characteristic themes of Renaissance humanism as they appear in the works of Rabelais, Monnainge, and selected poets.
Seminar (3 hrs.); one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.
French 4J03 may be repeated, if on a different topic, to a total of six units.

FRENCH 4L3  TOPICS IN FRENCH AFRICAN AND CARIBBEAN LITERATURE
A study of the genesis and themes of representative 18th-century novels.
Seminar (2 hrs.); one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.
French 4L3 may be repeated, if on a different topic, to a total of six units.

FRENCH 4M3  THE EIGHTEENTH-CENTURY FRENCH NOVEL.
A study of the genesis and themes of representative 18th-century novels.
Seminar (2 hrs.); one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.

FRENCH 4N03  TOPICS IN THE FRENCH NOVEL
Previous topics include: Emile Zola. Consult the Department concerning topic to be offered.
Seminar (2 hrs.); one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.
French 4N03 may be repeated, if on a different topic, to a total of six units.

FRENCH 4P03  TWENTIETH-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. 3lects.; one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.

FRENCH 4Q03  TOPICS IN SEVENTEENTH-CENTURY FRENCH LITERATURE
Previous topics include: Corneille, Racine, Molière. Consult the Department concerning topic to be offered.
Seminar (2 hrs.); one term
Prerequisite: French 3Q03, and registration in a programme in French; or permission of the Department.
French 4Q03 may be repeated, if on a different topic, to a total of six units.

FRENCH 4R03  STUDIES IN MEDIEVAL FRENCH LITERATURE
A survey of medieval French literature: songs and poems of the troubadours and trouvères; selections from the Chanson de Roland, Tristan de Troyes' romances and other romantic works (Ilias, 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 (3 hrs.); one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.

FRENCH 4T03  INDEPENDENT STUDY
The student will present, 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: Félibrines of French Canada, Acadia, Women Writers of Quebec. Consult the Department concerning topic to be offered.
Seminar (2 hrs.); one term
Prerequisite: 18 units of French including 2F03 or 2F53, and registration in a programme in French; or permission of the Department.
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 STRUCTURALISM TO SEMIOTICS)
General linguistics applied to literary analysis. Includes narrative structures, pragmatics and sign theory.
Seminar (2 hrs.); one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.

FRENCH 4Y03  TOPICS IN TWENTIETH-CENTURY FRENCH LITERATURE
Previous topics include: Women's Writing. The essay. Consult the Department concerning topic to be offered.
Seminar (3 hrs.); one term
Prerequisite: 18 units of French and registration in a programme in French; or permission of the Department.

FRENCH 4Z03  TOPICS IN NATIONAL CINEMAS I
(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, 1991
S.B. McCann/Chair
S.M. Taylor/Associate Chair

Professors Emeriti
Andrew F. Burghardt/A.B, (Harvard), M.A., Ph.D. (Wisconsin)
L. 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 Law/B.S. (National Taiwan), M.A. (Kansas State), Ph.D. (Clark)
S. Brian McCann/B.Sc. (Wales), Ph.D. (Cambridge)
Yungco V. 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.Sc., Ph.D. (British Columbia)
Ming-Io Wuo/M.A. (Hong Kong), Ph.D. (British Columbia)

Associate Professors
William P. Anderson/M.A., Ph.D. (Boston)
Richard S. Harris/B.A. (Cambridge), M.A. (Ohio), Ph.D. (Queen's)
G.M. MacDonald/B.A. (Berkeley), M.Sc. (Calgary), Ph.D. (Toronto)

Assistant Professors
Ver Chouinard/B.A. (Western), M.A. (Toronto), Ph.D. (McMaster)
Carolyn H. Eyles/B.Sc. (East Anglia), M.Sc. Ph.D (Toronto)
Steven Reader/B.Sc., Ph.D. (Bristol)
GEOG 2P03

Introduction to environmental cognition and human spatial behaviour.
2 lects., 1 lab. (2); one term
Prerequisite: Geography 1B06, or permission of the instructor.

GEOG 2P03*

FLUVIAL GEOMORPHOLOGY

The effects of moving water on the earth's surface: principles of sediment entrainment, flow, stream transport, and analysis of resulting landforms, such as terraces and deltas.
2 lects., 1 lab. (2); one term
Prerequisite: Geography 1A06, or one of Geology 1A03, 1C03 or 1A06, or permission of the instructor.

GEOG 2P03*

ENVIRONMENTAL SCIENCE I

An examination of the interrelationships of the physical, biological, economic and institutional dimensions of environmental problems.
2 lects., 1 lab. (2); one term
Prerequisite: Geography 1A06 or 1B06, or a Level I Science course, or permission of the instructor.

GEOG 2P03*

HYDROLOGY IN CANADA

A discussion of fresh water resources, including both surface and groundwater.
3 lects.; one term
Prerequisite: Geography 1A06, or one of Geology 1A03, 1C03 or 1A06.

GEOG 2P03

URBAN GEOGRAPHY

The organization of people, their settlements and their activities. Topics include urbanization, city systems and structure and such issues as pollution, congestion and prejudice.
3 lects.; one term
Prerequisite: Geography 1B06, or permission of the instructor.

GEOG 2P03*

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: Geography 1L3 or 1L6, and permission of the Department.

GEOG 2P03

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.
3 lects.; one term
Prerequisite: Geography 1A06, or one of Geology 1A03, 1C03, or 1A06, and completion of at least 12 units of Level II (or higher) Science courses; or permission of the instructor.

GEOG 2P03

PHYSICAL CLIMATOLOGY

The physical basis of the large scale climate and mechanisms of climatic change.
2 lects., 1 lab. (2); one term
Prerequisite: Geography 2P03; either Geography 1L3, or Computer Science 1M03, or registration in a programme in the Faculty of Science.

GEOG 2P03*

POPULATION GROWTH AND DISTRIBUTION II

Facts, theories, and major issues about the growth and distribution of human population.
3 lects.; one term
Prerequisite: Geography 1B06, or permission of the instructor.

GEOG 2P03

PHYSICAL CLIMATOLOGY

The physical basis of the large scale climate and mechanisms of climatic change.
2 lects., 1 lab. (2); one term
Prerequisite: Geography 2P03; either Geography 1L3, or Computer Science 1M03, or registration in a programme in the Faculty of Science.

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3 lects.; one term
Prerequisite: Geography 1A06, or one of Geology 1A03, 1C03, or 1A06, and completion of at least 12 units of Level II (or higher) Science courses; or permission of the instructor.

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The physical basis of the large scale climate and mechanisms of climatic change.
2 lects., 1 lab. (2); one term
Prerequisite: Geography 2P03; either Geography 1L3, or Computer Science 1M03, or registration in a programme in the Faculty of Science.

GEOG 2P03

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Facts, theories, and major issues about the growth and distribution of human population.
3 lects.; one term
Prerequisite: Geography 1B06, or permission of the instructor.

GEOG 2P03

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.
3 lects.; one term
Prerequisite: Geography 1A06, or one of Geology 1A03, 1C03, or 1A06, and completion of at least 12 units of Level II (or higher) Science courses; or permission of the instructor.

GEOG 2P03

PHYSICAL CLIMATOLOGY

The physical basis of the large scale climate and mechanisms of climatic change.
2 lects., 1 lab. (2); one term
Prerequisite: Geography 2P03; either Geography 1L3, or Computer Science 1M03, or registration in a programme in the Faculty of Science.

GEOG 2P03

POPULATION GROWTH AND DISTRIBUTION II

Facts, theories, and major issues about the growth and distribution of human population.
3 lects.; one term
Prerequisite: Geography 1B06, or permission of the instructor.

GEOG 2P03

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.
3 lects.; one term
Prerequisite: Geography 1A06, or one of Geology 1A03, 1C03, or 1A06, and completion of at least 12 units of Level II (or higher) Science courses; or permission of the instructor.
Applications of GEOG 3K03* processes.

GEOG 3L03* MULTIVARIATE ANALYSIS IN GEOGRAPHY
Applications of SAS to the management and analysis of geographical data, including cross tabulation and multiple regression. Real-world data from both human and physical geography are used.
2 lects.; 1 lab. (2); one term
Prerequisite: Geography 2L03, or permission of the instructor.

GEOG 3M03* GLACIAL AND PERIGLACIAL GEOMORPHOLOGY
The nature and development of glaciers, glacial landform systems and periglacial processes.
2 lects.; 1 lab. (2); one term
Prerequisite: Geography 2L03 or 2L06, and Mathematics 1A06 or 1M03, or permission of the instructor.

GEOG 3N03* TECHNICAL ISSUES IN GEOGRAPHIC INFORMATION SYSTEMS
Data structures, advanced methods of spatial data analysis/manipulation and the nature of spatial data error in geographic information systems.
2 lects.; 1 lab. (2)
Prerequisite: Geography 2L03 or 2N03.

GEOG 3P03* BIOGEOGRAPHY: DISTRIBUTION OF PLANTS AND ANIMALS
An introduction to the concepts of biogeography. Emphasis is placed on the physical and biological factors which control the spatial and temporal distribution of plants and animals.
3 lects.; one term
Prerequisite: Geography 1A06, or Biology 1A06, or permission of the instructor.

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.
2 lects.; 1 lab.; one term
Prerequisite: Geography 1B06, or permission of the Instructor.

GEOG 3R03 GEOGRAPHY OF A SELECTED WORLD REGION
The study of an area outside North America and Europe which will include topics in physical and human geography.
3 lects.; one term
Prerequisite: Geography 1A06 or 1B06 or two of 2C03, 2E03 and 2P03.

GEOG 3T03 GEOGRAPHY OF PLANNING
A systematic approach to the study of the planning process, with emphasis on analysis of the social, economic, and political bases of planning.
2 lects.; 1 lab. (2); one term
Prerequisite: One of Geography 2A03, 2B03, 2R03 or 2V03; or permission of the instructor.

GEOG 3U03* ENVIRONMENTAL SCIENCE II: THE CANADIAN CONTEXT
The application of ecological principles and methods to the analysis of problems in the natural and built environments of Canada.
2 lects.; 1 lab. (2)
Prerequisite: Geography 2N03, 2U03; one of Mathematics 1A06, 1C06 or 1M03 or permission of the Department.

GEOG 3Y03* REMOTE SENSING
The physical principles of remote sensing, with emphasis on aerial photographs and satellite imagery. Visual and digital interpretation procedures and their application in geography.
2 lects.; 1 lab. (2); one term
Prerequisite: One of Geography 1A06, 1B06, Geography 1A03, 1C03, 1A06; or permission of the instructor.

GEOG 3Z03* HYDROLOGY
Principles of hydrology and their applications in physical geography.
2 lects.; 1 lab. (2); one term
Prerequisite: Geography 1A06 and 2L03, or permission of the Instructor.

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.
3 lects.; one term
Prerequisite: Geography 2B03, 2L03 or 2L06, or permission of the instructor.

GEOG 4A03* KARST GEOMORPHOLOGY AND HYDROGEOLOGY
Kratz rocks, equilibria and kinetics of their aqueous dissolution; cavern genesis and porosity in aquifers; speleothem chronology; features of surface landforms; practical applications.
3 lects.; one term
Prerequisite: Geography 2T03, or permission of the instructor.

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.
1 seminar (2) alternate weeks; two terms
Prerequisite: Geography 3O03, and registration in Level IV of an Honours program in Geography.

GEOG 4D03* COASTAL GEOMORPHOLOGY
The dynamics and morphologies of the shore zone.
2 lects., 1 lab.; one term
Prerequisite: Geography 3M03, or permission of the instructor.

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.
3 lects.; one term
Prerequisite: Geography 2Y03, or permission of the instructor.

GEOG 4H03* LAND USE AND TRANSPORTATION
A review of quantitative models used to predict transportation flows and land use patterns in urban areas; including gravity type models, the Lawry model and discrete choice models.
3 lects.; one term
Prerequisite: One of Geography 3N03, 2B03 or 2L06, or permission of the instructor.

Some as Civil Engineering 4H03.

GEOG 4K03* PEDOLOGY AND SOIL MICROMORPHOLOGY
Studies of soil genesis and soil micromorphology; examination of soils under the microscope.
3 lects.; one term
Prerequisite: Geography 2K03 or 3K03, or permission of the instructor.

GEOG 4NN3* GEOPHYSICAL INFORMATION SYSTEMS MANAGEMENT AND APPLICATIONS
Analytical, operational, institutional and legal issues faced by the implementation of large scale geographic information systems.
2 lects.; 1 lab (2) one term
Prerequisite: Geography 3N03.


GEOG 4P03* ADVANCED BIOGEOGRAPHY
Selected topics and methods in biogeographical research. Emphasis is placed on the collection and quantitative analysis of modern and fossil phyogeographical data.
2 lects.; 1 lab. (2); one term
Prerequisite: Geography 3P03, or Biology 2F03, or permission of the instructor.

GEOG 4Q03* CLIMATES IN HIGH LATITUDES
Aspects of the heat and water balance climatology of terrestrial ecosystems in northern areas; emphasis on the Canadian sub-arctic and tundra.
3 lects.; one term
Prerequisite: Geography 2F03, or permission of the instructor.

GEOG 4R03* MODELS IN CLIMATOLOGY
Discussion of global climatic models and their application.
3 lects.; one term
Prerequisite: Geography 3F03 and one of Mathematics 1A06 or 1M03, or permission of the instructor.

GEOG 4S03* GEOGRAPHY OF HEALTH CARE
The environmental determinants of health and the spatial dimensions of health care delivery.
2 seminars; one term
Prerequisite: Registration in Level IV of an Honours programme, or permission of the instructor.

GEOG 4T03* REGIONAL ANALYSIS AND PLANNING
The use of analytical methods in assessing the environmental and socio-economic impacts of regional planning policies with particular reference to developing countries.
2 lects., 1 lab. (2); one term
Prerequisite: Geography 3T03, or permission of the instructor.
GEOGRAPHY

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.
2 seminars (2); one term
Prerequisite: Geography 3T03.

GEOG 4W06  ADVANCED STUDIES IN ENVIRONMENTAL SCIENCE
Selected issues and problems in environmental science will be researched and discussed.
1 seminar (2); two terms
Prerequisite: Geography 3W03

GEOG 4W03*  HYDROLOGIC MODELING
A survey of deterministic and stochastic models in hydrology.
2 lectures, 1 lab (2); one term
Prerequisite: Geography 3W03, or permission of the instructor.

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.
3 lectures; one term
Prerequisite: Geography 3X03, or permission of the instructor.
Same as Economics 4X03.

GEOG 4203  THE URBAN LANDSCAPE
The geography of class, ethnicity and gender in North American cities in the twentieth century. Topics include: the nature of the home; segregation; suburbanization; gentrification.
2 seminars (2); one term
Prerequisite: Geography 2003 and registration in Level IV of any Honours programme, or permission of the instructor.

For Graduate Courses see Calendar of School of Graduate Studies

Geology

Faculty as of January 15, 1991
H.P. Schwarcz/Chair

Professors Emeriti
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)
Robert H. McNutt/B.Sc. (New Brunswick, Ph.D. (M.I.T.)
Michael J. Risk/B.Sc. (Toronto), M.Sc. (Western), Ph.D. (Southern California, L.A.)

H. P. Schwarcz/B.A. (Chicago), M.S., Ph.D. (California Institute of Technology), F.R.S.C.

Associate Professor
Alan P. Dickitt/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., Ph.D. (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)
Glenn MacDonald/B.A. (Berkeley), M.Sc. (Calgary), Ph.D. (Toronto)

Senior Demonstrator
Kenneth B. MacDonald/B.A., B.Ed. (Mount Allison)

Department Note:
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.

GEOLOGY 1A03  GEOLOGY AND THE ENVIRONMENT
An introduction to physical, chemical and biological processes that affect the terrestrial environment, oceans and atmosphere. Geological hazards and resources.
2 lectures, 1 lab (3); one term
Prerequisite: Open

GEOLOGY 1C03  EARTH PROCESSES
An introduction to geology through study of dynamic geological processes, particularly global plate tectonics.
2 lectures, 1 lab (3); one term
Prerequisite: Open

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.
2 lectures, 1 lab (2); in parts of both terms
Prerequisite: Open only to students registered in Ceramic Engineering; or permission of instructor.

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.
2 lectures, 1 lab (2); two terms
Prerequisite: Registration in a Geology 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.
2 lectures, 1 lab (3); one term
Prerequisite: Geology 1A03 or 1C03. Geology 2C03 is equivalent to the first term of Geology 2D06. Not open to students who are registered in or have credit in Geology 2D06.

GEOLOGY 2D03  INTRODUCTION TO STRUCTURAL GEOLOGY
Introduction to the study of geometry of structures in rocks. Laboratory work involves manipulation of geometric data from such structures.
2 lectures, 1 lab (3); one term
Prerequisite: Geology 1A03 or 1C03. Geology 2D03 is equivalent to the first term of Geology 2D06. Not open to students who are registered in or have credit in Geology 2D06.

GEOLOGY 2E01  HAND SPECIMEN PETROGRAPHY
An introduction to the study of rock suites in hand specimen with emphasis on field associations.
1 lab (2); one term
Prerequisite: Geology 1A03 or 1C03

GEOLOGY 2F03  INTRODUCTION TO GEOPHYSICS
Introduction to the quantitative study of the earth. Origin of the earth, solar system, gravitation, geophysical field, terrestrial heat flow and elements of seismology.
3 lectures; one term
Prerequisite: One of Physics 1A06, 1B06, or 1C06, and registration in a Geology programme; or permission of the instructor.

GEOLOGY 3L03  INTRODUCTORY PALEONTOLOGY
Uses of palontology: Importance in geologic time and organic evolution; origin of life; adaptation and functional morphology; major groups of economically important fossil; stratigraphy.
2 lectures, 1 lab (3); one term
Prerequisite: Geology 1A03 or 1C03; or permission of the instructor. Geology 2L03 is equivalent to the first term of Geology 3D06. Not open to students who are registered in or have credit in Geology 3D06.

GEOLOGY 3A03  APPLIED GEOPHYSICS
A Principles and uses of electrical, magnetic, electromagnetic and radioactivity-based techniques in exploration geophysics; borehole logging methods.
2 lectures, 1 lab (2); one term
Prerequisite: Geology 2B03, or permission of the instructor.
Alternates with Geology 2A03.
Offered in 1991-92.

GEOLOGY 3B03  APPLIED GEOPHYSICS
B Gravitational and seismic principles and methods and their use in exploration geophysics.
2 lectures, one lab (2); one term
Prerequisite: Geology 2B03, or permission of the instructor.
Alternates with Geology 2A03.
Offered in 1990-91.

GEOLOGY 3C06  IGNEOUS AND METAMORPHIC PETROGRAPHY
A sequel to Geology 2601. An introductory course in the petrography of igneous and metamorphic rocks including some discussion of their origin. Laboratory studies on rock suites.
2 lectures, 1 lab (2); two terms
Prerequisite: Geology 2B06. Not open to students with credit in Geology 3C06.
GEOLOGY 3D06 INTRODUCTORY PALEONTOLOGY
Principles of paleontology: organization and evolution of life in the past, with emphasis on invertebrate fossils.
2 lects., 1 lab. (3); two terms
Prerequisite: One of Geology 1A03 or 1C03, and one of Biology 2E03 or 1A06; or permission of the instructor.

Last offered in 1990-91.

GEOLOGY 3D3 INTRODUCTION TO STRUCTURAL GEOLOGY II
Introduction to interpretation of geological structures in terms of movements and mechanisms which gave rise to them. Laboratory emphasizes the link between geometry and deformation.
2 lects., 1 lab. (3); one term
Prerequisite: Geology 2D3. Geology 3D3 is equivalent to the second term of Geology 2D6. Not open to students with credit in Geology 2D06.

GEOLOGY 3E92 FIELD CAMP
A field camp of about two weeks duration held immediately after the April-May Examination. 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.
3 lects., one term
Prerequisite: Geology 2C03; or permission of the instructor.

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.
2 lects., 3 lab. (3); one term
Prerequisite: Geology 2G06. Not open to students who are registered in or have credit in Geology 3G04.

GEOLOGY 3H03 GEOLOGICAL DATA PROCESSING
Nature of geological data; techniques of graphical presentation and data analysis, including use of microcomputers.
3 lects.; one term
Prerequisite: Registration in a Geology programme; or permission of the instructor. Not open to students with credit in Geology 2H03.

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.
3 lects.; one term
Prerequisite: Geography 1A06, or one of Geology 1A03 or 1C03, and completion of at least 12 units of Level II (or higher) Science courses.
Same as Geography 3I03.

GEOLOGY 3J03 PALEONTOLOGY
Marine habitats and possible changes through geologic time. Groups of fossils important in stratigraphy including microfossils; economic paleontology.
2 lects., 1 lab. (3); one term
Prerequisite: Geology 2J03 and Biology 2E03; or permission of the instructor. Geology 3J03 is equivalent to the second term of Geology 3D06. Not open to students with credit in Geology 3J06.

GEOLOGY 3K03 INTRODUCTORY GEOCHEMISTRY
An introduction to the chemistry of the earth including geochemistry, global cycles, ocean chemistry, radioactive and stable isotope systematics, geochronology, analytical techniques.
3 lects.; one term
Prerequisite: Chemistry 2P06; or permission of the instructor.

GEOLOGY 3L03 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.
2 lects., 1 lab. (3); one term
Prerequisite: Geology 2L06

GEOLOGY 4B03 IGNEOUS PETROLOGY
Advanced theory of igneous rocks.
3 lects., one term
Prerequisite: Geology 3C06 or 3C06, or permission of the instructor.

GEOLOGY 4B03 METAMORPHIC PETROLOGY
Advanced theory and practice on metamorphic rocks.
2 lects., one lab (3); one term
Prerequisite: Geology 3C06 or 3C06, Chemistry 2P06; or permission of the instructor.

GEOLOGY 4D03 ADVANCED PALEONTOLOGY I
Surveys of selected living and fossil marine communities; marine habitats, especially coral reefs.
2 lects., 1 seminar; one term
Prerequisite: Geology 3D06, or Geology 2D3 and 3J03, or completion of at least 12 units of Level III Biology, or permission of the instructor.

GEOLOGY 4E03 METALLIC MINERAL DEPOSITS
Geology, geochemistry and genesis of ore deposits; environmental and economic aspects.
3 lects.; one term
Prerequisite: Registration in a Level IV Geology programme; or permission of the instructor.

GEOLOGY 4E23 ORE MICROSCOPY
Reflected and transmitted light study of ore mineral assemblages.
1 lab. (3); two terms
Prerequisite: Geology 2D06; or permission of the instructor.

GEOLOGY 4J03 PHYSICAL PROCESSES IN GEOLOGY
An introduction to the physics of continuous media. Stress and strain analysis, dimensional analysis, behavioural models for materials and laws of fluid motion applied to geological problems.
3 lects.; one term
Prerequisite: Geology 2I03; or permission of the instructor.

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 SEDIMENTOLOGY: PHYSICAL PROCESSES
A first course in the principles of physical sedimentology.
3 lects.; one term
Prerequisite: Geology 2C03 or 2C06; or permission of the instructor.

GEOLOGY 4M03 SEDIMENTOLOGY: CHEMICAL PROCESSES
A review of equilibrium models and surface reactions. Topics covered are weathering, carbonate systems, evaporites, clays, iron minerals, phosphates, and diagene
3 lects.; one term
Prerequisite: Geology 2C03 or 2C06, and one of Chemistry 2P06 or 2T06; or permission of the instructor.

GEOLOGY 4N03 STRUCTURAL GEOLOGY II
Principles of rock deformation as inferred from theory and experiment. These principles are applied to the study of actual geological structures on all scales.
3 lects.; one term
Prerequisite: Geology 2D06, or Geology 2D3 and 3D3, and completion of, or registration in Geology 3C06 or 3C06. Concurrent registration in Geology 3D03 is permissible. Alternates with Geology 4V03.

GEOLOGY 4Q03 GEOCHEMISTRY I
Geochemistry of the earth, rocks and magmas including earth composition, techniques of geochemical analysis, element distribution between crystals and magmas, geochronology, radiogenic and stable isotope geochemistry.
3 lects.; one term
Prerequisite: Geology 3Q03. Alternates with Geology 4W03
Offered in 1992-93

GEOLOGY 4Q03 GEOCHEMISTRY II
Thermodynamics and kinetic applications applied to the Earth's surface. Weathering, soil processes, surface reactions, aqueous speciation, ocean chemistry, and global cycles are considered.
3 lects.; one term
Prerequisite: Chemistry 2P06 and completion of, or registration in, Geology 3C06 or 3C06.

GEOLOGY 4R03 PHYSICAL OCEANOGRAPHY
Energy budget of the ocean; physical oceanography, ocean dynamics. Examples for the Great Lakes.
3 lects.; one term
Prerequisite: Completion of at least 15 units of Level III Science courses; or permission of the instructor.

GEOLOGY 4T03 PLATE TECTONICS
Principles of plate tectonics, with application to regional and historical geology.
3 lects.; one term
Prerequisite: Geology 2C03 or 2C06, completion of, or registration in Geology 3C06 or 3C06.

GEOLOGY 4U03 GEOLOGY OF FOSSIL FUELS
Organic matter in sediments and how it is converted into accumulations of coal or petroleum. Exploration and production techniques. Canadian case histories.
3 lects.; one term
Prerequisite: Geology 2C03 or 2C06.

GEOLOGY 4V03 PHYSICAL VOLCANOLOGY
Physical modes of eruption of volcanoes and the products of such eruptions. Interpretation of ancient rocks in the light of modern volcanic rocks.
2 lects.; one term
Prerequisite: Completion of, or registration in Geology 3C06 or 3C06. Alternates with Geology 4N03.
GERMAN

**GEOL OGY 4W3**  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. Geologic hazards. 3 hrs.; one term.

Prerequisite: Registration in Level III or IV Science or Engineering or Arts and Science, or permission of the instructor.

Alternates with Geology 4Q03

First offered in 1991-92

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.

**Faculty as of January 15, 1991**

**Professor Emeritus**

Karl Dennen, M.A. (Kentucky), Ph.D. (Johns Hopkins)

**Professors**

Gerhart Teuscher, Dipl.-Uebenetsre, M.A. (Toronto), Ph.D. (State University of New York, Buffalo)

**Associate Professors**


James B. Lawson, B.A. (New York State College for Teachers, Albany), M.A. (Johns Hopkins)

Hans H. Schulte-Assessor (Munich), Dr. phil. (Augsburg)

Robert Dusen, B.A. (Harvard), M.A., Ph.D. (Texas) part-time

Fritz T. Widmaier, B.A. (Waterloo), A.M., Ph.D. (Southern California)

**Assistant Professor**

Maria M. Sroinski, M.A. (Warsaw), Ph.D. (Edinburgh)

**Instructor**

Lavender Fabek, B.A., M.A. (McMaster) part-time

**Canada Research Fellow**

M. Jean Wilson, B.A. (McMaster), B.Ed., M.A., Ph.D. (Toronto)

**Department Note:**

Non-programme students who complete German IZ06, 2Z06, 3Z03 and 3Z23 or German 1Z06 or 2Z06, 2E03, 2G03, 3Z03 and 3Z23, with a weighted average of at least 10.0 (A−), will receive a transcript notation indicating that the student has acquired a good working knowledge of spoken and written German.

**Beginner's Language Course**

**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. Laboratory practice is an integral part of the course. 3 hrs. (including lab practice); two terms

Prerequisite: Open, except to graduates of Grade 12 or Grade 13 or OAC German. Students with prior knowledge of the language as determined by an interview may be required to take German 2Z06.

**Intermediate and Advanced Language and Literature Courses**

**GERMAN 1A06**  INTRODUCTION TO GERMAN STUDIES

Lectures outline the development of German literature against its cultural background. Tutorials involve grammar, lab practice and class reading of literary texts. Lectures and literature tutorials in German; written reports in German and English. 4 hrs.; two terms

Prerequisite: Grade 13 or OAC German; or Grade 12 German (with a grade of at least 80%) and permission of the Department. Not available to students with credit in or registered in German 2Y06.

**GERMAN 2A03**  MODERN GERMAN LITERATURE

A discussion of works and authors from Naturalism to the 1960's (Hauptmann to Boll). 3 hrs.; one term

Prerequisite: German 1A06 or 2Y06; or permission of the Department.

**GERMAN 2B03**  19TH-CENTURY LITERATURE

Analysis and discussion of works from major 19th-century literary movements. 3 hrs.; one term

Prerequisite: German 1A06 or 2Y06; or permission of the Department.

**GERMAN 2E03**  GERMAN GRAMMAR

A systematic review, including translation and oral practice. 3 hrs.; one term

Prerequisite: One of German 1A06, 2Y06 or 2206; or permission of the Department.

**GERMAN 2G03**  GERMAN LITERATURE PRACTICE

A course designed to cover both the spoken and written language. 3 hrs.; one term

Prerequisite: Registration in Combined Honours in German, Alternative B; or permission of the Department.

**GERMAN 2W06**  INTRODUCTION TO GERMAN STUDIES

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. It is enhanced by computer modules. 4 hrs.; (including lab. practice); two terms

Prerequisite: Grade 12 German (with a grade less than 80%) or German 2606 (with a grade of at least B−); or permission of the Department.

**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. 3 hrs.; one term

Prerequisite: 18 units of German or permission of the Department.

**GERMAN 3B03**  MODERN GERMAN GRAMMAR

A practical approach course designed to increase the student's facility in using German as a means of oral and written expression. Students will be required to express their views on a variety of topics within assignments and subsequent class discussions. Extensive reading will expand the students' vocabulary and improve general language ability. 3 hrs.; one term

Prerequisite: One of German 2206 (with a grade of at least A−), 2E03, 2G03; or permission of the Department.

**GERMAN 3Z03**  ADVANCED ORAL AND WRITTEN LANGUAGE PRACTICE I

A continuation of the approach used in German 2Z03. 3 hrs.; one term

Prerequisite: German 3Z03 (with a grade of at least B) or permission of the Department.

**GERMAN 4A03**  GERMAN LYRIC POETRY

An examination of German lyric poetry as it reflects the changing styles and the main trends of literary expression in Germany from the 17th to the 20th century. 3 hrs.; one term

Prerequisite: 18 units of German or permission of the Department.

**GERMAN 4C03**  ADVANCED LANGUAGE PRACTICE

The emphasis is on composition and oral expression. 3 hrs.; one term

Prerequisite: German 3203 or 3Z23; or permission of the Department.

**GERMAN 4CC3**  TRANSLATION: TECHNIQUES AND PRACTICE

Practice in the translation of text 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. 3 hrs.; one term

Prerequisite: German 3203 or 3Z23; or permission of the Department.

**GERMAN 4G03**  THE ROMANTIC MOVEMENT

From Weimar Classicism to Romanticism, with emphasis on the works of the Romantic Period from Novalis through Haine. 3 hrs.; one term

Prerequisite: 18 units of German or permission of the Department.

**GERMAN 4H13**  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. 3 hrs.; one term

Prerequisite: 18 units of German beyond Level I and permission of the Department.
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 4J03** THE MODERN GERMAN NOVEL

Readings and discussion of selected works by four major novelists: Fontane, Mann, Kafka, Böll.

3 lects.; one term

Prerequisite: 18 units of German beyond Level I, or permission of the Department.

**GERMAN 4X03** SPECIAL TOPICS IN GERMAN LITERATURE

Previous topics include: German Symbolism and Expressionism in Their European Context, German Literature and the Arts. Consult the Department concerning topic to be offered.

3 lects.; one term

Prerequisite: 18 units of German or permission of the Department.

**GERMAN 4X03** may be repeated, if on a different topic, to a total of 6 units.

**GERMAN 4203** 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 (2 hrs.); 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, 1991**

**Professor**

Ellen B. Ryan (Psychiatry)/B.A., M.A. (Brown), Ph.D. (Michigan)

**Associate Professor**

Kalervo I. Kinonen (Social Work)/B.Sc. (Helsinki), B.A. (McMaster), M.S.W. (British Columbia)

**Assistant Professors**

Margaret Denton, B.A., Ph.D. (McMaster)

Andrea M. Mann (Physical Education)/B.A., B.P.E. (McMaster), M.Sc. (Dalhousie), Ph.D. (Ohio State)

**Lecturers**

Aanj Joshi/B.A., M.A. (Dalhousie)

Sheree D. Meredith (Social Work)/B.A. (Trent), M.S.W. (Wilfred Laurier)

**Associate Members**

Gurmuk Singh, B.Sc., Ph.D. (Dalhousie)

Gale E. West, B.A. (Kansas State), M.S., Ph.D. (Iowa State)

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 on Gerontological Programmes.

**Committee of Instruction:**

K. Kinonen (Social Work)/Chair

J. Aronson (Social Work)

A. Beckingham (Nursing)

A.E. Combs (Religious Studies)

D. Counts (Anthropology)

M. Denton (Gerontology)

J. Johnson (Dean) Ex-officio

A. Mann (Physical Education)

E. Ryan (Psychiatry)

B. Spencer (Economics)

J. Syng (Sociology)

J. Thomas (Philosophy)

**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.

3 hrs. (lects. and tutorials and 15 hours experiential learning component); two terms

Prerequisite: Open.

**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 concrete disciplines and the integration of gerontological knowledge.

3 hrs. (lects. and discussions); one term

Prerequisite: Gerontology IA06 or Social Science 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.

3 hrs. (lects.); one term

Prerequisite: Gerontology IA06 or Social Science 2G06, or permission of the instructor.

**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.

3 hrs. field experience per week, and 2 hrs. weekly seminar; one term

Prerequisite: Registration in Level III or IV of any Gerontology programme and permission of the instructor or the Chair of the Gerontology Committee of Instruction.

**GERONTOL 3C03** RESEARCH METHODS IN SOCIAL GERONTOLOGY

An introduction to conducting, interpreting, and applying research in social gerontology. Special attention to the problems associated with isolating age, period and cohort effects using cross-sectional, longitudinal and sequential research designs.

3 hrs. (lects. and practice); one term

Prerequisite: Gerontology 2B03 or permission of the Instructor or the Chair of the Gerontology Committee of Instruction.

**GERONTOL 3D03** PSYCHOLOGICAL ASPECTS OF AGING

An examination of psychological aspects of aging: sensation, perception, attention, memory, intelligence, communication, personality, attitudes and mental health.

3 hrs. (lects. and discussion); one term

Prerequisite: Gerontology IA06 or Social Science 2G06, and Psychology IA06, or permission of the Instructor.

Same as Psychology 3D03.

Students in a Psychology Programme (except those in Gerontology & Psychology) must register for this course as Psychology 3D03.

**GERONTOL 3E03** INDEPENDENT STUDY IN GERONTOLOGY

The student will select a topic in gerontology for an in-depths investigation under the supervision of a faculty member and write a paper.

Prerequisite: Registration in Level III or IV of any Gerontology programme and permission of course coordinator. The study will normally extend over two terms.

GERONTOL 3E03 may be repeated, if on a different topic, to a total of 6 units.

**GERONTOL 3F03** GERONTOLOGICAL PRACTICE

Principles and methods of gerontological practice. The students will participate in a Gerontology Summer Institute of Gerontology as part of the requirements.

One term

Prerequisite: Registration in Level III or IV of Gerontology programme or completion of Gerontology 3B03.

**GERONTOL 3G03** 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.

3 hrs. (lects. and discussion); one term

Prerequisite: Anthropology 1A03 and 3 other units of Social/Cultural Anthropology, or registration in any programme in Gerontology, or permission of the instructor.

Same as Anthropology 3Q03.
HEALTH SCIENCES

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 Gerontology 4A06.
Prerequisite: Registration in Level IV of an Honours Gerontology programme, and permission of course co-ordinator.

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.
One term
Prerequisite: Gerontology 3B03, registration in Level III or IV of any Gerontology programme, and permission of the instructor.
Enrollment 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 an Honours Gerontology programme or permission of the instructor.

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 permission of the Instructor.

GERONTOL 4F03 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.
3 hrs. (lects.); one term
Prerequisite: Registration in Level III or IV of any Gerontology programme or permission of the instructor.
Same as Physical Education 4F03

GERONTOL 4G03 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 any Gerontology programme and permission of the instructor.

OTHER DESIGNATED GERONTOLOGY AREA COURSES
Students should check the prerequisites for these courses in the Course Listings by Department section of the Calendar.

Anthropology 3D03 Medical Anthropology: The Biomedical Approach
Economics 3D03 Labour Economics
Geography 4G03 Geography of Health Care
Health Sciences 3B04 Science, Health and Society
Health Sciences 4C03 Special Topics I
Health Sciences 4D03 Special Topics II
History 3EE3 History of Medicine in Canada
Philosophy 3C03 Advanced Bioethics
Religious Studies 2M03 Death and Dying: Comparative Views
Religious Studies 2ND3 Death and Dying: Western Experience
Religious Studies 2MWD Health, Healing and Religion
Social Work 3C03 Social Aspects of Health and Disease
Sociology 3GO3 Sociology of Health Care
Sociology 3HH3 Sociology of Health
Sociology 3X03 Sociology of Aging
Sociology 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 following two programmes:
‡ Nursing (A and B Stream) courses.
† B.H.Sc. Programme 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 malnutrition 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.
3 hrs. (lects./problem-based tutorial); two terms
Prerequisite: Completion of or registration in Health Sciences 1A05; Registration in Level I of the B.Sc.N. (A) Stream, programme, or Level IV 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.
3 hrs. (lects./problem-based tutorial); 3 hr. lab; two terms
Prerequisite: Registration in or completion of registration in Health Sciences 1A06; Registration in Level I of the B.Sc.N. (A) Stream programme, or Level IV of the B.Sc.N. (B) Stream programme.

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.
3 hrs. (lects./problem-based tutorial); 3 hr. lab; two terms
Prerequisite: Health Sciences 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.

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.
2 hr. lect.; 2 hr. tutorial per week for six weeks, 3 hr. lab every two weeks for six weeks; Term I
Prerequisite: Health Sciences 1A07; registration in or completion of Health Science 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). Not available to students who are registered in or have completed Health Science 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.
2 hr. lect.; 2 hrs. tutorial per week for six weeks, 3 hr. lab every two weeks for six weeks; Term I
Prerequisite: Health Science 1B07; registration in or completion of Health Science 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). Not available to students who are registered in or have completed Health Science 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.
2 hr. lect.; 2 hr. tutorial per week for six weeks, 3 hr. lab every two weeks for six weeks; Term I
Prerequisite: Health Science 1B07; registration in or completion of Health Science 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). Not available to students who are registered in or have completed Health Science 2B08.

HTH SCI 2DD2 TOPICS IN HUMAN BIOLOGICAL SCIENCES IV ‡
Principles of pharmacology and mechanisms of drug actions are considered.
2 hrs. lect.; 2 hrs. tutorial per week for six weeks; Term II
3 hrs. lab every two weeks for six weeks; Term II
Prerequisites: 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).

Not available to students who are registered in or have completed HTH SCI 3B08.

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.
3 hrs. (lect.-problem-based tut.) and 2 hrs. (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 environment, 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.
3 hrs. (lect.-problem-based tut.) and 2 hrs. (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.

Same as Health Sciences 4B04.

HTH SCI 3Q06: BIOTECHNOLOGY
An examination of the impact of biotechnology on industry, medicine, agriculture, the environment.
3 hrs. (lects.); one term. Prerequisite: HTH SCI 2Q01.

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.
3 hrs. 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. programme.

HTH SCI 4A03: THEORETICAL BASIS OF PRACTICE OCCUPATIONAL THERAPY/PHYSIOTHERAPY.
This course examines where the professions of occupational therapy and physiotherapy stand in their past, present and future development, and evaluation of theoretical bases and clinical models. Using a multidisciplinary approach, emphasis is placed on the ability to analyze and formulate models that clarify the roles and functions of both professions.
3 hrs. (lects., tut.); one term. Prerequisite: Registration in the B.H.Sc. programme; or permission of the instructor.

HTH SCI 4B04: HEALTH, SCIENCE AND SOCIETY.
This course is concerned with the biological, environmental, behavioural, social, economic factors that determine the 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.
3 hrs. (lects.-problem-based tut.), and 2 hrs. (guided self-study); one term. Prerequisite: Registration in the B.H.Sc. Programme; or permission of the instructor.

Same as Health Sciences 3B04.

HTH SCI 4C03: SPECIAL TOPICS I.
The course focuses on an examination of selected scientific concepts utilized in one specific area of clinical practice. Emphasis will be placed on the integration of concepts drawn from the biological, psychological, sociological, and measurement sciences for the analysis of health care problems.
The areas of clinical study are described below. Not all clinical study areas may be available each year. For further information contact the Programme Office.
3 hrs. (tut.); one term. Prerequisite: Registration in the B.H.Sc. Programme; or permission of the instructor.

HTH SCI 4D03: SPECIAL TOPICS II.
This course is intended to give the student an opportunity to study in greater depth the chosen area of study of Health Sciences 4C03, in consultation with a faculty member. This study may take the form of a paper, presentation or project. The independent area of study is based on a negotiated learning contract with the instructor.
6 hrs. (independent study); one term. Prerequisite: Registration or credit in Health Sciences 4C03.

HTH SCI 4L04: PRINCIPLES AND METHODS OF RESEARCH.
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.
2 hrs. (lects., problem-based tut.) one term, and 4 hrs. (guided self-study) second term; two terms. Prerequisite: Health Sciences 3A04 and registration in Level IV of the B.Sc.N (A) or (B) Stream programme; or permission of the instructor.

AREAS OF CLINICAL STUDY FOR HTH SCI 4C03.
Not all clinical study areas may be available each year. For further information contact the Programme Office.

Health Care and the Eldery: This course is designed to study the biological, psychological and sociological aspects of aging. It will include study of the aging process, the epidemiology of aging and of the disease processes particularly prevalent in elderly persons, especially those affecting ability to live independently. Study of therapeutic measures used in their treatment will also be undertaken. Community resources available to facilitate independence, and those available in institutions will also be studied which aim to improve function and quality of life.

Neurosciences: This course focuses on selected therapeutic approaches commonly used by occupational and physical therapy in the treatment of patients with neurological disorders. Neurodevelopmental therapy, sensory integration, behavioral medicine, motor skill acquisition and cognitive restructuring are studied from the context of their scientific basis, as well as their principles and techniques of practice.

Occupational Health: This course will be based on the role of the occupational therapist in occupational health. It will specifically look at:
1. prevention of illness/accident;
2. management of illness/accident;
3. return to work following illness/accident.

Psychosocial Rehabilitation: This course provides the student with a framework of observation/assessment of psychosocial issues in health care. Theoretical concepts from the clinical behavioral sciences' studies areas of individual, group, family, community, and the organization are presented and discussed by expert tutors. Psychosocial issues in clinical practice with physical and psychiatric health care problems are integrated, using an individual case study from the student's area of practice/interest.

Disability Issues in Rehabilitation: The purpose of this course is to critically explore selected factors that influence the rehabilitation of a disabled individual. Through investigation of the literature, and the use of identified resource personnel, students consider the biological, behavioral, social, environmental and economic factors that interest in the rehabilitation process. A problem based learning format allows the student to analyze the impact of these elements on the provision of rehabilitation services. Small group discussions allow students to examine their attitudes about disability, and explore mental barriers to the integration of disabled persons into Canadian society. Small mixed-disciplinary group discussions are also used to promote the student's skills in facilitating group function with a view to applying these principles in a multidisciplinary rehabilitation team. During the course students have the opportunity to investigate community resources and evaluate their ability to meet the needs of disabled individuals.

Health and Society
(See 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.

Faculty as of January 15, 1991
Professor
John D. Browning/B.A., M.Phil. (London), Ph.D. (Essex)

Associate Professors
Fiorigio Minelli/B.A., M.A. (Western), Ph.D. (Brown)

Assistant Professor
Maria del C. Cerezo/ B.A. (Puerto Rico), M.A. (McGill), Ph.D. (Toronto)

Instructor
Maria del Carmen Silabo de Gomez/Licenciature and Professor (Rosario, Argentina) M.A. (Toronto)/part-time
HISPANIC STUDIES

Department Note:
Non-programme students who complete Hispanic Studies 1A06 (or 2206), 2A03, 3D03 and 3DD3, with a weighted average of at least 10.0 (A−), will receive a transcript notation indicating that the student has acquired a good working knowledge of spoken and written Spanish.

Beginner's Language Course
HISPANIC ST 1A06  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.
5 hrs. (including lab. practice); two terms
Prerequisite: Open, except to students with credit in Grade 12 or Grade 13 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.

Intermediate and Advanced Language and Literature Courses
HISPANIC ST 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.
3 hrs.; one term
Prerequisite: Hispanic Studies 1A06, or concurrent registration in Hispanic Studies 2206 or permission of the Department.

HISPANIC ST 2B03  INTRODUCTION TO THE CULTURE OF SPAIN
A course which surveys the development of Spanish art, literature, and politics from the earliest times.
3 lects.; one term
Prerequisite: Hispanic Studies 1A06 or 1B06 or permission of the Department.

HISPANIC ST 2C03  INTRODUCTION TO THE CULTURE OF SPANISH AMERICA
A survey of the development of Spanish America from pre-Columbian times to the present day.
3 lects.; one term
Prerequisite: Hispanic Studies 1A06 or 1B06 or permission of the Department.

HISPANIC ST 2E03  CRITICAL APPROACHES TO LITERATURE IN SPANISH
A course which acquaints the student with some of the critical techniques involved in the appreciation of literature in Spanish, and which provides practice in essay writing.
3 lects.; one term
Prerequisite: Hispanic Studies 2A03.

HISPANIC ST 2206  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.
3 hrs.; two terms
Prerequisite: Grade 12 or Grade 13 or OAC Spanish; or permission of the Department. Not available to students with credit in or registered in Hispanic Studies 2206. A required course for those intending to enter Alternative B of the Combined Honours programme in Hispanic Studies.
Students with prior knowledge of the language as determined by a placement test may be required to take an appropriate alternative.

HISPANIC ST 3A03  LANGUAGE PRACTICE II
A course intended 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.
3 lects.; one term
Prerequisite: Hispanic Studies 2A03, or permission of the Department. Not available to students with credit in Hispanic Studies 3A03.

HISPANIC ST 3DD3  ADVANCED LANGUAGE PRACTICE
A continuation of Hispanic Studies 3D03. The emphasis is on the parts and on translation into and out of Spanish. A variety of texts of increasing difficulty will be used for both purposes.
3 hrs.; one term
Prerequisite: Hispanic Studies 3D03, or permission of the Department. Not available to students with credit in Hispanic Studies 4A03.

HISPANIC ST 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.
3 hrs.; one term
Prerequisite: Hispanic Studies 3D03, or permission of the Department. Not available to students with credit in Hispanic Studies 3A03.

HISPANIC ST 4D03  SPANISH DRAMA OF THE GOLDEN AGE
A study of plays by major Spanish playwrights of the period 1550-1680, including works by Cervantes, Lope, Tirso, Calderon, in English translation.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.
Offered in alternate years.

HISPANIC ST 4L03  SPANISH AMERICAN NOVEL AFTER 1950
A study of the novel of the second half of the Twentieth Century with emphasis on the Boom generation.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.
Offered in alternate years.

HISPANIC ST 4M03  THE SPANISH NOVEL OF THE 20TH CENTURY
Representative Spanish novels of the post-war period.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.
Offered in alternate years.

HISPANIC ST 4M03  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.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.
Offered in alternate years.

HISPANIC ST 4N03  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.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.
Offered in alternate years.

HISPANIC ST 4P03  THE SPANISH AMERICAN NOVEL BEFORE 1950
A study of the development of the Spanish American novel up to the middle of the 20th century.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.

HISPANIC ST 4P03  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 Cupids of Jorge Manrique will be among the works studied.
Seminor (3 hrs); one term
Prerequisite: Hispanic Studies 2E03.
Offered in alternate years.

HISPANIC ST 4Q03  MODERN SPANISH POETRY
This course will cover Spanish poetry from the Modern period to the present.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.
Not available to students with credit in Hispanic 4N03.
Offered in alternate years.

HISPANIC ST 4Q03  MODERN SPANISH AMERICAN POETRY
This course will cover Spanish-American poetry of the 20th century.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.
Not available to students with credit in Hispanic 4N03.
Offered in alternate years.

HISPANIC ST 4S03  THE SPANISH-AMERICAN SHORT STORY
A study of the evolution of the Spanish-American short story from Quevedo to Garcia Marquez.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.

HISPANIC ST 4T03  TOPICS IN SPANISH LITERATURE
Previous topics include: The Enlightenment in Spain, The Spanish American Essay, Consult the Department concerning topic to be offered.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.

HISPANIC ST 4G03  THE SPANISH-AMERICAN SHORT STORY
A study of the evolution of the Spanish-American short story from Quevedo to Garcia Marquez.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.

HISPANIC ST 4T03  TOPICS IN SPANISH LITERATURE
Previous topics include: The Enlightenment in Spain, The Spanish American Essay. Consult the Department concerning topic to be offered.
3 lects.; one term
Prerequisite: Hispanic Studies 2E03.

HISPANIC ST 4Z03  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 or an Hispanic Studies programme, and permission of the departmental Independent Study Committee.
History

Faculty as of January 15, 1991

John C. Weaver/Chair

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. Truean/B.A., M.A. (Toronto), Ph.D. (Cornell)

Professors

Alan Cassels/M.A. (Oxford), Ph.D. (Michigan), F.R.H.S.
Paul S. Fints/B.A. (Queen's), M.A. (Wisconsin), Ph.D. (Cambridge), F.R.H.S.
David P. Gagan/B.A., M.A. (Western), Ph.D. (Duke)
Daniel J. Geagan/B.A. (Boston), Ph.D. (Johns Hopkins)
Robert H. Johnston/B.A. (Toronto), M.A., Ph.D. (Yale)
Harvey A. Levenstein/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.
Edmond M. Beamer/B.A. (Cornell), Ph.D. (Illinois)
John P. Campbell/M.A. (Glasgow), A.M., Ph.D. (Yale)
George J. Grinnell/B.S. (Columbia), M.A., Ph.D. (California)
Bernice M. Kaczynski/B.A. (Pittsburgh), M.Phil., Ph.D. (Yale)
Harry E. Turner/B.A. (McMaster), M.A. (Toronto)
Thomas E. Willey/B.A. (Butler), M.A., Ph.D. (Yale)

Assistant Professors

Ruth Frazer/B.A. (Rochester), M.A., Ph.D. (York)
Michael Gaulsewater/B.A. (Laurentian), M.A., Ph.D. (Toronto)
Jose do Nascimento Raposo/B.A. (Toronto), M.A., Ph.D. (York)/part-time
Liana Vardil/B.A. (McGill), M.A. (Concordia), Ph.D. (McGill)

Instructors

Paul Doen/B.A., M.A. (Waterloo)/part-time
Kathy Carey/B.A. (East Anglia), M.A. (McMaster), Ph.D. (Toronto)
George Sheppard/B.A., M.A. (Laurentian), Ph.D (McMaster)/part-time

Canada Research Fellow

Thomas M. Pyramak/B.A., M.A. (Manitoba), Ph.D. (Toronto)/part-time

Associate Members

Peter J. George/Economics/M.A., Ph.D. (Toronto)
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.A. of 7.0 in another programme to enrol in any Level IV History course. Preference will be given in enrolment on a first-come, first-served basis according to the following priorities: Level IV Honours History and Combined Honours in History; Level III Honours History and Combined Honours in History; Level II B.A. History; Others. Within each category, preference will be determined by the student's C.A.A. Students are expected to preregister in March for seminars; late registration will be made according to availability of space.

3. Students interested in Ancient History are advised to examine the courses in Classical Civilization offered by the Department of Classics.

HISTORY 1C06  THE MODERN WORLD: THE ERA OF EUROPEAN PRIMACY

A study of the background and course of development, from the French Revolutionary Era to the present, of the principal political, intellectual, and economic factors that have shaped the 20th-century world.

3 hrs. (lects. and discussion groups); two terms

Prerequisite: Open. Students may take only one Level I History course.

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.

3 hrs. (lects. and discussion groups); two terms

Prerequisite: Open. Students may take only one Level I History course.

HISTORY 1L06  HISTORY OF ARCHAEOLOGY OF THE ANCIENT WORLD

The history of the Ancient Near East, Greece, and Rome based on documentary sources and archaeological evidence.

3 hrs.; two terms

Prerequisite: Open. Students may take only one Level I History course.

Same as Classical Civilization 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.

3 lects.; two terms

Prerequisite: Open to students in Level II and above.

HISTORY 2B06  CHINA: FROM THE OPIUM WAR TO THE PRESENT

The history of China in the 19th and 20th centuries. The emphasis will be on internal developments, from the disintegration of the imperial system through the rise of the Communist Party to the building of the People's Republic of today.

3 lects.; two terms

Prerequisite: Open to students in Level II and above.

HISTORY 2J06  UNITED STATES HISTORY

A survey of European History from A.D. 400-1400. Particular attention will be given to attempts at political and social organization which led to the 'birth of Europe'.

3 lects.; two terms

Prerequisite: Open to students in Level II and above.

HISTORY 2K06  THE HISTORY OF CANADA

A study of the major social and political forces that have contributed to the development of modern Canada.

3 lects.; two terms

Prerequisite: Open to students in Level II and above.
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.
3 lects.; one term
Prerequisite: Open to students in Level II and above.

HISTORY 3B03 THE TOWN IN UNITED STATES HISTORY
A study of the political, economic, social, and intellectual aspects of town life, as well as an examination of the relationship of the town to American society as a whole.
3 lects.; one term
Prerequisite: Six units of History or permission of the Department.

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.
3 hrs. (lects. and discussion), one term
Prerequisites: One of History 1D06, 2A06, 2M06; or permission of the Department.
Alternates with History 3W03.

HISTORY 3DD3 IMPERIAL CHINA: SELECTED TOPICS IN THE HISTORY OF CHINA FROM 221 B.C. TO THE 18TH CENTURY
Government, social structure, internal politics and China's relations with the outside world during the imperial age.
3 lects.; one term
Prerequisite: Open to students in Level II and above.

HISTORY 3EE6 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), as well as the United States' relations with the Communist and Third Worlds.
3 hrs. (lects. and discussion groups); two terms
Prerequisite: History 2H06; or permission of the Department.

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.
3 hrs. (lects. and discussion); one term
Prerequisite: One of History 1D06, 2I06; or permission of the Department.

HISTORY 3F03 MEDIEVAL SOCIETY
An examination of rural, aristocratic, urban and monastic communities of the Middle Ages. Attention will be given to patterns of social organization as well as to such particular themes as marriage, family and death.
3 hrs. (lects. and discussion groups); one term
Prerequisite: One of History 1D06, 2I06; or permission of the Department.

HISTORY 3H06 THE HISTORY OF MODERN RUSSIA
A survey of the history of Russia with major emphasis on the 19th and 20th centuries.
3 lects.; two terms
Prerequisite: Registration in any programme in History; or permission of the Department.

HISTORY 3H13 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.
3 lects.; one term
Prerequisite: Open to students in Level II and above.
Alternates with History 3H13.

HISTORY 3I03 THE INTERNATIONAL RELATIONS OF THE WORLD, 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.
3 lects.; one term
Prerequisite: Open to students in Level II and above.
Alternates with History 3I03.

Enrolment is limited.

HISTORY 3I16 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.
3 lects.; two terms
Prerequisite: Six units of History; or permission of the Department.

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.
3 hrs. (lects. and discussion groups); two terms
Prerequisite: Open to students in Level II and above.

HISTORY 3J03 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.
3 lects.; one term
Prerequisite: Open to students in Level II and above, with a minimum of 6 units of History.
Alternates with History 3J03.

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.
3 lects.; one term
Prerequisite: History 2J06; or permission of the Department. Not available to students with credit in History 3M06.
Alternates with History 3M03.

HISTORY 3L13 THE HELLENISTIC AGE
The successors of Alexander, the world of the monarchies and their absorption into the Roman Empire. Political, cultural and social achievements of the light of modern historical research will be emphasized.
3 hrs. (lects. and discussion groups); one term
Prerequisite: Open to students in Level II and above.
Offered in alternate years.
Same as Classical Civilization 3L13.

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.
3 lects.; one term
Prerequisite: History 2J06; or permission of the Department. Not available to students with credit in History 3M06.
Alternates with History 3J03.

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.
3 lects.; one term
Prerequisite: Open to students in Level II and above, with a minimum of 6 units of History.
Alternates with History 3M03.

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.
3 lects.; one term
Prerequisite: History 2I06, or registration in a Labour Studies programme; or permission of the Department.
Offered in alternate years.

HISTORY 3N13 THE NEWTONIAN REVOLUTION
A study of the relationship between science and liberalism since the time of Newton.
3 hrs. (lects. and discussion groups); one term
Prerequisite: Open to students in Level II and above.

Alternates with History 3Q03.

HISTORY 3O03 THE CITY IN NORTH ATLANTIC DEVELOPMENT
This course examines the material culture of the North American city, including town planning, housing, commercial and industrial architecture and transportation with select comparison made between the European and North American city.
3 lects.; one term
Prerequisite: History 2I06, or permission of the Department.
Alternates with History 3J03.

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.
3 hrs. (lects. and discussion groups); one term
Prerequisite: Open to students in Level II and above.
Offered in alternate years.

HISTORY 3Q03 THE DARWINIAN REVOLUTION
The evolutionist/creationist debate since the time of Darwin as seen from social, political, religious and scientific perspectives.
3 hrs. (lects. and discussion groups); one term
Prerequisite: Open to students in Level II and above.

Alternates with History 3N13.
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.
3 hrs. (lects. and discussion groups); one term
Prerequisite: History 2N06, or permission of the Department.

HISTORY 3RR3  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.
3 lects.; one term
Prerequisite: Open to students in Level II and above.

HISTORY 3SS3  THE SOCIALIST TRADITION IN MODERN EUROPE
An examination of major developments in socialist ideology in Modern Europe:
early socialism, Marxism, anarchism, syndicalism, nationalism, Leninism; the
conflict between libertarian socialists, communism and democratic socialism in
the twentieth century.
3 hrs. (lects. and discussion); one term
Prerequisite: Open to students in Level II and above.

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, based upon contemporary literature, documents and art.
3 hrs. (lects. and discussion groups); one term
Prerequisite: History 2U06, or permission of the Department.

HISTORY 3VV3  WAR AND SOCIETY IN 20TH CENTURY BRITAIN
A comparison of the impact of World War I on Britain with that of World War II.
3 hrs. (lects. and discussion groups); one term
Prerequisite: Open to students in Level II and above.

HISTORY 3XX3  EARLY LATIN AMERICA
An exploration of some basic issues involved in the study and writing of history.
The themes will include topics such as the variation of history, theories of causation,
the use of the past, and the place of history in popular culture.
3 lects.; one term
Prerequisite: Registration in any programme in History, or permission of the Department.

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.
3 lects.; one term
Prerequisite: Open to students in Level II and above.

HISTORY 4A06  SPECIAL TOPICS IN BRITISH HISTORY (1668-1830)
Seminar (2 hrs.); two terms
Prerequisite: History 2N06 and registration in Level III or IV of any Honours program
in History; or permission of the Department.
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 (2 hrs.); two terms
Prerequisite: History 2B06 or 3B06 or 3L03 and 3M03, and registration in Level
III or IV of any Honours programme in History; or permission of the Department.
Enrolment is limited.

HISTORY 4C06  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 (2 hrs.); two terms
Prerequisite: History 3M03 and registration in Level III or IV of any Honours program
in History; or permission of the Department.
Enrolment is limited.

HISTORY 4D06  SPECIAL TOPICS IN GREEK HISTORY
Investigations into Greek social history and its interpretation.
Seminar (2 hrs.); two terms
Prerequisite: Six units from History 2L06, 3L13, 3L13, Classical Civilization
2003, and registration in Level III or IV of any Honours programme in History,
Classics, or Classical Studies; or permission of the Department.
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 (2 hrs.); two terms.
Prerequisite: History 2N06 and registration in Level III or IV of any Honours programme in History, or permission of the Department. Enrolment is limited.

HISTORY 4E16 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 (2 hrs.); two terms.
Prerequisite: Six units from History 2L06, 3L13, 3M03, 3U13, 3V03, and registration in Level IV of any Honours programme in History, Classics or Classical Studies with a Cumulative Area Average of at least 9.0, or permission of the Department.
Same as Classical Civilization 4L15. Enrolment is limited.

HISTORY 4F06 SPECIAL TOPICS IN THE HISTORY OF THE ENLIGHTENMENT
A detailed study of the intellectual revolution of the 17th and 18th centuries. Seminar (2 hrs.); two terms.
Prerequisite: History 2M06, and registration in Level III or IV of any Honours programme in History, or permission of the Department. Enrolment is limited.

HISTORY 4G06 THE REVOLUTIONARY MOVEMENT IN MODERN CHINA
A history of 20th-century China with the focus on the political movements that have been the agents of change. Seminar (2 hrs.); two terms.
Prerequisite: History 2B06 and registration in Level III or IV of any Honours programme in History, or permission of the Department. 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 (2 hrs.); two terms.
Prerequisite: History 2106 or 3X03 and registration in Level III or IV of any Honours programme in History, or permission of the Department. Students may take only two of History 4B06, 4CC6, 4H06, 4N06, and 4W06. Enrolment is limited.

HISTORY 4I06 SPECIAL TOPICS IN ROMAN HISTORY
The central theme will be development and change throughout the Roman Empire in the 3rd and 4th centuries A.D. Seminar (2 hrs.); two terms.
Prerequisite: Six units from History 2106, 3M03, 3V03, Classical Civilization 2V03, and registration in Level III or IV of any Honours programme in History, Classics, or Classical Studies; or permission of the Department. Same as Classical Civilization 4I06. Enrolment is limited.

HISTORY 4J06 SPECIAL TOPICS IN THE HISTORY OF THE UNITED STATES IN THE 20TH CENTURY
Seminar (2 hrs.); two terms.
Prerequisite: One of History 2H06 or 3E06 and registration in Level III or IV of any Honours programme in History, or permission of the Department. Enrolment is limited.

HISTORY 4K16 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 (2 hrs.); two terms.
Prerequisite: One of History 2M06 or 3F06 and registration in Level III or IV of any Honours programme in History, or permission of the Department. Enrolment is limited.

HISTORY 4K06 LABOUR AND THE LEFT IN MODERN EUROPE
An examination of the workers' movement in Europe since 1899. 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 (2 hrs.); two terms.
Prerequisite: One of History 2M06, 2N06, 3H06, 3J06, and registration in Level III or IV of any Honours programme in History, or permission of the Department. Enrolment is limited.

HISTORY 4L06 SPECIAL TOPICS IN THE HISTORY OF THE UNITED STATES BEFORE 1865
Seminar (2 hrs.); two terms.
Prerequisite: History 2H06 and registration in Level III or IV of any Honours programme in History, or permission of the Department. Enrolment is limited.
HISTORY 4X06 SPECIAL TOPICS IN THE HISTORY OF MODERN SCIENCE
A study of the scientific revolution and its impact on western culture in the 19th and 20th centuries.
Seminar (2 hrs.); two terms
Prerequisite: Registration in Level III or IV of any Honours Programme; or permission of the Department.
Enrolment is limited.

HISTORY 4226 QUANTITATIVE METHODOLOGIES IN HISTORICAL RESEARCH
An introduction to the use of computers and quantitatative methodologies in historical research.
Seminar (2 hrs.); two terms
Prerequisite: Registration in Level IV of any Honours programme in History with a History Cumulative Area Average of at least 9.0; or permission of the Department.
Offered in alternate years.
Enrolment is limited.

The following courses in the field of History are offered by the Department of Classics:
Classical Civ. 2U03 Greek Society
Classical Civ. 2V03 Roman Society

For Graduate Courses see Calendar of School of Graduate Studies.

Humanities (General)

HUMANITIES 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 Judaeo-Christian tradition; Shakespeare and the birth of a secular age; Wagner and Romantic decadence.
2 lec.; 1 tut.; two terms
Prerequisite: Open. Not available to students with credit in Humanities 1B06. Further information regarding this course may be obtained from Dr. G. Roebuck (English) and Prof. S. Ajemian (Philosophy).

HUMANITIES 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.
2 lec.; 1 tut.; one term
Prerequisite: Open to students in Level II and above. Not available to students with credit in, or registered in, Arts and Science 1B06, Humanities 1C03 or Philosophy 2R03.
Enrolment is limited.

HUMANITIES 2CC3 EFFECTIVE COMMUNICATION
The basic techniques of expository writing and effective communication.
3 lec.; one term
Prerequisite: Humanities 2C03 and registration in the Applied Studies Minor in the Faculty of Humanities.

HUMANITIES 2D03 INFORMATION IN THE COMPUTER AGE
This course will explore the increasing influence which computers are exercising on modem society. The new computer culture will be explored from a theoretical, social and historical point of view.
2 lec.; 1 tut.; one term
Prerequisite: Registration in the Applied Studies Minor in the Faculty of Humanities.

HUMANITIES 3A06 ORGANIZATIONAL THEORY/BEHAVIOUR
An introduction to the theories of organization and to the analysis of behaviour in business enterprises. Topics will include: employee motivation, organizational structures, group processes, leadership and decision-making.
3 lec.; two terms
Prerequisite: Registration in the Applied Studies Minor in the Faculty of Humanities.

HUMANITIES 3D03 COMPUTERS AND NATURAL LANGUAGE PROCESSING
An introduction to the principal theories and applications of natural language processing for disciplines in the Humanities and the Social Sciences.
2 lec.; 1 tut.; one term
Prerequisite: Registration in the Applied Studies Minor in the Faculty of Humanities.
Not available to students with credit in, or registration in, Linguistics 4C03.

Indigenous Peoples

(See Thematic Areas of Study)

Italian

Courses and programmes in Italian are administered within the Department of Modern Languages of the Faculty of Humanities.

Faculty as of January 15, 1991

Professors
Antonio G. Aleisto/O. Litt. (Genoa)
Stelio Cro/L. en L. (Buenos Aires), Dott. Ling. e Lett. (Venice)

Associate Professor
Gabrielle Erasmi/B.A. (Yale), M.A., Ph.D. (Minnesota)

Assistant Professors
Vittorina Cechetto/B.A., M.A., Ph.D. (Toronto)
L. Diane Dyer/B.A., M.A., B.L.S., Ph.D. (Toronto)

Instructors
Clara G. Drysdale/B.A. (McMaster), M.A., (Toronto)/part-time.
Geni Quaciat/B.A. (McMaster), M.A. (Carleton)/part-time

Department Note:
Non-programme students who complete Italian 1Z06, 2Z06, 2A03 and 3Z03 or the completion of Italian 1A06, 2A03, 2D03, 3D03, and 3Z03, with a weighted average of at least 10.0 (A-), will receive a transcript notation indicating that the student has acquired a good working knowledge of spoken and written Italian.

Beginner's Language Courses
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 practice the spoken language. This course is enhanced by a CALL (Computer-Aided Language Learning) module.
5 hrs. (including lab. practice); two terms
Prerequisite: Open, except to graduates of Grade 13 or OAC Italian; Italian, or students with credit in or registered in Italian 1Z26. Students who speak or understand an Italian dialect or Standard Italian may not register in the course.

ITALIAN 1Z26 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 practice the spoken language. This course is enhanced by a CALL (Computer-Aided Language Learning) module.
5 hrs. (including lab. practice); two terms
Prerequisite: Open, except to graduates of Grade 13 or OAC Italian, or students receiving credit for, or registered in, Italian 2Z06. Students with prior knowledge of the language as determined by a placement test may be required to take an appropriate alternative.

Intermediate and Advanced Language and Literature Courses
ITALIAN 1A06 INTERMEDIATE ITALIAN
An intensive review of the grammatical structures of Italian and an introduction to composition, together with oral practice.
4 hrs.; two terms
Prerequisite: Grade 13 or OAC Italian; or permission of the Department. Not available to students with credit in or registered in Italian 2Z06.

ITALIAN 2A03 INTENSIVE ORAL PRACTICE IN ITALIAN
A conversation course designed to improve oral and aural proficiency in Italian.
2 hrs.; two terms
Prerequisite: Italian 1A06 or 2Z06, and registration in a programme in Italian; or permission of the Department. 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 unfamiliar linguistic data.
2 hrs.; two terms
Prerequisite: Italian 1A06 or 2Z06 with a grade of at least B-; or permission of the Department.
ITALIAN 2E03 INTRODUCTION TO ITALIAN LITERATURE I
A study of the development of Italian literature from its beginnings up to the 16th century with emphasis on major authors and works. This will include some account of its influence upon other European literatures.
3 lec.; one term
Prerequisite: Italian A06 or concurrent registration in Italian 2206, and registration in a programme in Italian; or permission of the Department.

ITALIAN 2EE3 INTRODUCTION TO ITALIAN LITERATURE II
A study of the development of Italian literature from the 17th century to the present with emphasis on major authors and works.
3 lec.; one term
Prerequisite: Italian 2EE3, and registration in a programme in Italian; or permission of the Department.

ITALIAN 2Z06 ITALIAN GRAMMAR PRACTICE
An intensive review of the grammatical structures of Italian and an introduction to composition, together with oral practice.
4 hrs.; two terms
Prerequisite: Italian 1Z06 or Italian 12Z06, or permission of the Department. Not available to students registered in or with credit in Italian 1A06.

ITALIAN 3A03 NINETEENTH-CENTURY ITALIAN NOVEL
A study of the prose literature of the 19th century with special emphasis on the works of Manzoni and Verga.
3 lec.; one term
Prerequisite: Italian 2EE3; or permission of the Department.

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.
2 hrs.; two terms
Prerequisite: Italian 2A03 and 2D03, with a grade of at least B — or permission of the Department. Not available to students with credit in Italian 3D04.

ITALIAN 3D03 INTENSIVE LANGUAGE PRACTICE
An intensive oral language practice course, designed for the systematic comparison and interpretation of Italian and English discourse strategies.
2 hrs.; two terms
Prerequisite: Italian 2A03, and registration in a programme in Italian; or permission of the Department. Enrolment is limited.

ITALIAN 3G03 ITALIAN ROMANTIC POETRY
A study of the poetry of the Romantic Era with special emphasis on the works of Foscolo, Manzoni, Leopardi.
3 lec.; one term
Prerequisite: Italian 2EE3; or permission of the Department.

ITALIAN 3M03 TWENTIETH-CENTURY ITALIAN NOVEL
A study of the major Italian novelists of the 20th century with emphasis placed on naturalism and its influence on contemporary Italian culture.
3 lec.; one term
Prerequisite: Italian 1A06 or 2206; Italian 2EE3; or permission of Department.

ITALIAN 3P03 ITALIAN THEATRE OF THE 19TH AND 20TH CENTURIES
A study of 19th- and 20th-century Italian drama with special emphasis on the works of Pirandello.
3 lec.; one term
Prerequisite: Italian 2EE3; or permission of Department.

ITALIAN 3Q03 ITALIAN THEATRE FROM THE 16TH TO THE 18TH CENTURIES
A study of Italian Theatre from the 16th to the 18th century with special emphasis on Commedia dell’arte, Goldoni and Alfieri.
3 lec.; one term
Prerequisite: Italian 2EE3; or permission of Department.

ITALIAN 3R03 THE TRECENTO I
The historical background of 14th-century Italian literature: Dante’s Divina commedia. The emphasis will be on the first two cantiche.
3 lec.; one term
Prerequisite: Italian 2EE3; or permission of Department. Not available to students with credit in Italian 3R05.

ITALIAN 3RR3 THE TRECENTO II
A study of the major works of Petrarch, particularly II Canzoniere, and Boccaccio, with emphasis on II Decameron.
3 lec.; one term
Prerequisite: Italian 3R03; or permission of the Department. Not available to students with credit in Italian 3R05.

ITALIAN 4C03 THE LITERATURE OF THE RISORGIMENTO
A study of the period of 1816 to 1873 in Italian literature through selected texts, with reference to the political and social background.
3 lec.; one term
Prerequisite: Italian 2EE3; or permission of Department.

ITALIAN 4H03 ITALIAN HUMANISM
An analytical and comparative study of the scientific and literary ideas of the 14th, 15th and 16th centuries.
3 lec.; one term
Prerequisite: Italian 2EE3; or permission of the Department.

ITALIAN 4I03 TOPICS IN ITALIAN LITERATURE
Previous topics include: Italian Criticism, Utopian Genres, Italian Theatre. Consult the Department concerning topic to be offered.
3 lec.; one term
Prerequisite: Italian 2EE3; or permission of the Department.

ITALIAN 4J03 CONTEMPORARY ITALIAN POETRY
A study of the major Italian poets of the 20th century with special emphasis on Saba, Montale, Ungaretti, Quasimodo.
3 lec.; one term
Prerequisite: Italian 1A06 or 2Z06; Italian 2EE3; or permission of Department.

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.
2 hrs.; two terms
Prerequisite: A grade of at least B — in Italian 3D04 or 3D03, and registration in Level IV of an Italian programme; or permission of the Department.

ITALIAN 4P03 DANTE
The vision of Dante: a study of Paradiso and readings from the Vita Nuova, and the Convito.
3 lec.; one term
Prerequisite: Italian 3R06 or 3R08; or permission of Department.

ITALIAN 4B03 ITALIAN RENAISSANCE LITERATURE
An introduction to the study of the Italian epic with emphasis on the works of Ariosto and Tasso.
3 lec.; one term
Prerequisite: Italian 2EE3, or permission of the Department. Not available to students with credit in Italian 3003.

ITALIAN 4Z03 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 an Italian programme, and permission of the departmental Independent Study Committee.

Japanese

Japanese language courses are administered within the Department of Modern Languages of the Faculty of Humanities.

Department Note:
1. Non-programme students who complete Japanese 1Z06, 2206 and 3Z26, with a weighted average of at least 10.0 (A−), will receive a transcript notation indicating that the student has acquired a good working knowledge of spoken and written Japanese.

JAPANESE 1Z06 BEGINNER’S INTENSIVE JAPANESE
This course is designed to give students basic conversational skills in Japanese, while reading and writing exercises help to reinforce their understanding of the language.
5 hrs. (including lab. practice); two terms
Prerequisite: Open. 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 speaking, listening, reading and writing practice. Emphasis is on a more refined knowledge of Japanese grammar and expansion of vocabulary.
4 hrs.; two terms
Prerequisite: Japanese 1Z06, with a grade of at least B —; or permission of the Department of Modern Languages.

JAPANESE 3Z26 ADVANCED JAPANESE STUDIES
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.
4 hrs.; two terms
Prerequisite: Japanese 2Z06 or permission of the instructor.

JAPANESE 4A06 INDIVIDUAL STUDY
Under the supervision of a faculty member, the student will prepare a paper involving independent research in an approved area of Japanese studies.
Prerequisite: Registration in Level IV of a Japanese Studies programme and permission of the instructor.
LABOUR STUDIES

ASSOCIATE PROFESSORS

The

J. Johnson (Dean)

An introduction to major

W. Lewchuk (Economics/Labour Studies)

Pre-requisite: 4 hrs.; one term

Enrolment in Labour Studies

To the Chair of the Committee of Instruction

W. Lewchuk/MA.

AL. Robb/M.A.

Studies are supervised and co-ordinated by an interdisciplinary Com­

City of Labour Studies (including cluster courses) to Labour Studies students.

Lectures and discussion; one term

D. Wells (Labour

K. Dubinsky/M.A.

The historical evolution, structure and actions of the Canadian working class and

S. Palmer (Labour

Lectures and discussion; one term

D. Wells/B.A. (Western), M.A. (British Columbia), Ph.D. (Toronto)

R. Storey/B.A. (Toronto), M.A. (Dalhousie), Ph.D. (Toronto)

An examination of social welfare policy and the income security system in Canada

D. Wells/BA. (Winnipeg), M.A. (Queen's), Ph.D. (Carleton)

Lecturer (part-time)

R. Storey (Labour Studies/Sociology)

W. Lewchuk (Economics/Labour Studies)

J. Rose (Business)

P. Archibald (Sociology)

B. Basadur (Business)

J. Johnson (Dean) ex officio

An examination of the historical and

Herb (Labour)

R. Storey (Labour Studies/Sociology)

W. Lewchuk (Economics/Labour Studies)

S. Palmer (Social Work)

J. Rose (Business)

R. Storey (Labour Studies/Sociology)

W. Lewchuk (Economics/Labour Studies)

Studies

Offered

Offered

Offered

Offered

Offered

LABR ST 1A03

AN INTRODUCTION TO THE CANADIAN LABOUR MOVEMENT

An examination of the impact of economic, social, cultural and political factors on the

Lectures and discussion; one term

Prerequisite: Open.

LABR ST 1A06

TRADE UNIONS

An overview of the functioning of contemporary unions in Canada. Areas studied

Lectures and discussion; two terms

Prerequisite: Registration in a Labour Studies programme.

LABR ST 2B03

SOCIAL WELFARE II

An examination of particular social problems and the institutional arrange­ments

Lectures and discussion; one term

Prerequisite: Labour Studies 2B03 and registration in a Labour Studies Programme.

Same as Term II of Social Work 2B06.

LABR ST 2C03

THEORETICAL FOUNDATIONS OF THE LABOUR MOVEMENT

An examination of political, sociological and economic explanations of labour

Lectures and discussion; one term

Prerequisite: Registration in a Labour Studies Programme. Not available to students

with credit in Labour Studies 1B03.

LABR ST 3A03

ECONOMIC ISSUES FOR LABOUR PROGRAMME

This course analyzes economic issues of importance to Labour Studies. Topics vary and may include: women in the Canadian labour market; discrimination in

Registration in a Labour Studies Programme.

Same as Economics 1A06, and registration in a Labour Studies Programme.

Same as Economics 2T03.

LABR ST 3C03

LABOUR LAW AND POLICY

An analysis of the concepts and fundamentals of Canadian labour law and an

Lectures and discussion; one term

Prerequisite: Economies 1A06, and registration in a Labour Studies Programme.

Same as Commerce 4B13.

LABR ST 3D03

OCCUPATIONAL HEALTH AND SAFETY

An analysis of issues and problems associated with occupational health and safety

Lectures and discussion; one term

Prerequisite: Registration in a Labour Studies Programme.

Offered in alternate years.

LABR ST 3E03

WOMEN, WORK AND TRADE UNIONISM

An examination of the historical and contemporary relations between women and

Lectures and discussion; one term

Prerequisite: Registration in a Labour Studies Programme.

Offered in alternate years.

LABR ST 3I03

THE SOCIOLOGY OF ORGANIZATIONS

A theoretical and empirical analysis of formal and informal organizational structures

Lectures and discussion; one term

Prerequisite: Sociology 1A06, and registration in a Labour Studies Programme.

Same as Sociology 2I03.

LABR ST 4A09

FIELD EXPERIENCE

Combined field experience and seminars to develop practice and research skills relating to labour issues. Students spend a minimum of the equivalent of one day

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 with a Minor in Another Subject.

LABR ST 4B03

HONOURS SEMINAR

The seminar will provide an opportunity for in-depth study of selected topics relat­

Seminars; 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 collective bargaining and

Lectures and discussion; 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.

Same as Sociology 2I03.
Linguistics

Linguistics is the study of language as a system of human communication. As a discipline it combines the methods of traditional scholarship and philosophy with those of observational and experimental science in order to investigate the nature, structure and development of languages everywhere in the world and of language as a uniquely human faculty. Students may complete a degree in Linguistics in one of two ways:

a. An Honours B.A. programme in Modern Languages and Linguistics is available. Details of this programme may be found in the section Faculty of Humanities, Department of Modern Languages in this Calendar. Information and counselling may be obtained from Dr. V. Cecchetto, the Co-ordinator of the Honours Modern Languages and Linguistics programme, in the Department of Modern Languages (Togo Salmon Hall, Room 626).

b. Intensive study in Linguistics as a sub-discipline (30 units) may also be obtained through a concentration in Anthropology. The emphasis is on theoretical linguistics, covering all main branches of the field, along with intensive exposure to a broad range of languages, both Indo-European and non-Indo-European. The resulting B.A. will prepare the student for graduate work either in pure theoretical linguistics, or in language-oriented anthropological linguistics.

Note: Those students interested in pursuing graduate work in Linguistics are strongly advised to take a substantial amount of language study as follows: 12 or more units of a modern European language; 6 additional units of a classical Indo-European language (Latin, Greek, or Sanskrit); and at least 3 units of a non-Indo-European language (Chinese, Japanese, Hebrew, Circassian, Ubykh or Abaza). Such a language background will allow them to meet the language requirement of many graduate programmes in linguistics. (See Related Language Courses and Related Courses with Linguistics Content at the end of the course descriptions in this section.)

LINGUIST 1A06 THE STUDY OF LANGUAGE
A first-teaching 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.
3 lects.; 2 term
Prerequisite: Open.

LINGUIST 2103 PHONETICS
A study of the sounds of language and the articulatory capabilities of man.
3 lects.; one term
Prerequisite: Open to students in Level II and above.
Same as Anthropology 2L03.

LINGUIST 2M03 PHONOLOGY
A study of the patterns of distinctive sounds in the world's languages.
3 lects.; one term
Prerequisite: Anthropology 2L03 or Linguistics 2L03; or permission of the instructor.
Same as Anthropology 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. 3 hrs. (lects. and discussion); one term
Prerequisite: Open to students in Level II and above.
Same as Anthropology 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 leveling, language planning, language attitudes, the impact of nationalism and internationalism, and the spread of European languages throughout the world.
3 lects.; two terms
Prerequisite: Open to students in Level II and above.

LINGUIST 3B03 THE ORIGIN AND DEVELOPMENT OF THE EUROPEAN LANGUAGES
The phonetic, morphological, syntactic and lexical structures of Indo-European 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.
3 lects.; one term
Prerequisite: Open to students in Level II and above. Not available to students with credit in Linguistics 2A06.

LINGUIST 3J03 SYNTAX
A study of the human capacity to form words into sentences. The emphasis will be upon generative transformational grammar.
3 lects.; one term
Prerequisite: Open. Same as Anthropology 3J03.

LINGUIST 3K03 MORPHOLOGY AND SEMANTICS
The study of word formation and patterns of meaning in language.
3 lects.; one term
Prerequisite: Anthropology 3J03 or Linguistics 3J03; or permission of the instructor.
Same as Anthropology 3K03.

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.
3 lects.; one term
Prerequisite: Open to students in Level III or IV of the Modern Language and Linguistics programme or Honours French Programme B; or permission of the Programme Co-ordinator (TS1 626). Offered in alternate years.

LINGUIST 3Y03 HISTORICAL LINGUISTICS
The contribution made by the linguist, the psychologist, and the sociolinguist to the planning, organization, and implementation of a language-teaching methodology, with particular emphasis on CA/V/CALL.
3 lects.; one term
Prerequisite: Registration in Level III or IV of the Modern Languages and Linguistics programme; or permission of the Programme Co-ordinator. Not available to students with credit in Linguistics 2A06.

LINGUIST 4B03 APPLIED LINGUISTICS: SECOND LANGUAGE TEACHING METHODOLOGY
The contributions made by the linguist, the psychologist, and the sociolinguist to the planning, organization, and implementation of a language-teaching methodology, with particular emphasis on CA/V/CALL.
3 lects.; one term
Prerequisite: Registration in Level III or IV of the Modern Languages and Linguistics programme; or permission of the Programme Co-ordinator. Not available to students with credit in Linguistics 2A06.

LINGUIST 4C03 NATURAL LANGUAGE PROCESSING FOR THE HUMANITIES
This course will concentrate on areas where computer technology provides applications for study and research in natural language processing. Areas of concentration will include the theory and application of databases and textbases within the traditional disciplines of the Humanities. An overview of the history of artificial intelligence with its relevance for the Humanities will form the background for this course.
2 lects., 1 lab.; one term
Prerequisite: Registration in Level III or IV of any programme; or permission of the Co-ordinator. Not available to students with credit in, or registration in, Humanities 3Q03.

LINGUIST 4K03 ADVANCED TOPICS IN LINGUISTICS
An advanced course covering many areas of linguistic theory through the intensive examination of a language or set of languages.
3 hrs. (lects.); one term
Prerequisite: 12 units of Linguistics above Level I; or permission of the instructor.
Same as Anthropology 4K03.
Manufacturing Engineering
(See Mechanical Engineering, Manufacturing Engineering)

Materials Science and Engineering

Faculty of as of January 15, 1991
D.S. Wilkinson/Chair

Professors Emeriti

Professors
J. David Embury/B.Sc. (Manchester), Ph.D. (Cambridge), P.Eng.
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.
Guan P. Johari/B.Sc., M.Sc., Ph.D. (Goranhrup)/Chair of Glass Science and Technology.
D. Alan R. Kay/B.Sc., Ph.D. (Glasgow)
Wei-Kao Lu/B.Sc. (Chen-Kung), Ph.D. (Minnesota)/The Stelo Chair in Metallurgy.
S.V. Mani Subramanian/B.Sc. (Banaras), M.Met., Ph.D. (Sheffield)/part-time.

Associate Professors
Stuart R. MacEwen/B.A.Sc., M.A.Sc., Ph.D. (Toronto)/part-time
Dennis McCutcheon/B.Sc., M.B.A. (McMaster)/part-time

Assistant Professors
Adrian Kita/B.Sc. (McMaster), Ph.D. (Cornell), P.Eng.

CERAMICS
CERAMICS 3A04 CERAMIC AND GLASS TECHNOLOGY
Ceramics: powder synthesis and characterization; surface electrochemistry; shape
ning and sintering. Glasses: melting, forming, and quality control; annealing and tempering; ceramic and metallic glasses.
2 lects.; both terms
Prerequisite: Chemistry 2P06 or 2T06; Materials 2C06

CERAMICS 4L04 SENIOR LABORATORY & PLANT VISITS
A series of experiments, each comprising live afternoon, that draw upon a broad
spectrum of materials and techniques; includes industrial plant visits in first term and student seminars in second term.
2 labs.; 3 lects.; both terms
Prerequisite: Materials 3B04, 3D06; Ceramics 3A04.
Same as Materials 4L04 and Metallurgy 4L04.

CERAMICS 4R03 CERAMIC SCIENCE
Microstructural development and properties of traditional ceramics. Acidic, basic,
neutral and nonoxidizing refractories; ferro-electric, piezo-electric and ferromagnetic
amics; super-ionic and structural ceramics.
3 lects., second term.
Prerequisite: Materials 3D06, 3E06 or registration in both Materials 3l06 and in
Level IV of the Ceramic Engineering and Management Programme.

CERAMICS 4S03 GLASS SCIENCE
Theoretical and experimental aspects of silicates, polymers, metallic glasses and
glass-ceramics. Modern concepts and application of non-crystalline solids.
3 lects., first term.
Prerequisite: Materials 3D06, 3E06.

MATERIALS
MATLS 1A03 INTRODUCTION TO MATERIALS
Introduction to fundamental concepts of bonding and atomic structure of con-
densed materials, with applications to silicate minerals, glasses, polymers, materiel
als, and metals and alloys.
2 lects., 1 tut.; first term
Prerequisite: Registration in or completion of Natural Sciences I. Not open to stu-
dents who are registered in the Faculty of Engineering or who are registered in or
have completed Engineering 2003.

MATLS 1B03 INTRODUCTION TO PROPERTIES OF MATERIALS
The structure of materials, its control and effect on properties; crystallography,
microstructure, development, stiffness and strength, plastic flow and fracture.
3 lects., 1 lab.; second term
Prerequisite: Credit or registration in Materials 1A03; or permission of the instruc-
tor. Not open to students who are registered in the Faculty of Engineering or who
are registered in or have completed Engineering 2003.

MATLS 2C04 INTRODUCTION TO MATERIALS PROCESSING
The application of chemical principles to materials processing, including metals,
ceramics, plastics and electronic materials. Thermochemistry of oxides, sulphides
and halides; electrochemistry; kinetics of heterogeneous reactions; interfacial
phenomena.
3 lects., 1 lab.; second term
Prerequisite: Chemistry 2P06 or 2T06, which may be taken concurrently.

MATLS 2G04 STRUCTURE OF ENGINEERING MATERIALS
Atomic and molecular structure of engineering materials, including crystalline and
amorphous solids, structural defects; methods of structure determination.
3 lects.; 1 lab.; first term
Prerequisite: Chemistry 1A06 or 1D03 and registration in a programme adminis-
tered by the Department of Materials Science and Engineering.

MATLS 2102 EXPERIMENTAL METHODS AND COMMUNICATION
Methods of technical communication, involving oral and written practice; basic
experimental methods of acquiring, analyzing and presenting data.
2 labs.; second term
Prerequisite: Computer Science 1MA3 or Engineering 1D03 or 1D04, and
Chemistry 1A06 or 1D03, and registration in a programme administered by the
Department of Materials Science and Engineering.

MATLS 3B04 CRYSTALLOGRAPHY AND MICROSTRUCTURE
A laboratory course, complemented by lectures. Crystal structure and its deter-
mination by X-ray diffraction, microstructures of metals, alloys and ceramics and
their correlation with phase equilibria.
1 lect., 1 lab.; (3); both terms
Prerequisite: Materials 2F03.
Offered for the last time in 1991-92.
MATERIALS SCIENCE AND ENGINEERING

MATLS 3D06 THERMODYNAMICS OF MATERIALS I
Foundations of thermodynamics from classical, statistical, quantum mechanical and quasichemical points of view.
3 lects.; both terms
Prerequisite: Materials 2C04, and one of Chemistry 2P06, 2T06, Engineering 2W04, Physics 2H03, Chemical Engineering 2D04 and 2F04.

MATLS 3D03 THERMODYNAMICS OF MATERIALS II
The first half of Materials 3D06, with emphasis on “classical” topics such as equilibrium, solid solutions and phase diagrams.
3 lects.; first term
Prerequisite: One of Chemistry 2P06, 2T06, Engineering 2W04, Physics 2H03, Chemical Engineering 2D04 and 2F04.

MATLS 3E06 TRANSPORT PROCESSES
2 lects., 2 lab.; both terms
Prerequisite: Chemistry 2P06, and one of Mathematics 2M06, or 2P04 and 2Q04, or 2G03 and 2003.

MATLS 3H03 THERMODYNAMICS OF MATERIALS III
The second half of Materials 3D06, with emphasis on “atomistic” topics such as statistical mechanics, ordering, interfaces and defects.
3 lects.; second term
Prerequisite: One of Chemistry 2P06, 2T06, Engineering 2W04, Physics 2H03, or Chemical Engineering 2D04 and 2F04.

MATLS 3P03 MECHANICAL BEHAVIOUR OF MATERIALS
3 lects.; first term
Prerequisite: Engineering 2C03 or Materials 1A03 and 1B03, Engineering 2P04 or 2G04, and registration in a programme administered by the Department of Materials Science and Engineering. Not open to students who have credit in or are registered in Engineering 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.
Not open to students who have credit in or are registered in Engineering 3P03.

MATLS 4D03 CORROSION
The oxidation of metals and alloys; electrochemical principles and methods applied to aqueous corrosion and its control.
3 lects.; second term
Prerequisite: One of Chemistry 2P06, 2T06, Chemical Engineering 2T04.

MATLS 4E03 PHASE TRANSFORMATIONS
The thermodynamics, kinetics 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.
3 lects.; first term
Prerequisite: Materials 3D03 or 3D06, and 3F06.

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 Materials Science and Engineering. Not open to students who have credit in or are registered in Engineering 3P03.

MATLS 4L04 SENIOR LABORATORY & PLANT VISITS
A series of experiments, each comprising five afternoons, that draw upon a broad spectrum of materials and techniques; includes industrial plant visits in first term and student seminars in second term.
2 labs. (3); both terms
Prerequisite: Materials 3B04 and 3G06.
Same as Ceramics 4L04 and Metallurgy 4L04.

MATLS 4M03 DISLOCATION THEORY
3 lects.; first term
Prerequisite: Engineering 2P04 and Materials 3B04.

MATLS 4P03 PROPERTIES OF POLYCRYSTALLINE MATERIALS
Structure of amorphous and crystalline polymeric materials; mechanical, electrical and optical properties, and their modification through processing.
3 lects.; first term
Prerequisite: Chemical Engineering 3Q03 and either Engineering 2003 or registration in a programme administered by the Department of Materials Science and Engineering.
Offered for the first time in 1992-93

MATLS 4Q03 CASE STUDIES
Analysis of current industrial problems, involving background science, cost analysis and process design.
2 lects.; 1 tut.; 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.
2 lects.; 1 tut.; second term
Prerequisite: Materials 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 aluminium and magnesium. Heat and mass balance calculations.
2 lects., 1 lab.; (3); first term
Prerequisite: One of Chemistry 2P06, 2T06, Engineering 2W04.

METALL 4C04 CHEMICAL METALLURGY II
Theory and practice of ironmaking. Heat and material balances, ironmaking reactors, raw materials, direct reduction and new processes. Thermodynamics and kinetics of steelmaking. Hot metal treatment; static and dynamic process control; deoxidation; casting; specialty steelmaking; inclusion engineering.
2 lects.; both terms
Prerequisite: Materials 2C04.

METALL 4L04 SENIOR LABORATORY & PLANT VISITS
A series of experiments, each comprising five afternoons, that draw upon a broad spectrum of materials and techniques; industrial plant visits in first term and student seminars in second term.
2 labs. (3); both terms
Prerequisite: Materials 3B04 and 3G06.
Same as Materials 4L04 and Ceramics 4L04.

METALL 4M03 KINETICS AND REACTOR ANALYSIS IN METALLURGICAL SYSTEMS
3 lects.; first term
Prerequisite: Materials 3E06, which may be taken concurrently with the permission of the instructor.

RELEVANT ENGINEERING COURSES

See Engineering (General) for course descriptions.

Engineer 3P03 Structure and Properties of Engineering Materials
Engineer 3Q03 Electronic Properties of Solids
Engineer 3R03 Properties and Selection of Engineering Materials
Engineer 4C03 Metal Forming

For Graduate courses, see the Calendar of the School of Graduate Studies.

Mathematics and Statistics

Faculty as of January 15, 1991

Carl R. Riehm/Acting Chair
Fred M. Hoppe/Associate Chair

Professors Emeriti

Ernest A. Behrens/O phil. nat (Hamburg)
F.R. Britton/B.Sc., M.A. (McMaster), Ph.D. (Toronto)
Charles W.Dunnett/B.M.E., B.A. (McMaster), M.A. (Toronto), D.Sc. (Aberdeen)
Gerard Field/B.Sc., Ph.D. (London)
Ernst O. Gademann/Diplom Physiker (Frankfurt), M.A., Ph.D. (Toronto)
Norman D. Lane/B.Sc., M.A., Ph.D. (Toronto)
William J. McCallion/B.A., M.A. (McMaster)

Producers

Bermhard Banaszewski/Dipl. Math., Dr.rer.nat. (Hamburg), F.R.S.C., McKay Professor of Mathematics
Minaeketa Behara/B.Sc., M.Sc. (Ukita), Ph.D. (Saarbrücken)
Claude E. Billigheimer/B.A., B.Sc., M.A. (Melbourne), Ph.D. (Toronto)
Juster W.A. Brunns/Drer.nat. (Berlin)
John M. Chadam/B.A. (Toronto), S.M., Ph.D (MIT)
Tao Hio Chua/B.S., B.Sc., M.A. (Kyungpook), Ph.D. (Florida)
Joseph Colan/Dipl. Math. (Eotvos, Budapest), Ph.D. (Toronto)
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.
3 lects., 1 tut.; two terms
Prerequisite: Grade 13 or OAC Calculus. Not open to students who are registered in, or have credit in Mathematics 1A00, 1F06, 1M03, 1N06.

MATH 1H03 ENGINEERING MATHEMATICS I
Matrices and determinants, vectors and vector spaces, linear transformations, complex numbers, eigenvalues and eigenvectors, with applications
2 lects., 1 tut.; first term
3 lects., 1 tut.; second term
Prerequisite: Registration in Engineering I.

MATH 1K03 INTRODUCTORY CALCULUS FOR BUSINESS AND THE SOCIAL SCIENCES
An introduction to differential and integral calculus.
3 lects., 1 tut.; one term
Prerequisite: Grade 12 Mathematics. Not open to students who are registered in, or have credit in, any of Mathematics 1A06, 1C06, 1F06, 1M03, 1N06. Normally not open to students who have completed Grade 13 or OAC Calculus.

MATH 1L03 PROBABILITY AND LINEAR ALGEBRA FOR BUSINESS AND THE SOCIAL SCIENCES
The algebra of probability, conditional probability and independence, discrete and continuous random variables, mean and variance, matrices, determinants, Caucher’s rule, solution of linear equations.
3 lects., 1 tut.; one term
Prerequisite: Grade 12 Mathematics. Not open to students who are registered in, or have credit in, any of Mathematics 1B03, 1B04, 1F04. Not open to students in Science or Engineering programmes. Students transferring to the Faculty of Science do not retain credit for this course.

MATH 1M03 CALCULUS FOR BUSINESS AND THE SOCIAL SCIENCES
Differential and integral calculus.
3 lects., 1 tut.; one term
Prerequisite: Mathematics 1K03, or Grade 13 or OAC Calculus. Not open to students who are registered or have credit in, one of Mathematics 1A06, 1C06, 1F06, 1N06.

MATH 1N06 CALCULUS FOR ENGINEERING
Differential and integral calculus, differential equations, sequences and series, differential calculus of several variables, with applications
3 lects.; one term
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.
3 lects.; two terms
Prerequisite: Mathematics 1A06 or 1C06, and one of Mathematics 1B03, 1B04, 1G04. Not open to students who are registered in, or have credit in, Mathematics 2F03.

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.
3 lects.; two terms
Prerequisite: Mathematics 1A06 or 1C06 and one of Mathematics 1B03, 1B04, 1G04. Not open to students who are registered or have credit in, Mathematics 2J06.

MATH 2C03 DIFFERENTIAL EQUATIONS
3 lects.; one term
Prerequisite: Mathematics 1A06 or 1C06, and one of Mathematics 1B03, 1B04, 1G04, 1H05. Not open to students who are registered in, or have credit in, Mathematics 2F03.

MATH 2F03 SETS AND NUMBERS
Elementary operations on sets, relations, functions, equivalence relations and partitions, partially ordered sets, equivalence of sets and its basic properties, the real number system.
3 lects.; one term
Prerequisite: Mathematics 1A06 or 1C06.
MATH 2G03  INTERMEDIATE CALCULUS
Differential calculus of several variables, multiple integrals, line and surface integrals.
3 lects.; one term
Prerequisite: Mathematics 1A06 or 1C06. Registration in or completion of one of Mathematics 1B03, 1B04, 1C04, 1H05. Not open to students who are registered in, or have credit in, Mathematics 2A05 or 2A06.

MATH 2J06  LINEAR ALGEBRA II
3 lects.; two terms
Prerequisite: Mathematics 1A06 or 1C06, and one of Mathematics 1B03, 1B04, 1C04. Not open to students who are registered in, or have credit in, Mathematics 2B04, 2B06, 2F04, 2F06.

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.
3 lects.; one term
Prerequisite: One of Mathematics 1A05, 1C06, 1F05, 1M03; or permission of the instructor.

MATH 2L03  INTERMEDIATE CALCULUS AND DIFFERENTIAL EQUATIONS FOR BUSINESS AND THE SOCIAL SCIENCES
Functions of several variables, partial differentiation, chain rule, and external problems. First and second order differential equations, difference equations.
3 lects.; one term
Prerequisite: One of Mathematics 1A06, 1C06 or 1M03, and one of Mathematics II03, 1B03, 1B04, 1G04. Not open to students who are registered in, or have credit for, Mathematics 2A05, 2A06, 2C03, 2C04, 2G03, 2G05, 2H03, 2M03. Not open to students 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.
3 lects.; two terms
Prerequisite: Mathematics 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.
3 lects.; one term
Prerequisite: Mathematics 1A06 or 1C06, and registration in or completion of one of Mathematics 1B03, 1B04 or 1G04, and registration in a Chemistry Programme. Not open to students who are registered in, or have credit for, Mathematics 2A05, 2A06, 2C03, 2C04, 2G03, 2G05, 2L03, 2M03.

MATH 2O03  DIFFERENTIAL EQUATIONS
Ordinary differential equations with constant coefficients, series solutions, special methods, Laplace transforms, Fourier series; introduction to partial differential equations.
3 lects.; one term
Prerequisite: Mathematics 1A06, 1C06 or 1N06, and one of Mathematics 1B03, 1B04, 1C04, 1H05. Not open to students who are registered in, or have credit in, Mathematics 2C05 or 2C04.

MATH 2P04  DIFFERENTIAL EQUATIONS FOR ENGINEERING
4 lects. or 3 lects. and 1 tut., every other week; one term
Prerequisite: Mathematics 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, Laplace and vector potentials, orthogonal curvilinear coordinates, introduction to partial differential equations.
4 lects. or 3 lects. and 1 tut., every other week; one term
Prerequisite: Mathematics 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.
3 lects.; two terms
Prerequisite: Mathematics 2A05 or 2A06, and 2B04 or 2B06; or a weighted average of at least 10.0 in Mathematics 2G03, 2J06, and 2G03.

MATH 3B03  FOUNDATIONS OF GEOMETRY
Topics chosen from affine, projective, spherical or hyperbolic geometry, curves and surfaces in 3-space.
3 lects.; one term
Prerequisite: Mathematics 2B04 or 2B06, or Mathematics 2J06.

MATH 3C03  MATHEMATICAL PHYSICS 1
Linear algebra and eigenvalue problems; partial differential equations, orthogonal functions, Fourier series, Legendre functions, spherical harmonics.
3 lects.; one term
Prerequisite: Mathematics 2A05 or 2A06, and 2G03 or 2C04, or 2G03 and 2H03, or 2F04 and 2J04, and Physics 2C05, 2D03 or 2G03. Not open to students who are registered in, or have credit for, Mathematics 3J04, 3K03, 3V06.

MATH 3D03  MATHEMATICAL PHYSICS II
Functions of a complex variable, probability and statistics, boundary value problems, Bessel functions.
3 lects.; one term
Prerequisite: Mathematics 3C03. Not open to students who have credit in or are registered in Mathematics 3J04, 3K03, 3K05, 3V06.

MATH 3E03  ALGEBRA I
An introduction to groups including Sylow theorems and structure of finitely generated Abelian groups.
3 lectures; one term
Prerequisite: One of Mathematics 2B06, 2B04, 2J06. Not open to students with credit in Mathematics 3E06.

MATH 3E03  ALGEBRA II
Modules over principal ideal domains, field extensions, integral closure.
3 lectures; one term
Prerequisite: Mathematics 3E03. Not open to students with credit in Mathematics 3F06.

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.
3 lectures, one term
Prerequisite: Mathematics 2A06 or 2A05, 2B06 or 2B04, and 2C03 or 2C04 or Mathematics 2C03, 2J06 and 2003. Not open to students with credit in Mathematics 3J06.

MATH 3F03  ADVANCED DIFFERENTIAL EQUATIONS II
3 lectures, one term
Prerequisite: Mathematics 3F03. Not open to students with credit in Mathematics 3J06.

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.
3 lects.; one term
Prerequisite: Completion of 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.
3 lects.; one term
Prerequisite: Completion of 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.
4 hrs.; one term
Prerequisite: Mathematics 2M06.

MATH 3K03  ENGINEERING MATHEMATICS IV
Complex variable theory with applications to electrical and computing engineering.
3 lects.; one term
Prerequisite: Mathematics 2P04 and 2Q04.

MATH 3L06  MATHEMATICAL LOGIC AND BOOLEAN ALGEBRA
The Axiom of Choice and its equivalents, ordinal numbers, cardinal numbers and the basics of transfinite arithmetic, Boolean algebra, Heyting algebras and possibly other algebras relevant for logic, classical and nonclassical propositional logics with emphasis on completeness, compactness and decidability.
3 lects.; two terms
Prerequisite: Mathematics 2F03 or 2F04, or a grade of at least B in Mathematics 2J06.

MATH 3M06  REAL ANALYSIS
Sequences and series of functions; pointwise, uniform and mean convergence; Fourier series. Integration and Fourier transforms.
3 lects.; one term
Prerequisite: One of Mathematics 2A05, 2A06, 2G03.

MATH 3N03  GENERAL TOPOLOGY
Introduction to basic notions of general topology, various modes of defining topological spaces, continuity, convergence, separation axioms, compactness, connectedness.
3 lects.; one term
Prerequisite: Mathematics 2B04 or 2B06, or a grade of at least B in Mathematics 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.
3 lects., one term
Prerequisite: Mathematics 2A05 or 2A06 or 2M06, and 2C03 or 2C04, or 2G03 and 2G03, or 2P04, 2Q04, and one of Computer Science 1B03 or 1M43, 1H03 or 1L53, or 1E03, or Engineering 1D03.

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.
3 lects.; one term
Prerequisite: One of Mathematics 1B03, 1B04, 1C04.

MATH 3T03  COMPLEX ANALYSIS
Analytic functions, power series, Cauchy's Theorem, residue calculus, conformal mapping, analytic continuation.
3 lects., one term
Prerequisite: One of Mathematics 2A05, 2A06, 2G03.

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.
2 lhrs., first term; 4 lhrs., second term
Prerequisite: Mathematics 2N06, or 2P04 and 2Q04.

MATH 3X03+  ACTUARIAL MATHEMATICS I
Survival distributions, life tables, life insurance, life annuities, net premiums and reserves.
3 lects.; one term
Prerequisite: Statistics 2D03 or 2D04, and Mathematics 2K03; or permission of the instructor.
Offered in 1990-91 and alternate years.

MATH 3Y03+  ACTUARIAL MATHEMATICS II
Multiple life functions, multiple decrement models, valuation theory for pension plans.
3 lects.; two terms
Prerequisite: Mathematics 3A06. Not open to students who are registered or have credit in Mathematics 3T03 or 3O03.

MATH 4B03+  CALCULUS ON MANIFOLDS
3 lects.; first term
Prerequisite: Mathematics 2A06 or 2A05 and 2B06 or 2B04, or a weighted average of at least 7.0 in Mathematics 2G03, 2A06 and 2B03, or Mathematics 3C03. Not open to students with credit in Mathematics 4B06.

MATH 4B04+  TOPICS IN DIFFERENTIAL TOPOLOGY AND GEOMETRY
Differentiable manifolds. Transversality, Harnackian geometry.
3 lects.; second term
Prerequisite: Mathematics 4B03. Not open to students with credit in Mathematics 4B06.

MATH 4C03+  COMBINATORICS
Inversion formulae, systems of distinct representatives, block designs and other configurations; and other topics.
3 lects.; one term
Prerequisite: One of Mathematics 2A05, 2A06, 2G03, and one of Mathematics 2B04, 2B06, 2J06; or permission of the instructor.

MATH 4E03  ALGEBRA III
Polynomial rings, ideal theory, Galois Theory.
3 lects.; one term
Prerequisite: One of Mathematics 3E03, 3E04, 3E06.

MATH 4J03+  BANACH AND HILBERT SPACES
An introduction to Lp, Banach and Hilbert spaces, bounded linear operators, functionals, open mapping and closed graph theorems, duality, Riesz representation theorems; and other topics.
3 lects.; one term
Prerequisite: Mathematics 4K03 or 4K04; or permission of the instructor.

MATH 4J03  GRAPH THEORY
Graphs, trees, bipartite graphs, connectivity, graph colouring, matrix representations, applications.
3 lects.; one term
Prerequisite: One of Mathematics 2A05, 2A06, 2G03, and one of Mathematics 2B04, 2B06, 2J06.

MATH 4K03  MEASURE THEORY AND PROBABILITY
Introduction to the theory of measure and integration with applications to probability theory.
3 lects.; one term
Prerequisite: Mathematics 3A06, or a grade of at least A – in Mathematics 3C06.

MATH 4Q03  NUMERICAL METHODS FOR ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS
3 lects.; second term
Prerequisite: Mathematics 3F03 and 4Q02, or permission of the instructor.

MATH 4R03+  NUMERICAL LINEAR ALGEBRA
Matrix norms; decompositions including LU, QR and SVD; sensitivity analysis. Eigenvalues and least squares problems. Sparse, Vandermonde and Toeplitz systems. Iterative methods, subspace methods.
3 lects.; first term
Prerequisite: Mathematics 3Q03 or permission of the instructor.

MATH 4R03  OPTIMIZATION
3 lects.; one term
Prerequisite: One of Mathematics 2A05, 2A06, 2G03, 2N03, and Mathematics 3R03.

MATH 4S03+  FINITE AUTOMATA AND COMPUTABILITY
Finite automata, deterministic automata, regular languages, Turing machines, recursive functions, primitive recursive functions, decidability and undecidability, with applications to formal language theory.
3 lects.; one term
Prerequisite: One of Mathematics 2H03, 2P04, 2J06.

MATH 4V03  APPLIED MATHEMATICAL ANALYSIS
Lebesgue integration, distribution theory; Fourier Analysis, partial differential equations, integral equations, calculus of variations; additional topics.
3 lects.; one term
Prerequisite: One of Mathematics 3D03, 3F03, 3F06. Not open to students with credit in Mathematics 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 IA03  INTRODUCTION TO STATISTICAL REASONING
The basic ideas of sampling methodology and inference procedures are developed through diverse examples from a wide range of disciplines.
3 lects., 1 tut.; one term
Prerequisite: Grade 12 Mathematics. Not open to students in Natural Sciences I, or students with credit in Commerce 2QA3.

STATS 2A03  PROBABILITY THEORY
Combinatorics, independence, conditioning. Poisson-process; discrete and continuous distributions with statistical applications; expectation, transformations, order statistics. Distribution of k and s, moment-generating functions, central limit theorem.
3 lects.; one term
Prerequisite: One of Mathematics 1A06, 1C06 or 1M03, and one of Mathematics 1B03, 1B04, 1G04. Students with credit in Mathematics 1L03 may not retain this credit if Statistics 2D03 is taken.

STATS 2M03  STATISTICAL METHODS
Estimation, sampling distributions, confidence intervals; hypothesis testing, power; robustness; analysis of variance for 1- and 2-factor designs and linear regression; graphical methods, statistical computing.
3 lects.; one term
Prerequisite: Mathematics 1A06, 1C06 or 1F06, or a grade of at least B in Mathematics 1K03 and 1L03. Not open to students who have completed any of Commerce 2QA3, Economics 2B03, Psychology 2R05, Statistics 2R06.

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.
3 lects.; two terms
Prerequisite: Grade 13 or OAC Calculus or Mathematics 1A06 or 1C06 or 1M03 or 1N03. Not open to students who have completed any of Commerce 2QA3, Statistics 2D03, 2M03, 3M03, Psychology 2R03, 2R03, 2R06, Economics 2B03.

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MATHMATICS AND STATISTICS

STATS 3D06  MATHEMATICAL STATISTICS
The multivariate normal distribution, point and interval estimation, sampling dis-
tributions, tests of hypotheses, elementary linear regression, and other topics.
3 lec.; two terms
Prerequisite: Statistics 2D03 or 2D04, and one of Mathematics 2A05, 2A06, 2G03, 2L03.

STATS 3N03  STATISTICAL METHODS FOR ENGINEERING
Introduction to statistical methods and applications: data analysis and statistical methods.
3 lec.; one term
Prerequisite: Registration in, or completion of, Levels III, IV or V Engineering.

STATS 3P03*  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.
3 lec.; one term
Prerequisite: Statistics 2D03 or 2D04, and Statistics 2M03 or 3M03; or permission of the instructor.

STATS 3Q03  STOCHASTIC PROCESSES
Random walk, Markov chains, discrete and continuous parameter Markov processes, branching processes, birth and death processes, queuing processes.
3 lec.; one term
Prerequisite: Mathematics 2P04 and 2Q04.

STATS 3R03  MULTIPLE REGRESSION AND NON-PARAMETRIC METHODS
Multiple linear regression model, tests on coefficients, interpretation and applications; autoregression models and time series; nonparametric tests such as goodness-of-fit, Wilcoxon tests and others.
3 lec.; one term
Prerequisite: Registration in an Engineering and Management program and completion of either Mathematics 2D06 or Mathematics 2P04 and Mathematics 2Q04; or permission of the instructor.

STATS 4M03  OPERATIONS RESEARCH
Network models and algorithms, dynamic models, queuing models and other topics.
3 lec.; one term
Prerequisite: Mathematics 3R03; and Statistics 3D03 or 3Q04.

STATS 4K03  STATISTICAL DECISION THEORY
Decision theory and applications: Bayes, admissible and minimax rules; multiple decision problems.
3 lec.; one term
Prerequisite: Statistics 3D06.

STATS 4P03  MULTIVARIATE ANALYSIS
Multivariate distributions: Normal, Wishart, $^T$ and others; regression, correlation, factor analysis, general linear hypothesis.
3 lec.; first term
Prerequisite: Statistics 3D06, and one of Mathematics 2B04, 2B06, 2D06.

STATS 4Q03*  ORDER STATISTICS
3 lec.; 1 term
Prerequisite: Statistics 3D06.

STATS 4R03*  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.
3 lec.; second term
Prerequisite: Statistics 3D06 and 4M03. Registration in or completion of Statistics 4T03 and 4Z03.

STATS 4T03*  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.
3 lec.; one term
Prerequisite: Statistics 3D06. Not open to students who are registered in or have credit in Statistics 3Y03.

STATS 4U03*  NONPARAMETRIC METHODS IN STATISTICS
Rank tests and non-parametric methods; rank correlation; comparisons with parametric methods.
3 lec.; one term
Prerequisite: Statistics 3D06; or permission of the instructor.

STATS 4Z03  INDUSTRIAL STATISTICS
Topics selected from sequential methods, quality control, reliability theory.
3 lec.; one term
Prerequisite: Statistics 3D06.

For Graduate Courses see Calendar of School of Graduate Studies.

Mechanical Engineering

Faculty as of January 15, 1991

M. Shoukri/Chair

Professors Emeriti


Professors

Mohammed A. Dokainish/B.Sc. (Cairo), M.A.Sc., Ph.D. (Toronto), P.Eng.
Hoda A ElMaraghy/B.Sc. (Cairo), M.Eng., Ph.D. (McMaster), P.Eng.
Ross L. Judi/B.E.Sc. (Western), M.Eng. (McMaster), Ph.D. (Chicago), P.Eng.
Brian Latto/B.Sc. (London), Ph.D. (Glasgow), P.Eng., C.Eng.
Mamdouh Shoukri/B.Sc. (Cairo), M.Eng., Ph.D., (McMaster), 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. (Ankara), M.Sc., Ph.D. (Manitoba)
Vincent M. Sowa/B.Sc. (Illinois), M.A. (Purdue), Ph.D. (Waterloo)/Part-time
Ozen F. Tunur, B.Sc. (Middle E. Tech. Univ.), M.Sc. (Case Western Reserve), Ph.D. (Montreal)
W. Roy Underhill/B.Sc. (Trent), M.A.Sc. (Toronto)

Lecturer


Department Notes:

Enrolment in Mechanical Engineering courses by students in programs other than those administered by the Department may be limited.

MANUFACTURING ENGINEERING

MANUFACTURING 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.
2 lec.; 1 lab. (3) alternating weeks and 1 lab. (3) every week; second term
Prerequisite: Engineering 1C04 and 1D04, and credit or registration in Engineering 2P04.

MANUFACTURING 3M02  MANUFACTURING LABORATORY I
Laboratory exercises in metalworking practices, measurements and solid mechanics.
2 labs. (3); both terms
Prerequisite: Registration in Manufacturing Engineering.

MANUFACTURING 4A03  COMPUTER AIDED MANUFACTURING
2 lec.; 1 lab. (3); second term
Prerequisite: Registration in Level III or Level IV of either Mechanical or Manufacturing Engineering or permission of the Department.

MANUFACTURING 4M04  PROJECT
A major project in the area of manufacturing engineering. It may be of a design or experimental nature.
1 lab. (3), first term, 3 labs. (3); second terms
Prerequisite: Registration in Level IV of Manufacturing 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. 2 lects., 1 lab. (3); first term
Prerequisite: Mathematics 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 optical tooling. Measurements of pressure, flow, temperature and power; combustion analysis and gas analysis, measurement of strain and force; elementary statistical analysis. 1 lect., 1 lab. (3); first term, 1 lab. (3); second term
Prerequisite: Mathematics 1H05, Physics 1D03.

MECH ENG 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. 2 lects., 1 lab. (3) alternating weeks and 1 lab. (3) every week; second term
Prerequisite: Engineering 3D04 and 1D04, or credit or registration in Engineering 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. 3 lects.; first term
Prerequisite: Engineering 2P04.

MECH ENG 3C03 MANUFACTURING ENGINEERING
A general introduction, encompassing the whole 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. 3 lects.; 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. 3 lects.; second term
Prerequisite: Engineering 2W04.

MECH ENG 3E04 MECHANICAL ENGINEERING DESIGN II
Uncertainties, statistical considerations. Design of machine components. The laboratory consists of problems, case studies and the use of computer graphics and CAD packages for machine design problems. 3 lects., 1 lab. (3); second term
Prerequisite: Engineering 2P04 and 3Q04, and credit or registration in Mechanical Engineering 3A03.

MECH ENG 3M02 COMPOSITE LABORATORY
Laboratory exercises in fluid mechanics, thermodynamics and solid mechanics. 1 lab. (3); both terms
Prerequisite: Registration in Mechanical Engineering or Mechanical Engineering and Management.

MECH ENG 3P04 FLUID MECHANICS
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. 3 lects., 1 tut. (2); first term
Prerequisite: Mathematics 2M06, or 2P04 and 2Q04.

MECH ENG 3R03 HEAT TRANSFER
Prerequisite: Mathematics 2M06, Engineering 2W04, and credit or registration in Mechanical Engineering 3P04.

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. 2 lects., 1 tut.; second term
Prerequisite: Mechanical Engineering 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. 3 lects.; first term
Prerequisite: Mathematics 3V06.

MECH ENG 4D03 MANUFACTURING PROCESSES (METAL REMOVAL)
Prerequisite: Mechanical Engineering 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. 3 lects.; first term
Prerequisite: Mechanical Engineering 3A03, 3E04 and 3Q04.

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. 2 lects., 1 tut. (2) week; first term
Prerequisite: Mechanical Engineering 2C03, 3E04.

MECH ENG 4H03 INTRODUCTION TO ROBOTIC MECHANICS
Spatial descriptions and transformations, manipulator kinematics, inverse kinematics. Jacobians, dynamics. 3 lects.; second term
Prerequisite: Mechanical Engineering 2A03, 3Q03, 4R03.

MECH ENG 4L03 INDUSTRIAL DESIGN
Introduction for engineering students to the techniques of industrial design, case studies and introduction to illustration techniques. 3 lects.; second term
Prerequisite: Mechanical Engineering 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. 1 lab. (3); first term; 3 lab. (3); second term
Prerequisite: Registration in Level IV Mechanical Engineering, or in Level V Mechanical Engineering and Management.

MECH ENG 4P02 COMPOSITE LABORATORY
Laboratory exercises in vibrations, transients, machine structures, controls, heat transfer, gas dynamics, fluid mechanics, thermodynamics, aircraft equipment. 1 lab. (3); both terms
Prerequisite: Mechanical Engineering 3M02, and registration in Mechanical Engineering 2Q04.

MECH ENG 4Q03 MECHANICAL VIBRATIONS
Transient and steady state vibration of single- and multi-degree of freedom systems. Dynamic vibration absorbers. Vibrations of continuous beams. Balancing and critical speeds of shafts. 2 lects., 1 tut. (2); first term
Prerequisite: Mathematics 2M06, 3V06, Engineering 2Q04, Mechanical Engineering 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. 3 lects.; first term
Prerequisite: Mathematics 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. 2 lects., 1 lect/tut.; first term
Prerequisite: Mechanical Engineering 3O04.

MECH ENG 4T03 FINITE ELEMENT APPLICATIONS
The finite element method and its application to mechanical systems including static and dynamic analysis. 3 lects.; second term
Prerequisite: Credit or registration in Mechanical Engineering 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. 3 lects.; second term
Prerequisite: Mechanical Engineering 3C03.

MECHANICAL ENGINEERING
MOLECULAR BIOLOGY

MECH ENG 4V03 THERMO-FLUIDS SYSTEMS DESIGN AND ANALYSIS
The analysis and synthesis of thermo-fluid systems. Approaches to modeling including numerical simulation techniques for the design and analysis of the performance of thermo-fluid systems.
3 lect.; second term
Prerequisite: Mechanical Engineering 3R03, 3D03, and credit or registration in Mechanical Engineering 3S03.

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.
3 lect.; 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.
3 lect.; second term
Prerequisite: Mechanical Engineering 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.
3 lect.; second term
Prerequisite: Engineering 2Q04, Mechanical Engineering 2A03.

MECH ENG 4Z03 COMPUTER AIDED DESIGN
Project-oriented CAD course: 3-D modeling and graphics, design by features. 1-DEAS and mechanical design application packages (kinematics and stress analysis) used on SUN workstations.
2 lect., 1 lab. (3); second 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)

Modern Languages

The Department of Modern Languages offers courses in the Co-ordinator, Dr. S.T. Bayley, in the Language Institute, the Departments of Biochemistry, Biology and Pathology, through a Committee of Instruction, and also draws on the McMaster Institute for Molecular Biology and Biotechnology. Information and counselling may be obtained from the Programme Co-ordinator, Dr. S.T. Bayley, in the Department of Biology.

MOL BIO 3A06 LABORATORY IN MOLECULAR BIOLOGY
Part of this course is common with Biochemistry 3L6. The remainder consists of basic experiments in molecular biology and microtial genetics.
2 labs.; two terms
Prerequisite: Credit or registration in one of Biochemistry 3A06, 3B03, 3G06, and registration in Honours Molecular Biology and Biotechnology, or permission of the instructor.

MOL BIO 4A03 BIOTECHNOLOGY AND GENETIC ENGINEERING LABORATORY
Experiments may involve cloning, engineered mutants, DNA sequencing, expression of cloned genes and fermentation.
3 lect.; one term
Prerequisite: Registration in Honours Molecular Biology and Biotechnology or one of Biochemistry 3A06, 3G06 and one of Biochemistry 3L03 or 3L06. Same as Biochemistry 4G03.

Enrolment is limited.

MOL BIO 4B03 BIOTECHNOLOGY AND GENETIC ENGINEERING
Theory, methods and applications in genetic engineering and biotechnology with emphasis on recombinant DNA, hybrids, engineered organisms and fermentation processes.
3 lect.; one term
Prerequisite: One of Biochemistry 3A05, 3G03, 3G06. Same as Biochemistry 4D03.
MOL BIO 4C03  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.
3 lects.; one term
Prerequisite: One of Biochemistry 3A06, 3C03, 3G06.
Same as Biochemistry 4E03 and Biology 4N03.

MOL BIO 4D03  MOLECULAR ASPECTS OF EUKARYOTIC CHROMOSOMES
Chromatin structure, repeated DNA sequences, concerted evolution of gene families, telomeres, centromeres, gene transfer, oncogenes, transposable elements.
3 lects.; one term
Prerequisite: One of Biochemistry 3A06, 3C03, 3G06, and Biology 3N03.
Same as Biochemistry 4F03 and Biology 4M03.

MOL BIO 4E03  REPLICATION AND RECOMBINATION
Replication, recombination, repair and mutagenesis of DNA.
3 lects.; one term
Prerequisite: One of Biochemistry 3A06, 3C03, 3G06, and Biology 3N03.
Same as Biochemistry 4H03 and Biology 4M03.

MOL BIO 4F03  MOLECULAR ASPECTS OF DEVELOPMENT
Topics include genetic and non-genetic determinants of early embryonic development, cell determination and differentiation.
3 lects.; one term
Prerequisite: One of Biochemistry 3A06, 3C03, 3G06, and Biology 3N06. Not offered in 1990-91.

MOL BIO 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.
2 lects.; 1 lab.; one term
Prerequisite: Biology 3H03 or 3H13, or permission of instructor.

Music
Faculty as of January 15, 1991
Alan Walker/Chair
Professor Emeritus
William Wallace/B.Mus., Ph.D. (Utah)

Professors
Marta Hidy/Dipl. Perf. (Budapest), F.R.H.C.M. (Hon.)
Alan Walker/B.Mus., D.Mus. (Durham), A.R.C.M., L.G.S.M., F.G.S.M.
(Fon.), F.R.S.C.

Associate Professors
Frederick A. Hall/Assoc. Dipl., B.Mus. (McGill), M.A., Ph.D. (Toronto)
Hugh Hartwell/Assoc. Dipl., B.Mus. (McGill), M.A., 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./part-time

Assistant Professors
James Deaville/B.M., M.M., Ph.D. (Northwestern)
Keith W. Kirdker/Dip. F.A. (Calgary), B.Mus. (Western), M.Mus. (Northwestern)
William Renwick/B.Mus., M.Mus. (British Columbia), Ph.D. (CUNY), A.A.G.O., F.R.C.C.O.

Part-time Faculty
Terry Bason/B.Mus.Ed. (Kansaco), M.Mus.Ed. (North Texas)
Roger Flock
Paul Grinwood/B.Mus. (Western)
Sharyn Hall/A.Mus., B.A., M.A., Ph.D. (Toronto)
Zdenek Konick/Dipl.Music, M.A. (Prague)
John Packer
Clark Ross

Instructors (part-time)
Elise Bedard/voice
Cécile Bérard-Dunn/B.Mus. (Collège Marie de l'Incarcarnation), M.M. (Montréal)/piano
Lita Clasell/B.Mus. (Ottawa), M.Mus. (Vincent d'Indy Montreal), Dipl. Perf. (Vienne)/voice
Marc Donatelli/B.M. (Northwestern), M.M. (Southern California)/trombone
Sandra Donatelli/french horn

Paula Elliott/B.Mus. (Oberlin), M.M. (New England Conservatory)/flute
Don Englerjazz saxophone
Roger Flock/percussion
David Gern/B.Mus. Perfs. (Toronto), A.R.C.T./flute
George Greer/double bass
Paul Grimwood/B.Mus. (Western)/harpischord/organ
Gregory B. Irvine/Mus.Bac./tuba
James Janieson/bassoon
Rudolf Kalup/violin
Mary Kenedy/Lic.Dip., Mus.Bac., M.Mus. (Toronto)/piano
Zdenek Konick/Dipl./Music, M.A. (Prague)/cello
Peter McAllister/Mus.Bac. (Toronto)/classical guitar/jazz guitar
William Moolenbeek/saxophone
Paul Novotny/electric bass
Marie Peebles/B.Mus. (Indiana)/viola
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
Donald Thompson/jazz bass, piano
Valerie Tryon/L.R.A.M., F.R.A.M., A.R.C.M./piano
Dave Young/jazz bass
Alla Zacarrelli/piano

Department Notes:
1. All Music courses except 1A06, 2A06, 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, subject to the stated prerequisites: Music 1A06, 1B06, 1CC3, 1D03, 2A06, 2B06, 2BB3, 2CC3, 2DD3, 2HH3, 3A03, 3AA3, 3BB3, 3CC3, 3D03, 3HH3, 4B03, 4BB3, 4CC3, 4D03, 4X03.
3. Music 1CC3, 1D03 and 2CC3 may be taken by undergraduates not in a Music programme upon successful completion of qualifying tests administered by the Department. Because of the enrolment limitations, students are urged to complete the qualifying tests as early as possible.

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.
3 lects.; two terms
Prerequisite: Open. Not available to students registered in Honours Music.

MUSIC 1B06  HISTORY OF MUSIC (CA. 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.
3 lects.; two terms
Prerequisite: Registration in a Music programme; or Music 1A06 and permission of the Department.

MUSIC 1CC3  HARMONY
The analysis and writing of functional harmony. Includes study of music by J.S. Bach and others.
2 lects.; two terms
Prerequisite: Registration in a Music programme; or permission of the Department. Not available to students with credit in Music 1CC2.

MUSIC 1D03  GENERAL MUSICIANSHIP
Sight-singing, dictation, and keyboard harmony.
2 lects. 1 lab.; two terms
Prerequisite: Registration in a Music programme; or permission of the Department. Not available to students with credit in Music 1DD2 or 1DD2.

MUSIC 1E03  SOLO PERFORMANCE
The technique and repertoire of any orchestral instrument, the piano, organ, harpsichord, voice, recorder, saxophone, or guitar.
1 half-hour lesson weekly; two terms
Prerequisite: Registration in a Music programme. Not available to students with credit in Music 1D02 or 1DD2.

MUSIC 1E04  SOLO PERFORMANCE
Intensive study of the technique and repertoire of any orchestral instrument, the piano, organ, harpsichord, voice, recorder, saxophone, or guitar.
1 hour lesson weekly; two terms
Prerequisite: Registration in Music 1, and permission of the Department. Not available to students with credit in, or registration in, Music 1E04.
MUSIC 1G03 ENSEMBLE PERFORMANCE
McMaster Symphony Orchestra, McMaster University Choir, McMaster Concert Band, McMaster Jazz Band, or any other ensemble approved by the Department. Prerequisite: Permission of the Department. Successful audition required. Academic credit available only to students registered in a Music programme.

MUSIC 2A06 HISTORY OF MUSIC (CA. 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 concertos, and piano literature. 3 lects., two terms
Prerequisite: Music 1A06, or permission of the Department. Not available to students registered in a Music programme or with credit in, or registration in, Music 2A06.

MUSIC 2B06 HISTORY OF MUSIC (CA. 1750-1914)
A survey of classical, romantic, and postromantic music. 3 lects., two terms
Prerequisite: Music 1B06, and registration in a Music programme; or permission of the Department. Not available to students with credit in, or registration in, Music 2A06 or 2B06.

MUSIC 2BB3 HISTORY OF MUSIC (CA. 1914 TO THE PRESENT)
A survey of 20th-century music. 3 lects., one term
Prerequisite: Music 2BB3 or 2B06, and registration in a Music programme; or permission of the Department. Not available to students with credit in Music 2CC2.

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 Lassus. 2 lects., term one; 1 lect., term two; two terms
Prerequisite: Registration in a Music programme; or permission of the Department. Not available to students with credit in Music 1C02 or 2C02.

MUSIC 2CC3 HARMONY
A continuation of Music 1CC2. Chromatic harmony and the completed major-minor system. 1 lect., term one; 2 lects., term two
Prerequisite: Music 1CC2, and registration in a Music programme; or permission of the Department. Not available to students with credit in Music 2CC2.

MUSIC 2D03 GENERAL MUSICIANSHIP
A continuation of Music 1D03. 2 lects., 1 lab.; two terms
Prerequisite: Music 1D02, and registration in a Music programme; or permission of the Department. Not available to students with credit in Music 2D02 or 2D02.

MUSIC 2E03 SOLO PERFORMANCE
A continuation of Music 1E03. 1 half-hour lesson weekly; two terms
Prerequisite: One of Music 1E03, 1E04, 1E06, and completion of Music I (or permission of the Department), and registration in a Music programme. Not available to students with credit in or registration in Music 2E04 or 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. 1 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. Not available to students with credit in or registration in Music 2E03 or 2E04. Under exceptional circumstances, students may use Music 1B03 or 1E04 in place of 1E06 as a prerequisite. Students interested in this option should consult the Department Counsellor before March Preregistration.

MUSIC 2G03 ENSEMBLE PERFORMANCE
McMaster Symphony Orchestra, McMaster University Choir, McMaster Concert Band, McMaster Jazz Band, or any other ensemble approved by the Department. Prerequisite: Permission of the Department. 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. 3 lects.; one term
Prerequisite: Music 1CC2 or 1CC3, and registration in a Music programme; or permission of the Department. Not available to students with credit in Music 2H04.

MUSIC 3A03 MUSIC EDUCATION I
A survey of choral techniques and music appreciation, and of the rudiments of music for classroom use. 3 lects.; one term
Prerequisite: Music 1A06 or 2A06, or permission of the Department. Not available to students registered in Honours Music.

MUSIC 3A03 MUSIC EDUCATION II
A survey of the Kodaly and Orff methods of music education. 3 lects.; one term
Prerequisite: Music 3A03, or registration in a Music programme; or permission of the Department.

MUSIC 3B03 TOPICS IN MUSIC HISTORY: EARLY MUSIC (MEDIEVAL 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 (2 hrs.); one term
Prerequisite: Music 2B03, and registration in a Music programme, or permission of the Department. Alternates with Music 3B03.

Music 3B03 may be repeated, if on a different topic, to a total of 6 units.

MUSIC 3B03 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 (2 hrs.); one term
Prerequisite: Music 2B03, and registration in a Music programme; or permission of the Department. Alternates with Music 3B03.

Music 3B03 may be repeated, if on a different topic, to a total of 6 units.

MUSIC 3C03 TONAL COUNTERPOINT
Studies in baroque music, leading to analysis and writing of fugues. 3 lects.; one term
Prerequisite: Music 3C03, and registration in a Music programme. Not available to students with credit in Music 3C04.

MUSIC 3C04 TONAL COUNTERPOINT
A continuation of Music 3C03, emphasizing analysis and writing of fugues. 3 lects.; two terms
Prerequisite: Music 3C03, and registration in a Music programme. Not available to students with credit in Music 3C04.

MUSIC 3D03 SOLO PERFORMANCE
A continuation of Music 2E03. 1 half-hour lesson weekly; two terms
Prerequisite: Music 2E03 or 2E04, and registration in Level III of a Music programme. Not available to students with credit in or registration in Music 3E04 or 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. 1 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. Not available to students with credit in, or registration in, Music 3E03 or 3E04.

MUSIC 3G03 ENSEMBLE PERFORMANCE
McMaster Symphony Orchestra, McMaster University Choir, McMaster Concert Band, McMaster Jazz Band, or any other ensemble approved by the Department. Prerequisite: Permission of the Department. 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. 2 lects.; two terms
Prerequisite: Music 2H02, and either 2CC2 or 2CC3, and registration in a Music programme. Not available to students with credit in Music 3H04. Offered in alternate years.

MUSIC 3I03 ORCHESTRATION
A study of the orchestral instruments; scoring of music for various ensembles. 2 lects.; terms
Prerequisite: Music 3I03, 2II0, and either 2CC2 or 2CC3, and registration in a Music programme. Not available to students with credit in Music 3I04.

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. 1 lect.; 1 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. 1 lect.; 1 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. Each student will concentrate on one instrument and gain a working knowledge of the others. 2 lects.; two terms
Prerequisite: Registration in a Music programme. Not available to students with credit in Music 3M04.

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. 1 lect.; two terms
Prerequisite: Registration in a Music programme.
MUSIC 3003  CONDUCTING
Fundamental conducting techniques applied to works selected from the standard repertoire.
2 lects., term one; 1 lect., term two.
Prerequisite: Music 1C02, 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.
2 lects.; one term.
Prerequisite: Music 1A06 or completion of 18 units of Music including Music 1B06, or permission of the Department.
Offered in alternate years.

MUSIC 3T03  CANADIAN MUSIC
An historical survey of music in Canada, in the context of social and political developments, from ca. 1600 to the present.
2 lects., 1 tut.; one term.
Prerequisite: Music 1A06 or completion of 18 units of Music including Music 1C02, or permission of the Department.
Offered in alternate years.

MUSIC 3U03  JAZZ
An historical survey of jazz, focusing on selected performers and arrangers. 2 lects., 1 tut.; one term.
Prerequisite: Music 1A06 or completion of 18 units of Music including Music 1C02, or permission of the Department.
Offered in alternate years.

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 (2 hrs.); one term.
Prerequisite: Registration in Level III of a Music programme.
Offered in alternate years.

MUSIC 3W03  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 (2 hrs.); one term.
Prerequisite: Music 2B03, and registration in a Music programme; or permission of the Department.
Alternates with Music 4BB3.
Music 4B03 may be repeated, if on a different topic, to a total of six units.

MUSIC 3W03  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 (2 hrs.); one term.
Prerequisite: Music 2B03, and registration in a Music programme; or permission of the Department.
Alternates with Music 4BB3.
Music 4B03 may be repeated, if on a different topic, to a total of six units.

MUSIC 3X03  HARMONY AND COUNTERPOINT
Advanced studies in classical and romantic music. Variations, sonata, and character pieces. 3 lects.; one term.
Prerequisite: Music 3C03 or 3C04, and registration in a Music programme. Not available to students with credit in Music 4C04.
Offered in alternate years.

MUSIC 3Y03  SOLO PERFORMANCE
A continuation of Music 3Y03. 1 half hour lesson weekly; two terms.
Prerequisite: Music 3Y03 or 3Y04, and registration in Level IV of a Music programme. Not available to students with credit in or registration in Music 4E04 or 4E06.

MUSIC 4A03  SOLO PERFORMANCE
Intensive study of the technique and repertoire of any orchestral instrument, the piano, organ, harpsichord, voice, recorder, saxophone, or guitar. 1 hour lesson weekly; two terms.
Prerequisite: A grade of at least A – in Music 3E06, and registration in Level IV of a music programme. Not available to students with credit in, or registration in, Music 4E03 or 4E04.

MUSIC 4B03  ENSEMBLE PERFORMANCE
McMaster Symphony Orchestra, McMaster University Choir, McMaster Concert Band, McMaster Jazz Band, or any other ensemble approved by the Department.
Prerequisite: Permission of the Department. Successful audition required. Academic credit available only to students registered in a Music programme.

MUSIC 4H03  ANALYSIS
Advanced studies in analysis.
Seminar (2 hrs.); one term.
Prerequisite: Music 2B03 or 2B06, 2CC3, 2H03 or 2H04, 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 (2 hrs.); one term.
Prerequisite: Music 2A06 or 2BB3, and registration in a Music programme; or permission of the Department.
Offered in alternate years.

MUSIC 4L03  BRASS METHODS
A continuation of Music 3K03.
1 lect., 1 lab.; two terms.
Prerequisite: Music 3K03, and registration in a Music programme.

MUSIC 4M03  STRING METHODS
A continuation of Music 3M03.
2 lects.; two terms.
Prerequisite: Music 3M03 or 3M04, and registration in a Music programme. Not available to students with credit in Music 4M04.

MUSIC 4N03  VOCAL METHODS
A continuation of Music 3N03.
1 lect.; two terms.
Prerequisite: Music 3N03, and registration in a Music programme.

MUSIC 4O03  Conducting
A continuation of Music 3O03.
2 lects., term one; 1 lect., term two.
Prerequisite: Music 3O03, and registration in a Music programme.

MUSIC 4P03  PERSCUSSION METHODS
A study of the basic techniques of playing percussion instruments. Percussion literature for various educational levels. No previous study of percussion required.
2 lects., 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. 3 lects.; 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: Permission of the Department, and registration in an Honours Music programme.

MUSIC 4U03  JAZZ IMPROVISATION
Study and performance of jazz improvisations in various styles.
2 hrs.; one term.
Prerequisite: Music 3L03 and permission of the instructor.
Offered in alternate years.

MUSIC 4V03  MUSIC OF THE WORLD’S CULTURES
A survey of music traditions of non-European cultures, e.g., far Eastern, Indian, African.
3 lects.; one term.
Prerequisite: Music 1A06, or 18 units of Music including Music 1B06, or permission of the Department.
Offered in alternate years.

MUSIC 4W03  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 4Z03  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.

Native Studies
(See Thematic Areas of Study - Indigenous Peoples)
NURSING

Nursing

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- (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

NURSING 1F07 INTRODUCTION TO NURSING
An introduction to the study of nursing. The focus is on the health of individuals and the role of the nurse in the maintenance and promotion of health. Understanding of the nursing process and beginning levels in assessment, communication and interviewing are emphasized.
4 hrs. (clin. Lab.); 2 hrs. (lect.-problem-based tutorial); two terms
Pre-Requisite: Registration in Level I of the B.Sc.N. Programme (A) Stream or permission of the instructor.

NURSING 2M05 NURSING CONCEPTS IN HEALTH AND ILLNESS I
Integration of biological, psychological, social sciences and nursing theory are developed through work in problem-based tutorials, in which students apply concepts related to nursing, teaching-learning and communication processes to a variety of patient situations. Through independent study, students apply theoretical knowledge to a chosen clinical topic.
2 1/2 hrs. (lect.-problem-based tutorial); two terms
Pre-Requisite: Nursing 1F07. Normally to be taken concurrently with Nursing 2L06.

NURSING 2L06 GUIDED NURSING PRACTICE I
Growth and development of the individual are studied within the context of the family and the community. Concepts basic to nursing are examined as they relate to situational stress. By using a variety of clinical and laboratory settings, experiences are provided with young adults in the childbearing phase of family development and adults of all ages, some of whom have been hospitalized for surgery. Each student works in hospital and home settings during the year.
8 hrs. (clin. Lab. including tutorials); two terms
Pre-Requisite: Nursing 1F07 or permission of the instructor. Normally taken concurrently with Nursing 2M05.

NURSING 2H04 GUIDED NURSING PRACTICE II
Students utilize knowledge and skills studied in Levels I and II by assessing, planning, implementing, and evaluating the nursing care of patients in one of a variety of clinical settings.
24 hrs. (clin. Lab., including tutorials) per week for 4 weeks; third term
Pre-Requisite: Nursing 2L06 and 2M05.

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.
21 hrs. (clin. Lab. including tutorials); 13 weeks
Pre-Requisite: Nursing 3X07. Normally taken concurrently with Nursing 3S08.

NURSING 3Y07 GUIDED NURSING PRACTICE IV
A continuation of Nursing 3X07.
21 hrs. (clin. Lab including tutorials); 13 weeks
Pre-Requisite: Nursing 3X07. Normally taken concurrently with Nursing 3S08.

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.
24 hrs. (clin. Lab./including tutorials); 12 weeks
Pre-Requisite: Nursing 3Y07. Normally to be taken concurrently with Nursing 4E06.

NURSING 4K07 GUIDED NURSING PRACTICE VI
A continuation of Nursing 4J07.
Pre-Requisite: Nursing 4J07. Normally to be taken concurrently with Nursing 4E06.

Diploma R.N. (B) Stream

NURSING 3L05 GUIDED NURSING PRACTICE I
Planned and guided practice experiences in primary health care settings. Major emphasis is given to the assessment, problem-solving, interpersonal, teaching behaviour necessary to implement and evaluate nursing care in ambulatory community settings. Nursing of individuals and families throughout the health illness continuum is stressed.
15 hrs. (clin. Lab., including tutorials); 13 weeks
Pre-Requisite: Normally to be taken concurrently with Nursing 3S08.

NURSING 3M05 GUIDED NURSING PRACTICE II
A continuation of Nursing 3L05.
15 hrs. (clin. Lab., including tutorials); 13 weeks
Pre-Requisite: Normally to be taken concurrently with Nursing 3S08.

NURSING 3N08 GUIDED NURSING PRACTICE III
Concentrated planned experience in one setting (normally community health nursing) with a major emphasis on the development of expanded role skills in a reality situation which allows for the development and demonstration of independent decision-making.
24 hrs. (clin. Lab.); 4 hrs. (Independent study); 3 hrs. (tut.); 6 weeks (normally offered in May-June)
Pre-Requisite: Nursing 3L05 and 3M05.

NURSING 4S06 GUIDED NURSING PRACTICE IV
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.
2 hrs. (Tut.); 2 hrs. (Tut.); 13 weeks
Pre-Requisite: Nursing 3N08. Normally to be taken concurrently with Nursing 4E06.

NURSING 4T06 GUIDED NURSING PRACTICE V
A continuation of Nursing 4S06.
12 hrs. (Clin. Lab.); 2 hrs. (Tut.); 13 weeks
Pre-Requisite: Nursing 4G06. Normally to be taken concurrently with Nursing 4E06.

(A) and (B) Stream

NURSING 3N08 NURSING CONCEPTS IN HEALTH AND ILLNESS II
Models of nursing intervention using a variety of theoretical bases are applied to health care situations through problem-based learning. Recurring themes such as crisis, loss, anxiety, identity, immobility, and pain are studied in a framework related to the promotion of health, prevention of illness, early diagnosis and treatment, rehabilitation, and maintenance.
4 hrs. (lect.-problem-based tutorial); two terms
Pre-Requisite: Normally taken concurrently with Nursing 3X07 and 3Y07 for (A) Stream students), or Nursing 3L05 and 3M05 (for (B) Stream students).

NURSING 4A02 CURRENT TRENDS AND ISSUES IN NURSING
Issues facing the profession and their implications of current changes in the health field for future nursing practice.
2 hrs. every week; one term

NURSING 4E06 CONCEPTS IN HEALTH I AND ILLNESS III
A problem-based seminar course in which students integrate theses and concepts related to patient care and leadership activities. Student participation includes selecting appropriate clinical situations and related theories for study, and developing a group presentation based on teaching/learning principles.
3 hrs. (lect.-problem-based tutorial) per week; two terms
Pre-Requisite: Normally taken concurrently with Nursing 4J07 and 4K07 for (A) Stream students, or Nursing 4S06 and 4T06 for (B) Stream students.

Occupational Therapy and Physiotherapy

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

Block I - Basic Skills

OCCOTHER 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.
5 hrs. (tutorials); 14 weeks

OCCOTHER 1L17 CLINICAL SKILLS LAB I
Students develop basic interview, assessment and activity analysis skills.
7 hrs. (lab); 14 weeks
OCCOTHER 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.
3 hrs. (lecture/seminar); 14 weeks

Block II - Child Health
OCCOTHER 1T23  PROBLEM-BASED TUTORIAL II
Students explore various clinical problems encountered in the practice of pediatric occupational therapy.
5 hrs. (tutorial); 8 weeks
2 hrs. (tutorial); 6 weeks

OCCOTHER 1L24  CLINICAL SKILLS LAB II
Students develop assessment and treatment skills for pediatric populations.
7 hrs. (lab); 8 weeks

OCCOTHER 1S23  INQUIRY SEMINAR II
Students investigate various conceptual issues related to child health during infancy, childhood and adolescence.
5 hrs. (lecture/seminar); 8 weeks

OCCOTHER 1C26  CLINICAL EDUCATION I
Students integrate knowledge and skills into clinical practice in a pediatric setting under supervision of a qualified therapist.
35-40 hrs. (fieldwork); 6 weeks

Block III - Adult Physical Health
OCCOTHER 1T33  PROBLEM-BASED TUTORIAL III
Students explore various clinical problems encountered in the field of adult rehabilitation.
5 hrs. (tutorial); 8 weeks
2 hrs. (tutorial); 6 weeks

OCCOTHER 1L34  CLINICAL SKILLS LAB III
Students develop assessment and treatment skills for physically disabled adult populations.
7 hrs. (lab); 8 weeks

OCCOTHER 1S33  INQUIRY SEMINAR III
Students investigate various conceptual issues related to adult physical health.
5 hrs. (lecture/seminar); 8 weeks

OCCOTHER 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 hrs. (fieldwork); 6 weeks

Block IV - Adult Mental Health
OCCOTHER 2T43  PROBLEM-BASED TUTORIAL IV
Students explore various clinical problems encountered in the practice of adult mental health.
5 hrs. (tutorial); 8 weeks
2 hrs. (tutorial); 6 weeks

OCCOTHER 2L44  CLINICAL SKILLS LAB IV
Students develop assessment and treatment skills for mentally ill populations.
7 hrs. (lab); 8 weeks

OCCOTHER 2S43  INQUIRY SEMINAR IV
Students investigate various conceptual issues related to adult mental health.
5 hrs. (lecture/seminar); 8 weeks

OCCOTHER 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 hrs. (fieldwork); 6 weeks

Block V - Aging and Health
OCCOTHER 2T53  PROBLEM-BASED TUTORIAL V
Students explore various clinical problems encountered in the practice area of aging and health.
5 hrs. (tutorial); 8 weeks
2 hrs. (tutorial); 6 weeks

OCCOTHER 2L54  CLINICAL SKILLS LAB V
Students develop assessment and treatment skills for geriatric populations.
7 hrs. (lab); 8 weeks

OCCOTHER 2S53  INQUIRY SEMINAR V
Students explore various conceptual issues in the area of aging and health.
5 hrs. (lecture/seminar); 8 weeks

OCCOTHER 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 hrs. (fieldwork); 6 weeks

Block VI - Integration
OCCOTHER 2T64  PROBLEM-BASED TUTORIAL VI
Occupational Therapy and Physiotherapy students may learn together to integrate concepts drawn from the biological, psychological, sociological, and measurement sciences in order to consider complex health care problems.
4 hrs. (tutorial); 14 weeks

OCCOTHER 2L63  CLINICAL SKILLS LAB VI
Students in Occupational Therapy and Physiotherapy may practice and study together to gain skills in consultation, client advocacy, management, and/or advanced clinical skills in an area of choice.
3 hrs. (lab); 14 weeks

OCCOTHER 2T65  INDEPENDENT STUDY I
Student study focuses on scientific inquiry through research related to occupational therapy. Such research may involve literature searches, simple research design or proposal preparation, or participation in ongoing research with a faculty member.
5 hrs.; 14 weeks

OCCOTHER 2S63  INQUIRY SEMINAR VI
Students focus on quality of life issues. Themes for exploration may include rehabilitation, aging, the disabled in society or future challenges for the professions nationally and internationally.
3 hrs. (lecture/seminar); 14 weeks

Block VII
OCCOTHER 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 a faculty advisor.
35-40 hrs. (fieldwork); 6 weeks

PHYSIOTHERAPY

Block I
PHYSTHER 1S13  BASIC SKILLS - MUSCULOSKELETAL I
The problem-based tutorials in Block I 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.
5 hrs. (tutorial); 14 weeks

PHYSTHER 1C17  MUSCULOSKELETAL LAB - MUSCULOSKELETAL I
The clinical skills lab 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.
7 hrs. (lab); 14 weeks

OCCOTHER 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.
3 hrs. (lecture/seminar); 14 weeks

Block II
PHYSTHER 1T33  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.
5 hrs. (tutorial); 8 weeks
2 hrs. (tutorial); 6 weeks

PHYSTHER 1L34  CLINICAL SKILLS LAB - MUSCULOSKELETAL II
Students acquire basic level competencies in the assessment and treatment of spinal conditions. Students are responsible for completing further electrophysiological modules. Effectiveness of physiotherapy interventions in spinal and musculoskeletal conditions are considered.
7 hrs. (lab); 8 weeks

PHYSTHER 1S13  INQUIRY SEMINAR II
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.
3 hrs. (lecture/seminar); 14 weeks

Block III
PHYSTHER 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 antenatal, and chronic pain.
5 hrs. (tutorial); 8 weeks
2 hrs. (tutorial); 6 weeks

PHYSTHER 1C36  MUSCULOSKELETAL IV
Students acquire the advanced manual assessment and treatment skills which are required to manage clients of all ages with complex and chronic musculoskeletal problems.
7 hrs. (lab); 8 weeks
PHYS 1533 INQUIRY SEMINAR III
Seminar is on issues related to determinants of health and chronicity. Themes to be explored may include cultural, genetic and social factors in health, biopsychosocial aspects of chronic illness and its management. 
5 hrs. (lecture/seminar); 8 weeks

PHYS 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 hrs. (fieldwork); 6 weeks

Block IV
PHYS 2T43 CARDIOPULMONARY
Students study the pathology, etiology, assessment and physiotherapeutic management of cardiac and pulmonary conditions. 
5 hrs. (tutorial); 8 weeks
2 hrs. (tutorial); 6 weeks

PHYS 2L44 CLINICAL SKILLS LAB - CARDIOPULMONARY
Students master the assessment and treatment skills which are required for the physiotherapeutic management of clients with cardiac and/or pulmonary conditions. 
7 hrs. (lab); 8 weeks

PHYS 2S63 CLINICAL SKILLS LAB - NEUROLOGY
Students master the assessment and treatment skills which are required for the physiotherapeutic management of clients with neurological problems. 
35-40 hrs. (fieldwork); 6 weeks

Block V
PHYS 2T53 NEUROLOGY
Students study the pathology, etiology, assessment and physiotherapeutic management of clients of all ages with neurological problems. 
5 hrs. (tutorial); 8 weeks
2 hrs. (tutorial); 6 weeks

PHYS 2L54 CLINICAL SKILLS LAB - NEUROLOGY
Students acquire basic level skills to assess and treat clients with neurological conditions. 
7 hrs. (lab); 8 weeks

PHYS 2S53 INQUIRY SEMINAR V
Seminars focus on issues important to the practice of physiotherapy with cardiac-pulmonary patients. Themes may include exercise physiology, stress and health, locus of control, balance of life, nutrition, and pharmacology. 
5 hrs. (lecture/seminar); 8 weeks

PHYS 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 hrs. (fieldwork); 6 weeks

Block VI
PHYS 2T64 INTEGRATION
Occupational Therapy and Physiotherapy students may learn together to integrate concepts drawn from the biological, psychological, sociological, and measurement sciences in order to consider complex health care problems. 
4 hrs. (tutorial); 14 weeks

PHYS 2L63 CLINICAL SKILLS LAB VI
Students in Occupational Therapy and Physiotherapy may practice and study together to gain skills in consultation, client advocacy, management, and/or advanced clinical skills in an area of choice. 
3 hrs. (lab); 14 weeks

PHYS 2165 INDEPENDENT STUDY
Students study focuses on scientific inquiry through research related to physiotherapy. Such research may involve literature searches, simple research design or proposal preparation, or participation in ongoing research with a faculty member. 
5 hrs.; 14 weeks

PHYS 2S63 INQUIRY SEMINAR VI
Seminars focus on issues important to the practice of physiotherapy with cardiac-pulmonary patients. Themes may include exercise physiology, stress and health, locus of control, balance of life, nutrition, and pharmacology. 
3 hrs. (lecture/seminar); 14 weeks

Block VII
PHYS 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 a faculty advisor. 
35-40 hrs. (fieldwork); 6 weeks

Peace Studies
(See Thematic Areas of Study)

Pharmacology
With the exception of Pharmacology 4B03, these courses are available only to those students registered in Honours Biology and Pharmacology. 

Department Note:
Pharmacology 3A06, 3B06, 4A03, 4A3A, 4C03 and 4D03 will be based on self-directed problem based learning.

PHARM 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.
1 tut. (1), 1 tut. (2); two terms.
Prerequisite: Registration in the Honours Biology and Pharmacology programme.

PHARM 3B06 METHODS IN PHARMACOLOGY
Methods to study effects of drugs in vitro (such as organ baths and ligand-receptor binding) and to analyze pharmacological data.
1 lab (3); two terms
Prerequisite: Completion of or registration in Pharmacology 3A06.

PHARM 4A03 DRUG AND SIGNAL TRANSMISSION I
Introduction to the effects of drugs on communication by chemical signals in biological systems.
1 tut. (1), 1 tut. (2); one term
Prerequisite: Pharmacology 3A06.

PHARM 4A3A DRUG AND SIGNAL TRANSMISSION II
The continuation of Pharmacology 4A03.
1 tut. (1), 1 tut. (2); one term
Prerequisite: Pharmacology 4A03.

PHARM 4B03 DRUGS AND BEHAVIOUR
Behavioural measures to study drug action and the use of drugs to study the organization and physiological mechanisms in normal and abnormal behaviour.
3 lects. or 2 lects. and 1 tut.; one term
Prerequisite: Pharmacology 3A06 or Biology 3A3A.

PHARM 4C03 PRINCIPLES OF TOXICOLOGY
General principles of toxicology, adverse effects of selected agents on man and other organisms.
1 tut. (1), 1 tut. (2); one term
Prerequisite: Pharmacology 3A06.

PHARM 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.
1 tut. (1), 1 tut. (2); one term
Prerequisite: Pharmacology 3A06.

PHARM 4F09 SENIOR THESIS
A thesis based upon a research project carried out under the direction of a member of the Faculty.
Prerequisite: Pharmacology 3A06.

Philosophy
Faculty as of January 15, 1991
David L. Hitchcock/Chair

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)

Professors
Nicholas Griffs/B.A. (Leicester), Ph.D. (Australian National)
G. 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)
Constantine Georgiadis/M.A. (Warsaw), Ph.D. (London)
David L. Hitchcock/B.A. (McMaster), Ph.D. (Claremont)
PHILOSOPHY

PHILOSOPHY 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.
2 lects., 1 tut.; two terms
Prerequisite: Open, except to students who have credit in, or are registered in, Philosophy 1D06.

PHILOSOPHY 1D06  PROBLEMS IN PHILOSOPHY
A critical investigation of philosophical arguments concerning God, politics, morality, human nature, knowledge and art.
2 lects., 1 tut.; two terms
Prerequisite: Open, except to students who have credit in, or are registered in, Philosophy 1B06.

PHILOSOPHY 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.
3 lects.; two terms
Prerequisite: Open to students in Level II and above.

PHILOSOPHY 2B03  INTRODUCTORY LOGIC
Sentential and quantificational logic are introduced and applied to arguments in English.
3 lects.; one term
Prerequisite: Open to students in Level II and above.

PHILOSOPHY 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.
3 lects.; two terms
Prerequisite: Open to students in Level II and above.

PHILOSOPHY 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.
2 lects., 1 tut.; one term
Prerequisite: Open to students in Level II and above.
Same as Religious Studies 2003.
Enrolment is limited.

PHILOSOPHY 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?
3 lects.; one term
Prerequisite: Open to students in Level II and above.

PHILOSOPHY 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.
2 lects., 1 tut.; one term
Prerequisite: Open to students in Level II and above.

PHILOSOPHY 2H03  AESTHETICS
An introduction to some main theories of the nature of art, criticism, and the place of art in life and society.
3 lects.; one term
Prerequisite: One previous course in Philosophy, or permission of the Department.

PHILOSOPHY 2M03  SCIENTIFIC METHOD
Theory structure and justification in the sciences compared to reasoning in pseudo-sciences (e.g., theories of paranormal or psi phenomena).
3 lects.; one term
Prerequisite: Open to students in Level II and above.

PHILOSOPHY 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.
2 lects., 1 tut.; one term
Prerequisite: Open to students in Level II and above.

PHILOSOPHY 2R03  REASONING
An introduction to important types of reasoning, with emphasis on concepts rather than techniques. Possible topics: arguments, deductive validity, the logical structure of sentences, testing hypotheses, making decisions, reasoning about value questions.
2 lects., 1 tut.; one term
Prerequisite: Open to students in Level II and above. Not available to students with credit for, or registration in, Humanities 1C03 or Arts and Science 1B06.

PHILOSOPHY 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 Hume or Schelling.
1 lect. (2 1/2 hrs.); two terms
Prerequisite: Philosophy 2C06 and registration in Level III or IV of any programme; or permission of the Department.

PHILOSOPHY 3B03  PHILOSOPHIES OF EXISTENCE
An examination of the 19th-century forerunners of contemporary existential philosophy, concentrating principally on the thought of Kierkegaard and Nietzsche.
1 lect. (2 1/2 hrs.); one term
Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme; or permission of the Department.

PHILOSOPHY 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.
3 lects.; one term
Prerequisite: Philosophy 2C03 or Religious Studies 2C03 with a grade of at least 60, and at least three additional units of Philosophy; or registration in Level III or IV of an Honours programme in Philosophy; or permission of the Department.

PHILOSOPHY 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.
3 lects.; one term
Prerequisite: Six units of Philosophy and registration in Level III or IV of any programme; or permission of the Department.
Offered in alternate years.

PHILOSOPHY 3F03  INTERMEDIATE LOGIC
A study of formal languages and their interpretations, including soundness and completeness proofs, and some major results such as Gödel's theorems.
3 lects.; one term
Prerequisite: Philosophy 2B03; or permission of the Department.
Offered in alternate years.

PHILOSOPHY 3G03  ETHICS
An introduction to the major types of ethical theory and the problem of their justification.
3 lects.; one term
Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme; or permission of the Department.

PHILOSOPHY 3H03  PHILOSOPHY OF RELIGION
An analysis of the concept of religion in light of the philosophical claims of religious experience, practice, and belief.
3 lects.; one term
Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme; or permission of the Department.
PHILOS 3I03 PHILOSOPHY AND FEMINISM
A study of philosophical issues in feminist thought.
3 lect.; one term
Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme; or permission of the Department.

PHILOS 3I03 PHILOSOPHY OF EDUCATION
A systematic account of education through a critical analysis of the concepts of teaching, learning, and subject matter.
2 lects., 1 tut.; one term
Prerequisite: At least six units of Philosophy, or permission of the Department.

PHILOS 3I03 PHILOSOPHIES OF BIOLOGY
Introduction to philosophical problems arising from Biology: the nature of biological laws and explanations, the presuppositions of taxonomy, the status of sociobiology and evolutionary theory.
2 lects., 1 tut.; one term
Prerequisite: One course in Biology or Philosophy 2I03; or permission of the instructor.

PHILOS 3I06 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.
3 lects.; two terms
Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme; or permission of the Department.

PHILOS 3I03 THEORY OF KNOWLEDGE
A study of skepticism and certainty, knowledge and belief, perception, memory, and truth.
3 lects.; one term
Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme; or permission of the Department.

PHILOS 3I03 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.
3 lects.; one term
Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme; or permission of the Department.

PHILOS 3I03 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.
3 lects.; one term
Prerequisite: At least six units of Philosophy and registration in Level III or IV of any programme; or permission of the Department.

PHILOS 3I03 READING COURSE
A tutorial course in which individual students meet regularly with an instructor on a list of readings outside normally available course offerings. Times and topics are arranged between the students and the instructor.
Prerequisite: Registration in Level III or IV of a programme in Philosophy, with a Cumulative Area Average of at least 7.0 in Philosophy, agreement of the instructor, and permission of the Department. A formal proposal must be submitted to the Philosophy Undergraduate Advisor prior to registration.

PHILOS 3I03 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.
Tuts.; one term
Prerequisite: Six units of Philosophy and six units of Biology.

PHILOS 4I03 CARTESIANISM
A study of Cartesianism (including the views of Leibniz) as a response to 16th-century mechanist objections.
Seminar (2 1/2 hrs.); one term
Prerequisite: Philosophy 2A06 or 2F03 and registration in Level III or IV of any programme; or permission of the Department. Offered in alternate years.

PHILOS 4I03 THEORY OF VALUE
A study of human practices of evaluation in morality, politics, art, religion, and economics.
Seminar (2 1/2 hrs.); one term
Prerequisite: Registration in Level III or IV of a programme in Philosophy; or permission of the Department. Offered in alternate years.

PHILOS 4I03 PLATO
A critical examination of Plato's writings with reference to selected central philosophical issues.
1 lect., 1 seminar (2 hrs.); one term
Prerequisite: Philosophy 2A06 and registration in Level III or IV of any programme; or permission of the Department. Not available to students with credit in Philosophy 3I03. Offered in alternate years.

PHILOS 4I03 TWENTIETH-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 (2 1/2 hrs.); one term
Prerequisite: Registration in Level III or IV of a programme in Philosophy; or permission of the Department. Offered in alternate years.

PHILOS 4I03 EXISTENTIALISM AND PHENOMENOLOGY
A study of selected texts of major existential and phenomenological philosophers in the 20th-century, such as Camus, Heidegger,aspers, and Marcel.
Seminar (2 1/2 hrs.); one term
Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme; or permission of the Department.

PHILOS 4I03 RECENT EUROPEAN PHILOSOPHY
Contemporary trends in European Philosophy as represented by such writers as Derrida, Foucault and Habermas.
Seminar (2 1/2 hrs.); one term
Prerequisite: Registration in Level III or IV of a programme in Philosophy; or permission of the Department. Offered in alternate years.

PHILOS 4I03 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.
1 lect. (2 hrs.), 1 seminar (1 hr.); one term
Prerequisite: At least six units of Philosophy, and registration in Level III or IV of any programme; or permission of the Department. Philosophy 2B03 is recommended. Not available to students with credit in Philosophy 3I03. Offered in alternate years.

PHILOS 4I03 METAPHYSICS
An investigation of metaphysical concepts, such as substance, individuality, identity, essence, quality, properties, and time and causality. Some contemporary criticisms of metaphysics will be discussed.
Seminar (2 1/2 hrs.); one term
Prerequisite: Philosophy 2A06 or 3E03 or 3I03 and registration in Level III or IV of any programme; or permission of the Department. Offered in alternate years.

PHILOS 4I03 ARISTOTLE
A systematic study of Aristotle's major doctrines.
Seminar (2 1/2 hrs.); one term
Prerequisite: Philosophy 2A06 and registration in Level III or IV of any programme; or permission of the Department. Not available to students with credit in Philosophy 3I03. Offered in alternate years.

PHILOS 4I03 LOGICAL THEORY
The course deals with applications of logic within philosophy and philosophical issues within logic. Topics which may be included are modal logics, deontic logics, formal semantics, free logics, many-valued logics, and such concepts as truth, reference, logical form, and bivalence.
Seminar (2 1/2 hrs.); one term
Prerequisite: Philosophy 2B03; or permission of the Department. Offered in alternate years.

PHILOS 4I03 INDEPENDENT STUDY
In consultation with a Philosophy advisor, students will prepare an essay on an approved topic, on the basis of a list of readings outside normally available course offerings.
Prerequisite: Registration in Level IV of an Honours programme in Philosophy, with a Cumulative Area Average of at least 9.0 in Philosophy, and permission of the Department. A formal proposal must be submitted to the Philosophy Undergraduate Advisor prior to registration. (This requirement does not apply to students in a programme combining Philosophy and Biology.) Not available to students with credit in Philosophy 4206.

PHILOS 4I03SUPERVISED STUDY IN PHILOSOPHY AND BIOLOGY (II)
Students regularly meet with instructors from the Departments of Philosophy and Biology to discuss a list of readings.
Tuts.; one term
Prerequisite: Six units of Philosophy and six units of Biology.

PHILOS 4I03 THESIS
Reading and research under the supervision of 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 Philosophy, with a Cumulative Area Average of at least 9.0 in Philosophy, and permission of the Department. A formal proposal must be submitted to the Undergraduate Advisor prior to registration. Not available to students with credit in Philosophy 4I03.
PHYSICAL EDUCATION

Faculty as of January 15, 1991

D. Sale/Chair

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)

Professor
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
Peter Donnelly/Dip.Ed. (City of Birmingham College), B.A. (Hunter College, N.Y.), M.S. (Massachusetts)
Raymond B. Johnson/B.A. (Western), M.Ed. (SUNY, Buffalo), Ph.D. (Temple)

Digby Elliott/B.Sc., M.Sc., Ph.D. (Waterloo)

William H. Fowlie/B.A. (Western), M.P.E. (Springfield)

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., M.Cert. (McMaster), M.Sc. (Dolhusie), Ph.D. (Ohio State)

Cindy Riach/B.A., B.P.H.E., B.Ed., M.Sc. (Queen's), Ph.D. (Waterloo)


Assistant Professors

Cameron J. Blimkie/B.A., B.P.E. (McMaster), M.A., Ph.D. (Western)

Nicholas Cipriano/B.P.H.E., M.Sc. (Lakehead)

James J. Dowling/B.F.R.K., M.H.K. (Windsor), Ph.D. (Waterloo)

Robert J. Henderson/B.P.E. (McMaster) M.A. (Alberta)

Andrew 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., M.Cert. (McMaster), M.Sc. (Dolhusie), Ph.D. (Ohio State)

Cindy Riach/B.A., B.P.H.E., B.Ed., M.Sc. (Queen's), Ph.D. (Waterloo)


Lecturers

Michael Cain/B.A. (York), M.S.S. (U.S.A.)

Brian K. Maraj/B.P.E. (McMaster), M.A. (Western)

Theresa A. Quigley/B.A. B.Ed. (Western), M.A. (Alberta)

David C. Wilson/B.Ed. (Bristol), M.A. (York)

Instructors

Stephen E. Bruno/B.Sc. (Weber State)

Deborah E. Martinill/B.Sc. (York)

Barry M. Phillips/B.Sc., B.Ed. (Acadia), M.S.S. (United States Sports Academy)

Gaye Stratten/B.P.H.E. (Toronto)

Part-time Instructors

Tina Gabrielle/B.A., M.A. (Western)

Patricia M. Winik/B.Sc. (Michigan State), B.Ed. (Toronto)

Associate Members

Oded Bar-Or/Pediatrics/M.D. (Hebrew Univ., Jerusalem)

Scott Garnier/Medicine/B.Sc. (Med.) (Manitoba), M.D. (Manitoba)

John Haya/B.A., B.P.H.E. (Queen's), M.Sc. (Alberta), Ph.D. (McMaster)

N.L. Jones/M.B., B.S., M.D. (London), F.R.C.P. (U) S

A.J. McComas/B.Sc., M.B., B.S. (Durham), F.R.C.P.(C)

Robert S, McKevo/B.Sc., M.Sc., M.D. (Western)

Department Notes:

1. 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.

2. With the permission of the instructor, the following courses may be taken as elective credit by undergraduates not in Physical Education 3J03, 3P03, 3Q03, 4E03, 4J03, 4L03, 4M03, 4Q03.

All other Physical Education courses are open only to students registered in the Bachelor of Physical Education programme.

3. Required Area theory courses are: Physical Education IA06, 1B03, 1E03, 1F03, 2A03, 2B03, 2C06, 2D03, 2F03, and Biology 1U03.

Required Area practicum courses are: PRO2 (Gymnastics), PRO3 (Track), PRO4 (Games), PRO5 (Dance), PRO6 (Fitness).

Students must also fulfill the swimming requirement. (See the section Faculty of Social Sciences, Department of Physical Education, Programme Notes).

Area Electives: All other Physical Education courses listed or offered.

Enrolment in some Level III and IV elective courses may be limited.

4. 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 the Calendar under Sessional Dates.

PHYS ED IA06 HUMAN ANATOMY

Macroscopic and microscopic anatomy, with particular reference to the locomotor, nervous, cardiovascular, respiratory, digestive, urogenital and integumentary systems. 3 hrs. (lects., labs.); two terms.

PHYS ED IB03 SOCIOLOGY OF SPORT

Critical examination of contemporary issues and problems of sport in Canadian society. 3 hrs. (lects. and discussion); one term.

PHYS ED IE03 MOTOR DEVELOPMENT

Physical growth patterns and the development of perceptual-motor abilities. Age-appropriate motor behaviour, from infancy to old age, is investigated. 3 hrs. (lects., labs.); one term.

PHYS ED IF03 KINESIOLOGY I

An introduction to basic mechanical principles and concepts as applied to physical activity. 3 hrs. (lects., labs.); one term.

PHYS ED IA08 KINESIOLOGY II

Study of the kinematics and kinetics of human movement, including electromyography, fluid and tissue mechanics. 3 hrs. (2 lects., 1 lab.); one term.

PHYS ED IB03 PSYCHOMOTOR BEHAVIOUR

Motor learning principles and performance determinants are investigated, together with other relevant psychological determinants of gross motor behaviour. 2 lects., 1 lab.; one term.

PHYS ED IC06 PHYSIOLOGY OF EXERCISE

The effects of exercise on the physiological systems, and the application of physiological principles to human exercise performance. 2 lects., 1 lab. (2); two terms.

PHYS ED ID03 PHILOSOPHY OF PHYSICAL EDUCATION AND SPORT

Critical examination of the concepts, theories, and assumptions associated with physical education and sport. 3 hrs. (lects. and discussion); one term.

PHYS ED IF03 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. 3 hrs. (lects. and seminars); one term.

PHYS ED IB03 ADAPTED PHYSICAL ACTIVITY

Physical activity and movement designed to meet the needs, interests, and abilities of individuals referable to special physical activity programmes. 3 lects.: one term.

Co-requisite: Registration in PR89

PHYS ED IC03 MEASUREMENT AND EVALUATION

Introduction to research design and scientific method, elementary statistics. 3 hrs. (lects.); one term.

PHYS ED IF03 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. 3 hrs. (lects., seminars); one term.

PHYS ED IS03 BEHAVIOURAL ASPECTS OF PLAY AND GAMES 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. 3 hrs. (lects.); one term.
PHYSICAL EDUCATION

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.
2 lec.; 1 sem.; 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.
3 hrs. (lects., 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.
1 lec., 1 tute., 1 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)
Behavioural concepts and principles.
Topic areas include the study of organizations, and individual and group and organizational processes.
3 hrs. (lects., seminars); one term
Prerequisite: Physical Education 3J03, and permission of the instructor; grades in Physical Education 3F03, 3R87 (or proven administrative experience and other related course work) are considered in selection of students.
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.
3 hrs.; one term
Not open to students with credit in Physical Education 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.
3 hrs. (lects., 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.
Same as Sociology 3D03.

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.
3 hrs. (lects. 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.
Same as Sociology 3E03.

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.
3 hr. seminar; one term
Prerequisite: Open
Same as Religious Studies 3SS3. Enrolment is limited.

PHYS ED 4A06 BIOMECHANICS OF HUMAN MOVEMENT
In-depth study of the mechanics of human movement with application to specific position and movement problems; relationship of the mechanics to selected neuropsychological mechanisms.
3 hrs. (lects., labs.); two terms
Prerequisite: Permission of the instructor; grades in Physical Education 1F03 and Physical Education 2A03 are considered in selection of students.
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.
3 lec.; one term

PHYS ED 4C06 HUMAN PERFORMANCE PHYSIOLOGY
Factors affecting human performance, with emphasis upon procedures for maximizing sport performance.
2 lec., 1 lab.; two terms
Prerequisite: Permission of instructor; grade in Physical Education 2C06 is considered in selection of students.
Enrolment is limited.

PHYS ED 4D06 FOUNDATIONS IN OUTDOOR EDUCATION
An examination of Outdoor Education programmes and their historical, philosophical and sociological foundations.
3 hrs. (lects., seminars); two terms
Prerequisite: Enrolment is reserved primarily for Level IV students (Level III students by permission of the instructor) based on previous outdoor education background.
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.
2 lec., 1 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.
3 hrs. (lects., seminars); one term
Not open to students with credit in Physical Education 4D03 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.
3 hrs. (lects., 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.
3 hrs. (lects.); one term
Prerequisite: Registration In Level III or IV Physical Education or Gerontology programme.
Same as Gerontology 4I03.
Not open to students with credit in Physical Education 4I03 in 1987/88 or 1988/89.

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.
3 hrs. (lects., 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.
Same as Drama 4J03.

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.
3 hrs. (lects., labs.); one term
Prerequisite: Permission of the instructor; grade in Physical Education 2B03 is considered in selection of students.
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.
2 lec.; 1 seminar; one term
Prerequisite: Permission of the instructor; grade in Physical Education 2F03 is considered in selecting Physical Education 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 4M03 PSYCHO-SOCIAL ASPECTS OF SKILL
Perceptual and social- psychological principles applied to specific problems in skill development. Research on motivation, arousal perception, personality and competition is discussed.
2 lec., 1 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.
3 hrs.; one term
Prerequisite: Physical Education 3M03; and permission of the instructor. Students registered in 4N03 must also register for 8888 (Coaching Placement Experience). Not open to students with credit in Physical Education 3M06.
Enrolment is limited.
PHYS ED 4003 HEALTH SCIENCE: PHYSICAL AND ENVIRONMENTAL

Selected transactions between the individual, the environment and disease agents are explored as these transactions influence health.
3 hrs. (lects., seminars); one term
Open to students with credit in Physical Education 4003 in 1989-90.

PHYS ED 4P03 HEALTH SCIENCE: BEHAVIOURAL

Development of an understanding of those health topics based primarily on the behavioural sciences. Specifically included are mental health, psychoactive drugs, and human sexuality.
3 hrs. (lects., seminars); one term

PHYS ED 4Q03 PEDIATRIC EXERCISE PHYSIOLOGY

Physiologic aspects of physical activity in children and adolescents in health and disease.
2 lec., 1 lab.; one term
Prerequisite: Permission of the instructor; grade in General Education 4Q06 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.

Enrolement 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 Chair 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.
3 hrs. (2 lec., 1 seminar); one term
Prerequisite: Physical Education 3S03, P389, and permission of the instructor.

Enrolement is limited.

PHYS ED 4T03 GENDER, SPORT AND LEISURE

The influence of sport and leisure on the social construction of masculinity and femininity.
3 hrs. (seminars); one term
Prerequisite: Registration in Level III or IV Physical Education, or a Sociology programme or permission of the instructor.

Enrolement 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.
3 hrs. (seminars and presentations); one term
Prerequisite: Physical Education 3Z03, 3L03, administrative experience (P3787 or other), and permission of the instructor.

Enrolement 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 (Camps or Orientation Week), spread over a Term (Field Work Placement) or, more usually, extend over a 6 week period of 4 hours per week.
In Level III and IV a variety of Basic and Advanced practicum courses are offered.

Selection and Required Achievement in Practicum Classes

All practicum courses, in all Levels, must be completed with a minimum grade of D- in each.

Level I: 1 unit
Level I students normally take the McMaster Basic Swimming Test and PRO2 Basic Gymnastics.

Level II: 4 units
Level II students normally take PRO3 Track and Field, PRO4 Games, PRO5 Dance and PRO6 Fitness.

Levels III and IV: 8 units
Level III and IV students normally take four (4) 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. Any student wishing to take more than 2 units of Field Work Practicum must do so in addition to the minimum of 13 units, with permission of the instructor and Department.

3. A student wishing to take more than four courses per Level, or more than one course per session, must obtain permission from the Chair 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

Practicums 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

Faculty as of January 15, 1991

F.G. Sutherland/Chair
R.E. Pudritz/Associate Chair

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. (Brandon), F.R.S.C.
John A. Kuehner/B.S. (Bishop's), M.A (Queen's), Ph.D. (Liverpool), F.R.S.C.
Carman C. McMullen/M.Sc., Ph.D. (McMaster).
Mehrin 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. Ballille/B.Sc. (Queen's), D.Phil. (Oxford)
A. John Berlinsky/B.Sc. (Fordham), M.Sc., Ph.D. (Pennsylvania)
Rajat B. Bhagwati/M.Sc. (Calcutta), Ph.D. (McMaster)
I. David Brown/B.Sc., Ph.D. (London)
Dennis G. Burke/B.E., M.S. (Saskatchewan), Ph.D. (McMaster)
John A. Cameron/B.A. (Toronto), Ph.D. (McMaster)
Jules P. Carbone/B.Sc. (Manitoba), M.Sc., Ph.D. (McGill), F.R.S.C.
W. Brian Clarke/B.A. (Dublin), Ph.D. (McMaster)
Malcolm I. Collins/M.A., Ph.D. (Cambridge)
W. Ross Davies/M.Sc. (McMaster), Ph.D. (Wisconsin), F.R.S.C.
Brian K. Garside/B.A., D.Phil. (Oxford)/part-time
David A. Goodings/B.A (Toronto), Ph.D. (Cambridge)
Archie A. Hams/B.Sc. (British Columbia), M.ScEng., Ph.D. (Washington), Ph.D.
William E. Harris/B.Sc. (Alberta), M.Sc., Ph.D. (Toronto)
Terence J. Kennett/M.Sc., Ph.D. (McMaster)

Yukihisa Nomoto/B.Sc., D.Sc. (Kyoto)
William V. Prestwich/B.Sc., Ph.D. (McMaster)
Donald W.L. Sprung/B.A. (Toronto), Ph.D., D.Sc. (Birmingham), F.R.S.C.
Curt V. Stages/B.Sc. (McMaster), Ph.D. (Illinois)
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 Professor

Ralph E. Pudritz/B.Sc. (British Columbia), M.S., Ph.D. (Toronto), Ph.D. (British Columbia)

Assistant Professors

Bruce D. Gaulin/B.Sc. (McGill), Ph.D. (McMaster)
Catherine Killin/B.Sc. (British Columbia), A.M., Ph.D. (Harvard)
David E. Venus/B.Sc. (Queen's), Ph.D. (Toronto)
Douglas L. Wolfe/B.Sc., Ph.D. (Toronto)

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PHYSICS

Associate Members
Michael S. Patterson/B.Sc. (Queen's), M.Sc. (McMaster), Ph.D. (Toronto) (Radiology)
John S. Preston/B.Sc. (McMaster), M.Sc., Ph.D. (Toronto) (Engineering Physics)
David A. Thompson/B.Sc., Ph.D. (Reading) (Engineering Physics)
Brian C. Wilson/B.Sc., Ph.D. (Glasgow) (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.

PHYSICS IA06 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.
3 lects., 1 lab. (3) every other week; two terms
Prerequisite: At least 75% in Grade 13 or OAC Physics, and registration in Mathematics IA06 or Arts and Science ID06, and Mathematics IA03.

PHYSICS IB06 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 IA06; intended primarily for students proceeding in the life sciences.
3 lects. 1 lab. (3) every other week; two terms
Prerequisite: At least 60% in Grade 13 or OAC Physics, and registration in one of Mathematics IA06, IC06 or Arts and Science ID06.

PHYSICS IC06 INTRODUCTORY PHYSICS
Lectures and demonstrations in physics, with particular stress on topics in mechanics, wave motion, optics and electricity, for students without Grade 13 or OAC Physics.
3 lects., 1 tut., 1 lab. (3) every other week; two terms
Prerequisite: Registration in one of Mathematics IA06, IC06 or Arts and Science ID06.

PHYSICS ID03 INTRODUCTORY MECHANICS
A course for engineering students. Statics, kinematics, Newtonian dynamics, energy.
3 lects.; 1 lab. (3) every other week; one term
Prerequisite: Registration in Engineering I.

PHYSICS IE03 WAVES, ELECTRICITY AND MAGNETIC FIELDS
A course for engineering students. Oscillations and waves, interference; electrostatics, electric potential, circuit elements; magnetic fields, magnetic induction.
3 lects.; 1 lab. (3) every other week; one term
Prerequisite: Registration in Engineering I.

PHYSICS IA03 GENERAL PHYSICS II
A sequel to Physics IB06. Electricity and magnetism with an emphasis on applications to chemistry.
3 lects.; one term
Prerequisite: One of Physics IA06, IB06, IC06, and one of Mathematics IA06, IC06 or Arts and Science ID06.
Not open to students in Honours Chemistry and Physics, Honours Physics, Honours Applied Physics, Physics Major, or B.Sc. in Physics.

PHYSICS IB03 ELECTRICITY AND MAGNETISM
Electrostatics, D.C. and A.C. circuits, the magnetic field, Faraday's law of induction; Maxwell's equations.
3 lects., first term; 2 lects., second term; 1 lab. (3) every other week; two terms
Prerequisite: One of Physics IA06, IB06, IC06, and concurrent registration in Mathematics 2G03 and 2K03, or 2A06 and 2C03.

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.
3 lects., first term
Prerequisite: Registration in an Honours or Major programme in Physics or any programme in Engineering Physics or Honours Mathematics. Not open to students who have credit in Physics 2C05.

PHYSICS 2D03 MECHANICS
Dynamics of a particle, central field problem, many-particle systems, the mechanics of rigid bodies, Lagrange's equations.
3 lects., second term
Prerequisite: Registration in an Honours or Major programme in Physics or any programme in Engineering Physics or Honours Mathematics. Not open to students who are registered in, or have credit in, Physics 2G03 or have credit in Physics 2C05.

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.
3 lects.; one term
Prerequisite: One of Physics IA06, IB06, IC06, and one of Mathematics IA06, IC06 or Arts and Science ID06. Not open to students with credit in Physics 2E06.
Offered in 1991-92, 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.
3 lects.; one term
Prerequisite: One of Physics IA06, IB06, IC06, and one of Mathematics IA06, IC06 or Arts and Science ID06. Not open to students with credit in Physics 2F06.
Offered in 1992-93, alternating with Physics 2E03.

PHYSICS 2G03 MECHANICS OF A PARTICLE
Vectorial treatment of the mechanics of a particle in three dimensions. Special Relativity.
2 lects., 1 tut.; one term
Prerequisite: One of Physics IA06, IB06, IC06, and Mathematics 1B03 or registration in Mathematics 2G03. Not open to students who are registered in, or have credit in, Physics 2G05 or 2D03.

PHYSICS 2H03 THERMAL PHYSICS
Introduction to heat and the kinetic theory of gases.
3 lects., 1 lab. (3); one term
Prerequisite: One of Physics IA06, IB06, IC06, and Mathematics IA06 or Arts and Science ID06. Not open to students who are registered or have credit in, any of Chemistry 2F06, 2G06, 2J06.

PHYSICS 2I03 PHYSICS OF MUSICAL SOUNDS
Sound waves, production of sound by musical instruments; properties of the ear, musical scales and intervals; auditorium acoustics.
3 lects. 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 with applications primarily based in kinematics, kinematics; dynamics; rotational dynamics.
3 lects.; one term
Prerequisite: Registration in Level II., III or IV of a Physical Education programme. Knowledge of Grade 12 Mathematics is required.

PHYSICS 3A03 RELATIVITY
An introduction to general relativity.
3 lects.; one term
Prerequisite: Physics 2C03 or 2D03, and registration in any Honours programme in Science or in the Faculty of Engineering; or permission of the instructor.
Offered in 1992-93 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.
2 lects., both terms; 1 lab. (2); two terms
Prerequisite: Physics 2B06, or Engineering Physics 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.
3 lects.; one term
Prerequisite: Completion of, or registration in, Mathematics 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.
Not open to students with credit in Physics 4C03.
Offered in 1991-92 and in alternate years.

PHYSICS 3G03 SEISMOLOGY
Methods of seismic exploration; earthquakes; studies of the earth's interior.
3 lects.; one term
Prerequisite: Physics 2G05, 2D03 or 2G03, and Mathematics 2G03 and 2K03 or 2A06 and 2C03.
Offered in 1992-93 and in alternate years.

PHYSICS 3H04 INTERMEDIATE LABORATORY
Experiments in atomic and neutron physics, optics and spectroscopy, mechanics.
1 lect., 1 lab. (1); one term
Prerequisite: Physics 2B06, and completion of or registration in Physics 3M03, 3M06 or 3K03.

PHYSICS 3K04 THERMODYNAMICS AND STATISTICAL MECHANICS
The laws of thermodynamics, with emphasis on the mathematical structure of the theory; classical and quantum statistical mechanics.
2 lects.; two terms
Prerequisite: Physics 2H03, and Mathematics 2G03 and 2K03 or 2A06 and 2C03.
Not open to students with credit in Chemistry 4Y03.
PHYSICS 3M03 QUANTUM MECHANICS AND ITS APPLICATIONS
An introductory course in quantum mechanics with applications to natural phenomena.
3 lects.; one term
Prerequisite: Physics 2B06, or Engineering Physics 2A03 and 2E04, or Engineering
2M04, and Mathematics 3C03; or registration in Honours Mathematics and
Physics. Mathematics 3C03 may be taken concurrently. Not open to students with
credit in Physics 3M06.

PHYSICS 3M03 QUANTUM MECHANICS AND ITS APPLICATIONS II
A continuation of Physics 3M03.
3 lects.; one term
Prerequisite: Physics 3M03. Not open to students with credit in Physics 3M06.

PHYSICS 3N03 PHYSICAL OPTICS
Interference; Fraunhofer and Fresnel diffraction; Maxwell’s equations and the elec-
 tromagnetic character of light; polarization and double refraction; interference of
polarized light; selected topics in modern optics.
3 lects.; one term
Prerequisite: Physics 2B06 or Engineering Physics 2A03 and 2E04, and Mathematics
2003 and 2003 or 2A06 and 2003 or 2P04 and 2004.

PHYSICS 3O03 MODERN PHYSICS
Selected topics in photon physics, atomic physics, and quantum physics.
3 lects.; one term
Prerequisite: Physics 2A03 or 2B06. Not open to students with credit or registration
in Physics 3M03 or 3M05.

PHYSICS 3P03 INTRODUCTION TO QUANTUM MECHANICS
Operator algebra. The Schrödinger equation. The square well, harmonic oscillator,
barriers, perturbations, transition matrix elements, and selected three dimensional
problems.
3 lects.; one term
Prerequisite: Physics 3C03, and Mathematics 3C03 or 3C06. Not open to students with
credit or registration in Physics 3M03 or 3M06.

PHYSICS 3Q03 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.
3 lects.; one term
Prerequisite: Physics 2B06 or Engineering Physics 2A03 and 2E04, and Mathematics
2003 and 2003 or 2A06 and 2003; or permission of the instructor. Not open to
students with credit in Physics 4503. Offered in 1991-92 and alternate years.

PHYSICS 3R03 INTERACTION OF RADIATION WITH MATTER
The interactions of nuclear radiations with matter: detectors, dosimetry, tracer
methods, the production and use of X-rays.
3 lects.; one term
Prerequisite: Registration in or completion of Physics 3C03, 3M03 or 3M05.

PHYSICS 3S03 STARS AND STELLAR SYSTEMS
Observational properties of stars, distance measurement in space, Galactic struc-
ture; properties of Galaxies, and cosmology.
3 lects. and occasional lab. periods; one term
Prerequisite: Physics 2C03, 2D03 or 2G03, Physics 2B06 and 2F03, Computer
Science 1N03; or permission of the instructor. Offered in 1991-92, alternating with
Physics 3Y03.

PHYSICS 3T03 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.
3 lects.; one term
Prerequisite: Physics 2B05, 2D03 or 2G03, Physics 2B06 and 2F03, Computer
Science 1N03; or permission of the instructor. Offered in 1992-93, 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.
3 lects.; one term
Prerequisite: Mathematics 3A06 and 2C03, or 2G03 and 2D03, or 2P04 and 2Q04,
and Physics 2C05, 2D03 or 2G03. Not open to students who have credit for,
or are registered in, Mathematics 3J03, 3K03, or 3V06.

PHYSICS 4A02 SPECIAL TOPICS
Independent study of the scientific literature, including the preparation of seminars
on assigned topics.
2 lects. or seminars; two terms
Prerequisite: Registration in a programme in which Physics 4A02 is required or is
a specified option.

PHYSICS 4B04 ELECTROMAGNETIC THEORY
Development of Maxwell’s equations; multipole, series solutions, special relativity
and radiation from dipoles.
2 lects.; two terms
Prerequisite: Physics 2B06 or Engineering Physics 2A03 and 2E04, and Mathematics
3C06 or 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.
2 lects.; 1 lab. (3); two terms
Prerequisite: Physics 2B06, or Engineering Physics 2A03 and 2E04. Not open to
students with credit or registration in any of Computer Engineering 2H03, 3H03,
Electrical Engineering 2H03, 3H03.

PHYSICS 4E03 NUCLEAR PHYSICS
Nuclear masses and stability; radioactivity and nuclear reactions; elementary
nuclear models.
3 lects.; one term
Prerequisite: Physics 3M03 or 3M06, or a grade of at least B+ in Physics 3Q03,
or registration in Level IV Physics Major (Health and Radiation Option).

PHYSICS 4F03 QUANTUM MECHANICS
A sequel to Physics 3M03, including general structure of quantum mechanics,
matrix mechanics, perturbation theory, and the variational method.
3 lects.; one term
Prerequisite: Physics 3M03 or 3M06, and Mathematics 3D03; or registration in
Honours Mathematics and Physics.

PHYSICS 4G03 COMPUTATIONAL PHYSICS
A course using microcomputers to solve selected problems in physics. The emph-
asis is on applying computational methods to physics, rather than numerical meth-
ods or computer programming.
1 lab. (3); one term
Prerequisite: Physics 3M03 or 3M06, Computer Science 1M03, or permission of
the instructor.

PHYSICS 4H04 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.
1 lab. (3); two terms
Prerequisite: Registration in a programme in which Physics 4H04 is required or is
a specified option; or permission of Chair of Department.

PHYSICS 4K03 SOLID STATE PHYSICS
Crystal structure and bonding; lattice vibrations; electron energy bands; metals and
semiconductors; magnetism.
3 lects.; one term
Prerequisite: Physics 3M03 or 3M06, or a grade of at least B+ in 3P03 and
3Q03.

PHYSICS 4L04 RESEARCH PROJECT
An experimental or theoretical project to be carried out under the supervision of
a faculty member. A report will be required.
Lab. (6); two terms
Prerequisite: Registration in Level IV Honours or Major Health and Radiation Phys-
ics programme; or registration in Level IV of any Physics programme, a C.A.A. of
at least 10.0, and permission of the Chair of the Department.

PHYSICS 4M03 NUCLEAR PHYSICS
Lectures and laboratory work in the techniques and theory of the measurement of
radioactivity. Topics include radioactivity and radioactive decay, solid state dosim-
try, principles of radioactive detectors, counting statistics and data reduction, advanced
multidetector systems.
1 lect., 1 lab. (3) every other week; two terms
Prerequisite: Physics 2B06 or Engineering Physics 2A03 and 2E04, and registra-
tion in Honours Major programme in Health and Radiation Physics; or permi-
sation of the instructor.

PHYSICS 4N03 TOPICS IN RADIATION PHYSICS
Analysis of current techniques in radiation protection, medical imaging and
therapy.
3 lects.; one term
Prerequisite: Physics 3T03 or Engineering Physics 3D03, and Mathematics 2G03
and 2D03, or 2A06 and 2G03.

PHYSICS 4P03 PARTICLE PHYSICS
Mesons and baryons; the quark model; local gauge invariance; symmetries, the
electromagnetic, weak and strong interactions.
3 lects.; one term
Prerequisite: Physics 4F03; or permission of the instructor.

For Graduate Courses see Calendar of School of Graduate Studies.

Physiotherapy
(See Occupational Therapy and Physiotherapy)
POLITICAL SCIENCE

Political Science

Faculty as of January 15, 1991

Michael M. Atkinson/Chair

Professors Emeriti

Adam Bromke/M.A (St. Andrews), Ph.D. (Montreal and McGill)
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), M.A., Ph.D. (Chicago)
Marshall N. Godstein/B.A. (Florida), Ph.D. (North Carolina)
Gordon P. Means/B.A. (Reed College), M.A., Ph.D. (Washington)
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.I.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)
Henry J. Jacobs/Ph.D. (Fairfield), M.A., Ph.D. (Georgetown)
Thomas J. Lewis/B.A. (Carleton), M.A., Ph.D. (SUNY, Buffalo)
Roman R. March/B.A. (Manitoba), M.A., 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

Barbara A. Carroll/B.A. (Manitoba), M.A. (Carleton), Ph.D. (American)
Geoffrey R.D. Underhill/B.A. (Queen's), D. Phil. (Oxon)
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:

1. 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: Political Science 2G06, 3D06, 3EE3, 3FF3, 3GG3, 3HH3, 3II3, 3JJ3, 3MN6, 3R06, 4CC3, 4FR6, 4O06, 4R03, 4S06, 4W06.

   Comparative Politics: Political Science 2B06, 2K06, 2M06, 2P06, 3B06, 3D03, 3C03, 3G03, 3M06, 3P06, 3P33, 3QQ3, 3RR3, 3V03, 3V03, 3V03, 3Y06, 4AA6, 4FR6, 4O06, 4R06, 4R03, 4Q06.

   Political Theory: Political Science 2006, 3A06, 3I06, 3KK6, 3O06, 3R03, 4BB6, 4DD6, 4E06, 4S06, 4U06.

   International Politics: Political Science 2E06, 3AA3, 3EE3, 3EE3, 3FF3, 4NN6, 4P06, 4R06.

   The remaining courses are grouped as follows:

   Research Methods: Political Science 2P06, 3G03, 3H03
   Other: Political Science 1A06, 3U03, 4R06

2. All students should be alerted to those Level II Political Science courses that are required in order to qualify for a number of Level III and IV courses. Required Courses: Political Science 2F06 and 3006 are required for students enrolled in Honours Political Science programmes and are recommended for B.A. programmes. Political Science 2F06 and 3006 will be included in calculating the Graduation Average II taken in Level III. If both 2F06 and 3006 are taken together in Level II, students may have difficulty with prerequisites in Level III, and students are encouraged to take one of these in Level III. Students wishing to enter courses without the necessary prerequisites must receive written permission from the instructor.

3. Not all the Political Science courses listed in this Calendar are taught every year. Students are advised to consult the Department after April 1 for a list of courses to be offered in following academic year.

   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, and to have it checked to ensure that it meets Departmental requirements.

4. Level III Political Science courses identified as "enrolment limited" courses have a limit of 50 students. Priority will be given to Political Science students.

   Level IV Political Science courses identified as "enrolment limited" courses have a limit of eighteen students for courses not cross-listed in the Graduate Calendar and fourteen undergraduate students for courses which are cross-listed. Admission to these courses is given by a pre-registration preferential ballot. Preference will be given in order to students in the following categories: Level IV Honours Political Science; Level IV Honours with Political Science as a Minor and a B.A. in Political Science; Continuing students who are in Level IV; Level III Honours Political Science programmes Level II Honours with Political Science as a Minor and B.A. in Political Science; Others. Undergraduate students are strongly advised to consult the Department no later than May 1 for information regarding ballot for limited enrolment courses for the following academic year. Students must obtain a "permission slip" from the Department in order to register in Level IV limited enrolment courses. (The following Level IV courses are cross-listed in the Graduate Calendar for graduate credit: 4B06; 4E06; 4G03; 4O06; 4V03).

POL SCI 1A06 AN INTRODUCTION TO THE STUDY OF POLITICS

An introduction to various aspects of political science which students will encounter in subsequent years in the Department. The course is taught in a number of sections; each section is directed by one or two members of the Department.

3 hrs. (lects. and tuts.); two terms

Prerequisite: Open.

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.

3 hrs. (lects. and tuts.); two terms

Prerequisite: Open.

POL SCI 2E06 INTERNATIONAL POLITICS

A study of the institutions and processes of the international political system.

3 hrs. (lects.); two terms

Prerequisite: Political Science 1A06 is highly recommended.

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.

3 hrs. (lects. and labs.); two terms

Prerequisite: Open, except to students with credit or registration in Economics 2B03, Chemical Engineering 4C03, Commerce 2QA3, Geography 2L03, Psychology 2E03, 2R06, or any Statistics course other than Statistics 2D03.

POL SCI 2G06 POLITICS IN CANADA

A study of the development, nature and functioning of the political system of Canada.

3 hrs. (lects. and labs.); two terms

Prerequisite: Open.

POL SCI 2K06 POLITICS IN THE U.S.S.R.

An analysis of the political ideology, institutions, and practices of the U.S.S.R.

3 hrs. (lects.); two terms

Prerequisite: Open.

POL SCI 2M06 INTRODUCTION TO FAR EASTERN POLITICAL TRADITIONS

A general introduction to the traditional political ideas and institutions of China and several other countries in Northeast Asia.

3 hrs. (lects.); two terms

Prerequisite: Open.

Offered in alternate years.
POL SCI 2006 INTRODUCTION TO POLITICAL THEORY
An introduction to modes of thinking theoretically about politics, expressed in political philosophy, ethical theory, history of political thought, political science, and structuralism.
3 hrs. (lects.); two terms
Prerequisite: Open.

POL SCI 2P96 POLITICS IN WESTERN EUROPE
An introduction to comparative political analysis with an emphasis on the politics of France, West Germany, Italy and Great Britain.
3 hrs. (lects.); two terms
Prerequisite: Open.

POL SCI 3A06 HISTORY OF POLITICAL IDEAS
A study of the political ideas of some eminent thinkers from classical times to the 19th century.
3 hrs.; two terms
Prerequisite: Political Science 2P96; 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 POST WAR PERIOD
A survey of international relations from 1945 focusing on the various approaches to international politics.
3 hrs. (lects. and seminars); one term
Prerequisite: Not open to students with credit in Political Science 3H03.
Enrolment is limited: Priority is given to students in a Political Science programme.

POL SCI 3B06 SOCIOECONOMIC DEVELOPMENT IN AFRICA
Selected topics in politics and social structure in sub-Saharan Africa.
3 hrs. (lects., and seminars); two terms
Prerequisite: A Political Science course beyond Level I. Some as Sociology, 3C06.
Enrolment is limited: Priority is given to students in a Political Science programme.

POL SCI 3D03 COMPARATIVE POLITICS: SOUTH-EAST ASIAN SYSTEMS
A comparative analysis of political processes in Southeast Asian states in the post-colonial era.
3 hrs. (lects. and seminars); one term
Prerequisite: Political Science 3D6.
Enrolment is limited: Priority is given to students in a Political Science programme.

POL SCI 3D06 POLITICAL PARTICIPATION AND ELITIST POLITICS IN CANADA
An analysis of the impact of social structure, ideology, and political culture on the structures of political participation and elitist politics in Canada.
3 hrs. (lects. and seminars); two terms
Prerequisite: Political Science 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 policies of the principal multilateral organizations governing the post-war international economy.
3 hrs.; one term
Prerequisite: Political Science 2G06.
Enrolment is limited: Priority is given to students in a Political Science programme.

POL SCI 3E03 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.
3 hours (lectures and seminars); one term
Prerequisite: Political Science 2G06.
Enrolment is limited: Priority is given to students in a Political Science programme.

POL SCI 3F03 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.
3 hrs. (lects. and seminars); one term
Prerequisite: Political Science 2B06. Not open to students with credit or registration in Economics 3C06 or Statistics 3D06.
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.
3 hrs. (lects. and labs.); one term
Prerequisite: Political Science 2B06. Not open to students with credit or registration in Economics 3C06 or Statistics 3D06.
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 an examination of political culture, ideological traditions, parties, elites and the policy process.
3 hrs. (lects. 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 3RR3 DEMOCRACY AND POLITICAL CHANGE
An examination of the logical and historical connections between the idea of equality and both liberal and non-liberal forms of democracy.
2 lects.; one term
Prerequisite: A course in Political Theory.
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 an analysis of political culture, ideological traditions, parties, elites and the policy process.
3 hrs. (lects. 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 3V03 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Political Science 2G06; or permission of the Instructor.
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 3V03 CULTURE AND POLITICS OF SOUTH ASIA
An introduction to the civilizations of the Indian sub-continent and a survey of social movements and political systems of contemporary South Asia.
3 lects.; one term
Prerequisite: A course in Political Science or Asian Studies.
Enrolment is limited: Priority is given to students in a Political Science programme.

POL SCI 3V03 CULTURE AND POLITICS OF THE MIDDLE EAST AND NORTHERN AFRICA
An introduction to the civilizations of the Middle East and Northern Africa, with special emphasis on Islamic culture and politics. Social movements and political systems of the more important states in the area will be surveyed.
3 lects.; one term
Prerequisite: A course in Political Science or Asian Studies.
Enrolment is limited: Priority is given to students in a Political Science programme.

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.
3 hrs. (lects. and seminars); one term
Prerequisite: A course in Political Science or History 2N06.
Offered in alternate years.
Enrolment is limited: Priority is given to students in a Political Science programme.

POL SCI 3Y06 COMPARATIVE LEGISLATURES
An institutional and behavioral analysis of legislative bodies and executive-legislative relations in Canada, the United Kingdom, France, West Germany and the United States.
3 hrs. (lects. and seminars); two terms
Prerequisite: A Political Science course beyond Level I.
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.
3 hrs. (lects. and seminars); two terms
Prerequisite: Political Science 2006, and one other Political Science course beyond Level I.
Enrolment is limited: Priority is given to students in a Political Science programme.

POL SCI 4A06 PROBLEMS IN AMERICAN POLITICS
An examination in depth of one of the important dimensions of the American political system.
3 hrs. (seminars); two terms
Prerequisite: Political Science 2B05, or permission of the Instructor. A permission slip from the Department is required for registration in this course. Level III students require written permission of the instructor.
Offered in alternate years.
Enrolment is limited.

POL SCI 4B06 THE TRIAL OF SOPHOCLES
A study of the trial of Socrates, including an examination of the role of the statesman in the development and functioning of the Athenian political system.
3 hrs. (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 4C06 SELECTED TOPICS ON THE STATE AND BUSINESS
This seminar will investigate topics concerning the relationship between state action and the organization and activities of the business community.
3 hrs. (seminars); two terms
Prerequisite: Political Science 2G06, 2P06, 3X06, and 3Z06 are recommended. A permission slip from the Department is required for registration in this course.
Enrolment is limited.

POL SCI 4D06 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.
2 hrs. (seminar); two terms
Prerequisite: Political Science 3D06; 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.
2-3 hrs. (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.
3 hrs. (seminars); two terms
Prerequisite: Six units from International Relations courses, and six units from Comparative Politics courses. 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.
3 hrs. (seminar); two terms
Prerequisite: A previous course in Comparative or Canadian Politics. Only open to students with credit in Political Science 3X06. A permission slip from the Department is required for registration in this course.
Enrolment is limited.

POL SCI 4H06 COMPARATIVE POLITICS: EVOLUTION OF SOVIET TYPE SYSTEMS
A comparative analysis of the political ideologies, institutions and practices of communist political systems.
Seminar; two terms
Prerequisite: Six units of Level II or Level III Comparative Politics courses; or permission of the instructor. A permission slip from the Department is required for registration in this course.
Enrolment is limited.

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.
3 hrs. (seminars); two terms
Prerequisite: Political Science 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.
2 hrs. (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.
PSYCHOLOGY

POL SCI 4M06 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.
3 hrs. (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.
Enrollment is limited.

POL SCI 4C06 CANADIAN PUBLIC POLICY
An examination of the patterns of public policy in Canada and a critical evaluation of several types of explanation.
Seminar 3i; two terms
Prerequisite: Political Science 2G06, and another course in Political Science beyond Level I. Open only to Level IV students.
A permission slip from the Department is required for registration in this course.
Enrollment is limited.

POL SCI 4P03 COMPARATIVE POLITICAL PARTIES
An examination of the role of political parties in various societies, and a critical evaluation of approaches to study them. The focus will be primarily on Western political systems.
3 hrs. (seminar); one term
Prerequisite: A course in Comparative or Canadian Politics. A permission slip from the Department is required for registration in this course.
Enrollment 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.
3 hrs.; two terms
Prerequisite: Twelve units of Level I and II Political Science courses; or permission of the instructor. A permission slip from the Department is required for registration in this course.
Enrollment 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.
3 hrs. (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.
Enrollment 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.
2 hrs. (seminars); two terms
Prerequisite: A course in Political Theory. A permission slip from the Department is required for registration in this course.
Enrollment 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.
3 hrs. (seminar); two terms
Prerequisite: Political Science 2G06, and another Political Science course beyond Level I. A permission slip from the Department is required for registration in this course.
Enrollment 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 either 4I06 or 3U03, if the student is registered or has credit in either 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, 1991
H.P. Weingarten/Chair
Professor Emeritus
Bernard R.W. Heron/M.A., Ph.D. (McGill)
Herbert M. Jenkins/A.B. (Oberlin), Ph.D. (Harvard)
Alfred B. Kristoferson/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 Cameron/B.A. (Saskatchewan), M.A., Ph.D. (Toronto)
Martin Daly/B.A. (Toronto), M.A. (McGill), Ph.D. (Toronto)
Bennett G. Gale/A.B. (Princeton), M.A., Ph.D. (Pennsylvania)
Larry L. Jacoby/B.A. (Washington), 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. Rolle Morrison/B.Sc., M.Sc. (McGill), Ph.D. (Brown)
John R. Pitt/B.A. (Kansas), Ph.D. (Texas)
Roy M. Pitchard/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)
Denys deCatalanaro/B.A., M.A. (Carleton), Ph.D. (British Columbia)
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. Duruch/B.A. (Swarthmore), M.S., Ph.D. (Yale)
David W. Jamieson/B.Sc. (Toronto), M.A., Ph.D. (Waterloo)

Associate Members
Arthur Cott/ (Medicine), B.Sc., M.A. (McMaster), Ph.D. (Psychiatry)
Marianne W. Kristoferson/ 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/ (Psychology), B.Sc., M.Sc. (Guelph), Ph.D. (British Columbia)
Ellen B. Ryan/ Psychiatry, B.A., M.A. (Brown) Ph.D. (Michigan)
Saebeck S. Henry/ Biomedical Sciences, B.Sc., Ph.D. (Pittsburgh)
Sandra F. Wirtelov/ Psychiatry, B.Sc., M.Sc., Ph.D. (McGill)

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.C. and Honours B.A. Psychology students.
2. Registration in all courses marked ** is limited to selected topics. Independent research, individual readings and honours essays require 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.

PSYCH 1A06 GENERAL PSYCHOLOGY
A broad survey of the subject matter of psychology. Topics covered include psychological testing, perception, learning, human movement, development, mental health, human sexuality, and social psychology.
3 hrs. (lects. and tuts.); two terms
Prerequisite: Open.

PSYCH 2A03 THEORIES OF HUMAN DEVELOPMENT
A general survey of human development with an emphasis on the childhood years.
3 hrs. (lects.); one term
Prerequisite: Psychology 1A06. Not open to students who have credit for, or are registered in, Psychology 3G03 or 3M05.

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.
3 hrs. (lects.); one term
Prerequisite: Psychology 1A06.

PSYCH 2C03 INTRODUCTION TO SOCIAL PSYCHOLOGY
An overview of research and theory in areas such as social perception, attitude and attitude change, social influences, interpersonal attraction, altruism, aggression, small group processes.
3 hrs. (lects.); one term
Prerequisite: Psychology 1A06.

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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.
3 lects.; one term
Prerequisite: Psychology IA06. Not open to students who have credit for Psychology 2D06.

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.
3 lects.; one term
Prerequisite: Mathematics 1L03, or any other 3 units of Level I Mathematics, and registration in B.A. Psychology. Not open to students who are registered in, or have received credit for, Mathematics 1T05, or Psychology 2R06, 2R03, 2R05, or Statistics 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.
3 lects.; one term
Prerequisite: Psychology IA06.

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 multiple sample designs.
3 lects.; one term
Prerequisite: One of Mathematics 1A06, 1C06, 1M03, 1N06, and registration in a Psychology programme. Not open to students who have completed Psychology 2R06, or Statistics 2D03, 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 multiple sample designs.
3 lects.; one term
Prerequisite: Psychology 2R03 and registration in a Psychology programme; or Psychology 2R03 with permission of the instructor. Not open to students who have completed Psychology 2R06, or Statistics 2D03, 2M03 or 2R06.

PSYCH 2T03  PRINCIPLES OF CONDITIONING
An experimental survey of conditioning processes based on the study of animal behaviour.
3 lects.; one term
Prerequisite: Psychology IA06.

PSYCH 2W06  NEUROPSYCHOLOGY
Neural organization and the relationship between human brain function and behaviour.
3 lects.; two terms
Prerequisite: Psychology IA06.

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.
3 lects.; one term
Prerequisite: Registration in a Psychology programme; or permission of the instructor.

PSYCH 3B03  SPECIAL POPULATIONS
Selected topics in developmental disability, perceptual or cognitive handicap, or behavioral disorder. 3 lects.; one term
Prerequisite: Registration in a Psychology programme; or permission of the instructor.

PSYCH 3C06  SOCIAL PSYCHOLOGY LABORATORY
Students collect, analyze and interpret data, and in the second term carry out a research project of their own design.
2 lects., 1 lab. (3); two terms
Prerequisite: Permission of the department which must be obtained by March 1, and Psychology 2C03, and Psychology 2R06 or 2R03, or Statistics 2R06; or permission of the instructor.
Enrolment is limited.

PSYCH 3D03  SELECTED TOPICS IN SOCIAL PSYCHOLOGY
Study of research on attitudes and attitude change, or social influence, or dyadic relations.
3 lects.; one term
Prerequisite: Psychology 2C03.

PSYCH 3D03  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.
3 hrs. lects. and seminar; one term
Prerequisite: Psychology IA06 and Gerontology IA06 or Social Science 2G06; or permission of the instructor.

Some as Gerontology 3D03.

PSYCH 3E03  STUDY
PSYCHOLOGY
Students in a Psychology programme (except those in Gerontology and Psychology) must register for this course as Psychology 3C03.

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. 1 lab. (3); one term
Prerequisite: Permission of the department which must be obtained by March 1, and Psychology 3A03, and Psychology 2R06 or 2R03, or Statistics 2R06; or permission of the instructor.
Enrolment is limited.

PSYCH 3F03  PHYSIOLOGICAL PSYCHOLOGY I
Relationship of brain to behaviour, including an introduction to neuroscience. Designed particularly for students in the Faculty of Science.
3 hours (lects. and seminar); first term
Prerequisite: Registration in an Honours programme in Psychology, or a B.Sc. programme in Psychology, or registration in Level III or IV of a Biology or Biochemistry programme; or permission of the instructor. Not open to students with credit in Psychology 3F06.

PSYCH 3F03  PHYSIOLOGICAL PSYCHOLOGY II
Further study of the brain and behaviour, with emphasis on sensory and motor functions, motivation, learning, and memory.
3 hours (lects. and seminar); second term
Prerequisite: Psychology 3F03, or permission of the instructor. Not open to students with credit in Psychology 3F06.

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.
3 lects.; one term
Prerequisite: Registration in Level III or IV of a Psychology programme; or permission of the instructor. Not open to students with credit in Psychology 3M06.

PSYCH 3H03  INTELLECTUAL DEVELOPMENT AFTER INFANCY
The development of perception, memory, language and concepts after infancy.
3 lects.; one term
Prerequisite: Psychology 3G03, and Psychology 2G03, 2R06 or 2R03. Not open to students with credit in Psychology 3M06.

PSYCH 3I03  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.
3 lects.; one term
Prerequisite: Psychology IA06, and Psychology 2G03, 2R06 or 2R03, or Statistics 2R06; or permission of the instructor. Students with grades less than B – in Psychology 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. Tute., lab. by appointment; one term
Prerequisite: Psychology 2T03 and permission of the department which must be obtained by March 1. Not open to students with credit in Psychology 2U03.
Enrolment is limited.

PSYCH 3M06  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.
3 lects.; two terms
Prerequisite: Registration in a Psychology programme, or registration in Level III or IV of a Nursing or a Social Work programme; or permission of the instructor.

PSYCH 3P03  PSYCHOLOGICAL TOPICS IN THINKING
Areas to be covered include human inheritance, decision making, and creative problem solving.
3 lects.; one term
Prerequisite: Psychology 2H03.

PSYCH 3Q05**  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.
3 lects.; two terms
Prerequisite: Permission of the course co-ordinator. Not open to students who are registered in, or who have received credit for Psychology 3Q03.

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 co-ordinator.
Prerequisite: Permission of the course coordinator. Not open to students who are registered in, or who have received credit for, Psychology 3Q03.

PSYCH 3RR3  INTRODUCTION TO ANIMAL BEHAVIOUR
The development, stimulus control, and function of behaviour as seen in evolutionary perspective. Instructive behaviour, learned behaviour, and their interactions.
3 lects.; one term
Prerequisite: Registration in a Psychology programme, or in a four-level programme in Biochemistry or Biology; or permission of the instructor.
Graduate Courses

PSYCH 3W03 - ANIMAL BEHAVIOUR LABORATORY
Experiments involving a wide variety of animal species, both vertebrate and invertebrate. 1 lab (3); one term
Prerequisite: Permission of the department which must be obtained by March 1, and Psychology 3R03, and registration in a four-semester programme in Psychology or Biology or permission of the instructor. 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. 3 lects.; one term
Prerequisite: One of Anthropology 2D03, 2E03, Biology 2C03, 3J03, Psychology 3R03.

PSYCH 3U03 - HUMAN MEMORY
Cognitive processes involved in encoding, storage and retrieval will be discussed in terms of current theories of memory and information processing. 3 lects.; one term
Prerequisite: Psychology 2H03 and registration in Level III or IV of a Psychology programme, or permission of the instructor.

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. 1 lab (3 hrs.); one term
Prerequisite: Permission of the department which must be obtained by March 1, and Psychology 3U03, and Psychology 2R06 or Statistics 2B06, or credit or registration in Psychology 2R03.
Enrolment is limited.

PSYCH 3W03 - 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. 3 lects.; one term
Prerequisite: Psychology 2E03, and Psychology 2R06 or 2R13; or permission of the instructor. Not open to students who have completed Psychology 3W06.

PSYCH 3X03 - SELECTED TOPICS IN BEHAVIOUR MODIFICATION
Major issues and controversies in contemporary behaviour modification. Consideration is given to rival theoretical accounts, and to experimental bases for such techniques as systematic desensitization, aversion therapy, and punishment. 3 lects.; one term
Prerequisite: Psychology 2T03, and registration in a Psychology programme, or permission of the instructor. Not open to students registered in, or with credit in, Biology 3T03.

PSYCH 3Y03 - SELECTED TOPICS IN BEHAVIOUR THEORY
Issues of contemporary interest in animal learning and behaviour will be examined in depth. 3 lects.; one term
Prerequisite: Psychology 2T03, and registration in a Psychology programme, or permission of the instructor.

PSYCH 3Z03 - 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. 1 lab (3 hrs.); one term
Prerequisite: Permission of the department which must be obtained by March 1, and Psychology 3U03, and Psychology 2R06 or Statistics 2B06, or credit or registration in Psychology 2R03.
Enrolment is limited.

PSYCH 3A03 - CONTEMPORARY TOPICS IN HISTORICAL PERSPECTIVE
Discussion of the background and current status of several issues of contemporary interest. 3 hrs. lects. and seminar); one term
Prerequisite: Registration in Level IV Honours Psychology or Level IV Major Psychology with a CAA 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. 3 lects.; one term
Prerequisite: Registration in Level IV Honours Psychology or Level IV Major Psychology with a CAA of at least 7.0; or permission of the instructor.

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 CAA of at least 9.0, and permission of the course co-ordinator, which must be obtained by March 1. If Psychology 3Q03, 3QQ3, 4Q03, or 4QQ3 is taken concurrently with Psychology 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. 3 lects.; one term
Prerequisite: Psychology 3F06 or 3F13 or Biology 3J06, and registration in Level IV of Honours Psychology, Biology or Biology/Psychology or Level IV Major Psychology with a CAA of at least 7.0; or permission of the instructor. Not open to students who have completed Psychology 4E07.

PSYCH 4G03 - NEUROSCIENCE LABORATORY
Seminars and laboratory experience in current problems in neurobiology. 2 hrs. seminar, 3 hrs. lab.; one term
Prerequisite: Permission of the Department which must be obtained by March 1, and Psychology 4F03; or permission of the instructor. Not open to students who have completed Psychology 4E07.
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. 3 hours (seminar); one term
Prerequisite: Registration in Level IV of an Honours programme in Psychology, or Level IV of an Honours B.Sc. programme; or permission of the instructor.

PSYCH 4Q03** - 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. Open only to students in Level IV of an Honours Psychology programme or Level IV Major Psychology with a CAA of at least 7.0. Not open to students who are registered in, or who have received credit for, Psychology 4Q03.

PSYCH 4Q03** - INDIVIDUAL 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. Not open to students who are registered in, or who have received credit for, Psychology 4Q03.

For Graduate Courses see Calendar of School of Graduate Studies.

Religious Studies

Faculty as of January 15, 1991
D. Kinsey/Chair

Professors Emeriti
John G. Arapural/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)
Johnnis J. MoV.D. (Union Theological Seminary), M.A., Ph.D. (Columbia)
Kristina Stwarman/M.A. (Annamalai, Madras), Ph.D. (Banaras)

Professors
A. Eugene Combos/B.A. (Trinity, San Antonio), M.Div. (Union Theological Seminary), Ph.D. (Columbia)
Phyllis Granoff/B.A. (Radcliffe College), Ph.D. (Harvard)
David R. Kinsey/B.A. (Drew), B.D. (Union Theological Seminary), M.A., Ph.D. (Chicago)
Gérard Vallél/B.A. (Laval), M.A. (Montreal), Ph.D. (Münster)
Paul Younger/A.B. (LaFayette), M.A. (Banaras), B.D. (Serampore), Th.M., M.A., Ph.D. (Princeton)

Associate Professors
Louis I. Greenspan/M.A. (Dalhousie), Ph.D. (Brandeis)
Alan Mendelson/A.B. (Kenyon College), M.A. (Brandeis), Ph.D. (Chicago)
Adèle Reinhart/B.A. (Toronto), M.A., Ph.D. (McMaster)
Koichi Shinohara/B.L., M.L. (Tokyo), Ph.D. (Columbia)
S.R. Westerholm/B.A., M.A. (Toronto), D.Th. (Lund)
Wayne K. Whitfill/B.A. (Sir George Williams), Ph.D. (McMaster)

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RELI GIOUS STUDIES

Assistant Professors
Ellen Bedone B.A., M.A. (Toronto), Ph.D. (California, Berkeley)
P. Travis Kroeker B.A. (Winnipeg), M.A. (Manitoba), Ph.D. (Chicago)
Rosamond Leiber Ph.D. (Harvard), Ph.D. (Toronto)/part-time

Lecturers
Robert Sharf B.A., M.A. (Toronto)

Visiting Professors
Tang Yijie/Beijing University
Yue Dalun/Beijing University

Department Notes:
Students are advised to consult the Department's Handbook, which will be available prior to registration, for a list of the courses offered in the current year.

RELI G 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.
2 lects., 1 tut.; two terms
Prerequisite: Open.

RELI G ST 1D06  MODERN STUDY OF THE BIBLE
An introduction to the discipline of modern biblical criticism focusing on the development of selected central themes.
2 lects., 1 tut.; two terms
Prerequisite: Open.

RELI G 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.
2 lects., 1 tut.; two terms
Prerequisite: Open.

RELI G 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.
2 lects., 1 tut.; two terms
Prerequisite: Open.

RELI G ST 1H06  RELIGIOUS THEMES IN MODERN LITERATURE
An introduction to religious themes, imagery and issues through a study of selected modern literature.
2 lects., 1 tut.; two terms
Prerequisite: Open.

RELI G ST 2A03  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.
2 lects., 1 tut.; one term
Prerequisite: Open.

RELI G ST 2B03  WOMEN IN THE BIBLICAL TRADITION
This course will focus on the portrayal of women in the Hebrew Scripture 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.
2 lects., 1 tut.; one term
Prerequisite: Open

RELI G ST 2B03  IMAGES OF THE DIVINE FEMININE
An examination of goddesses and religious heroines from a variety of cultures: tribal, eastern and western.
2 lects., 1 tut.; one term
Prerequisite: Open.

RELI G 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.
2 lects., 1 tut.; one term
Prerequisite: Open. Offered to students in Level II and above.
Same as Philosophy 2B03

RELI G 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.
2 lects., 1 tut.; two terms
Prerequisite: Open.

RELI G ST 2D03  THE FIVE BOOKS OF MOSES
An examination of selected texts from the Pentateuch and their significance for Ancient Israelite religion and modern thought.
2 lects., 1 tut.; one term
Prerequisite: Open. For a study of the whole Hebrew Bible, Religious Studies 2D06, 2D03, 2EE3, 3M03 are recommended.

RELI G 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.
2 lects., 1 tut.; two terms
Prerequisite: Open. Students with credit in Religious Studies 2E06 may not take this course for credit.

RELI G ST 2E03  THE PROPHETS
The role and teaching of biblical prophets in their ancient setting and their impact on modern religious life and thought.
2 lects., 1 tut.; one term
Prerequisite: Open.

RELI G 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.
2 lects., 1 tut.; one term
Prerequisite: Open.

RELI G ST 2F06  HISTORY OF ANCIENT JUDAISM
A study of Judaism from the Babylonian Exile through the Talmudic period, with emphasis on the growth of religious movements and the political status of Jews and Judaism.
2 lects., 1 tut.; two terms
Prerequisite: Open.

RELI G ST 2G06  RELIGION AND THE CULTURE OF THE TWENTIETH CENTURY
A study of the treatment of religion and human spirituality in formative intellectual movements of the twentieth century such as modernism, positivism, neo-Conservatism, and existentialism.
2 lects., 1 tut.; two terms
Prerequisite: Open.

RELI G 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.
2 lects., 1 tut.; one term
Prerequisite: Open.

RELI G 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, with attention to issues such as economic distribution, human rights, criminal law, and environmental policy.
2 lects., 1 tut.; one term
Prerequisite: Open.

RELI G ST 2J13  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.
2 lects., 1 tut.; one term
Prerequisite: Open. Students with credit in Religious Studies 2J13 may not take this course for credit.

RELI G ST 2J26  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.
2 lects., 1 tut.; two terms
Prerequisite: Open. Students with credit in Religious Studies 3G06 may not take this course for credit.

RELI G ST 2J33  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.
2 lects., 1 tut.; one term
Prerequisite: Open. Students with credit in Religious Studies 3G06 may not take this course for credit.

RELI G ST 2K03  MYTH
Major definitions and theories of myth are discussed in conjunction with primary readings from mythological texts.
2 lects., 1 tut.; one term
Prerequisite: Open. Same as Anthropology 2K03.

RELI G ST 2K03  CHRISTIANITY IN THE 16TH CENTURY
The place of the Reformation movement in the development of Christianity, its background, context and sequel. Attention given to the life and thought of Martin Luther and his impact on Western culture.
2 lects., 1 tut.; one term
Prerequisite: Open. Students with credit in Religious Studies 3G06 may not take this course for credit.
RELG 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.
2 lecs., 1 tut.; one term
Prerequisite: Open.

RELG ST 2L13 CHRISTIANITY AFTER 1600
The development of Christianity (Protestants 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 world-wide challenges.
2 lecs., 1 tut.; one term
Prerequisite: Open.

RELG ST 2M03 DEATH AND DYING: COMPARATIVE VIEWS
A comparative examination of death in selected religious texts, traditions and thought.
2 lecs. 1 tut.; one term
Prerequisite: Open. Students with credit in Religious Studies 2A06 may not take this course for credit.

RELG ST 2M06 EAST ASIA: RELIGION AND THOUGHT
An introduction to the spiritual and intellectual worlds of Confucianism, Taoism, Buddhism, Shinto, and a study of the transformation of these traditions in the modern context.
2 lecs., 1 tut.; two terms
Prerequisite: Open. Students with credit in Religious Studies 2B06 may not take this course for credit.

RELG ST 2N03 DEATH AND DYING: THE WESTERN EXPERIENCE
An examination of death in religious experience as expressed through western art and literature.
2 lecs. 1 tut.; one term
Prerequisite: Religious Studies 2M03, or permission of the instructor. Students with credit in Religious Studies 2A06 may not take this course for credit.

RELG ST 2P03 JAPANESE CIVILIZATION
Introduction to Japanese history, society, and culture through a study of the religious traditions, literature, and art of Japan.
2 lecs., 1 tut.; two terms
Prerequisite: Open

RELG ST 2P06 INDIAN PHILOSOPHY
An introduction to the basic assumptions of Indian philosophy incorporating traditional stories as illustrative of important philosophical concepts.
2 lecs. 1 tut.; one term
Prerequisite: Open. Students with credit in Religious Studies 3P03 or 3P06 may not take this course for credit.

RELG ST 2Q03 CULTS IN NORTH AMERICA
An examination of new religious movements that have become prominent in North America. The Hare Krishna Movement, the Unification Church, and Scientology will be covered. The brainwashing and deprogramming controversy will be studied.
2 lecs., 1 tut.; one term
Prerequisite: Open. Not offered in 1991-92.

RELG 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.
2 lecs., 1 tut.; two terms
Prerequisite: Open. Students with credit in Religious Studies 2R03 may not take this course for credit.

RELG ST 2S06 POST HOLOCAUST JUDAISM
Contemporary Jewish reflections on the tradition, on the holocaust, on Zionism, and the Jewish condition.
2 lecs., 1 tut.; two terms
Prerequisite: Open. Students with credit in Religious Studies 2M06 may not take this course for credit.

RELG ST 2SS3 WOMEN AND RELIGION
A study of the status and roles of women in various religions, such as Hinduism, Buddhism, Confucianism, Christianity, Judaism, and Islam. Important women religious figures and feminist theology will also be studied.
2 lecs., 1 tut.; one term
Prerequisite: Open.

RELG ST 2SS6 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.
2 lecs., 1 tut.; one term
Prerequisite: Open.

RELG ST 2VV3 BIBLICAL LITERATURE
A survey introduction to biblical literature (Old Testament, New Testament, and selected Apocrypha and Pseudepigraphia) and the history of biblical interpretation to meet the particular needs of students of Western literature.
2 lecs., 1 tut.; one term
Prerequisite: Open.
Same as Comparative Literature 2G03.

RELG 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.
2 lecs., 1 tut.; one term
Prerequisite: Open.

RELG 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.
2 lecs., 1 tut.; one term
Prerequisite: Open.

RELG ST 2Z03 GREEK AND ROMAN RELIGION
A study of the role of religion in Greek and Roman public and private life.
3 lecs.; one term
Prerequisite: Open. Students in Level II and above. Same as Classical Civilization 2Z03.

RELG ST 3A03 POPULAR RELIGION IN INDIA
The Music, Dance and Festivals of Indian Temples will be analyzed in terms of their social, psychological and political implications.
2 lecs., 1 tut.; one term
Prerequisite: Religious Studies 2003; or permission of the instructor.

RELG 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.
2 lecs., 1 tut.; one term
Prerequisite: Any course in Anthropology, Philosophy, Religious Studies, Sociology. Same as Sociology 3B03.

RELG ST 3B03 MAJOR DENOMINATIONS IN CANADA
A study of the major denominations in Canada, their history and their relation to national, regional and class identity.
2 lecs., 1 tut.; one term
Prerequisite: Any Level I course in Anthropology, Philosophy, Religious Studies, Sociology. Same as Sociology 3B03.

RELG ST 3C03 DIVINATION AND PHILOSOPHY OF I-CHING OR THE BOOK OF CHANGES
An exploration of I-Ching's divination techniques and its philosophical interpretation of man, the world, and the cosmos.
2 lecs., 1 tut.; one term
Prerequisite: Open.

RELG 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.
2 lecs., 1 tut.; one term
Prerequisite: Open. Students with credit in Religious Studies 3D06 may not take this course for credit. Not offered in 1991-92.

RELG ST 3E03 JAPANESE RELIGION
2 lecs., 1 tut.; one term
Prerequisite: Open; 2M06 or 2M46 or 2P06 is recommended.

RELG 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.
2 lecs., 1 tut.; one term
Prerequisite: One course from the Eastern or Western Pool; or permission of the instructor.

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RELIG ST 3G03 THE DEVIL AND HIS/her ASSOCIATES
A study of the representations of evil as found mainly in the history of the West.
2 lects., 1 tut.; one term.
Prerequisite: 12 units in Relig. St.

RELIG ST 3H03 STORYTELLING IN EAST ASIAN RELIGIONS
An in-depth study of selected stories that illustrate the teachings of Confucianism, Taoism and Buddhism.
2 lects., 1 tut.; one term.
Prerequisite: Open.

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 humor and wit in religious teaching.
2 lects., 1 tut.; one term.
Prerequisite: Open.

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.
2 lects., 1 tut.; two terms.
Prerequisite: Any course in Anthropology, Philosophy, Religious Studies or Sociology.
Same as Sociology 3M06.

RELIG ST 3J06 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.
2 lects., 1 tut.; two terms.
Prerequisite: Open.
Same as Anthropology 3J06.

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.
2 lects., 1 tut.; one term.
Prerequisite: Any of Religious Studies 2NN3, 2E06, 2FF6, 2G06, 2K03, 2M03; or permission of the instructor.

RELIG ST 3K03 RECENT DEVELOPMENTS IN CHRISTIAN THEOLOGY
A study of what some major Christian thinkers have been saying recently about the meaning of Christ in the modern world.
2 lects., 1 tut.; one term.
Prerequisite: Open.

RELIG ST 3L03 RELIGION AND HUMAN NATURE
What is the nature of human nature and its fulfillment? A study of recent philosophical, scientific and religious anthropology.
2 lects., 1 tut.; one term.
Prerequisite: Open.

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 Penitential, Prophecy, and Writings.
2 lects., 1 tut.; one term.
Prerequisite: Open.

RELIG ST 3M03 SCEPTICISM, ATHEISM AND RELIGIOUS FAITH
Is religious faith essential to, inimical to, or irrelevant to authentic human existence? A study of Nietzsche and Kierkegaard.
2 lects.; 1 tut.; one term.
Prerequisite: Open.

RELIG ST 3N03 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 Toynbee, Kuhn, Muncy, Ellul, Bell, Geertz and Huxley.
2 lects., 1 tut.; one term.
Prerequisite: Open. Students with credit in Religious Studies 3U03 may not take this course for credit.

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.
2 lects., 1 tut.; one term.
Prerequisite: One of Religious Studies 2NN3, 2E06, 2G06, 2R06; or permission of the instructor.

RELIG ST 3S03 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 (15 hrs.); one term.
Prerequisite: Open.
Same as Physical Education 3S03.
Enrolment is limited.

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.
2 lects., 1 tut.; one term.
Prerequisite: One of Religious Studies 2NN3, 2E06, 2G06, 2R06; or permission of the instructor.

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.
2 lects., 1 tut.; one term.
Prerequisite: Religious Studies 1I06, 2J06, 2M06 or permission of instructor. Students with credit in Religious Studies 3Q06 may not take this course for credit.

RELIG ST 3V03 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.
2 lects., 1 tut.; one term.
Prerequisite: One of Religious Studies 2NN3, 2E06, 2G06, 2R06; or permission of the instructor.

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).
2 lects., 1 tut.; two terms.
Prerequisite: Religious Studies 3F03, and enrolment in Honours Religious Studies. Students with credit in both Religious Studies 4F03 and 4G03 may not take this course for credit.

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.
3 lects.; two terms.
Prerequisite: Open.

SANSKRIT 4B06 READINGS IN SANSKRIT TEXTS
Intermediate course with readings in selected texts.
3 lects.; 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.
3 lects.; two terms.
Prerequisite: Open.

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.
Russian

Courses and programmes in Russian are administered within the Department of Modern Languages of the Faculty of Humanities.

Faculty as of January 15, 1991

Professors
Samuel D. Coran/B.A. (McMaster), Ph.D. (Toronto)
Walter Smyrniew/B.A. (McMaster), M.A., Ph.D. (Toronto)
George Thomas/B.A., Ph.D. (London)

Associate Professors
Nina Kolesnikoff/M.A. (Moscow State), Ph.D. (Alberto)

Instructor
Mila Kmetova/B.A. (McMaster), M.A. (Toronto)/part-time

Department Notes:
1. Non-programme students who complete Russian 1Z06, 2C06 and 3C06, with a weighted average of at least 10.0 (A−), will receive a transcript notation indicating that the student has acquired a good working knowledge of spoken and written Russian.
2. The following courses are taught in English and are open as electives to qualified students registered in any University programme.

Beginner's Language Course

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. 5 hrs. (including lab practice); two terms
Prerequisite: Open. Students with prior knowledge of the language as determined by a placement test may be required to take an appropriate alternative.

Intermediate and Advanced Language and Literature Courses

RUSSIAN 2A03 NINETEENTH-CENTURY RUSSIAN LITERATURE IN TRANSLATION I
A study of the major prose works of Gogol and Turgenev. 3 lects.; one term
Prerequisite: Open to students in Level II and above; or permission of the Department. Not available to students with credit in Russian 2A06.

RUSSIAN 2A13 NINETEENTH-CENTURY RUSSIAN LITERATURE IN TRANSLATION II
A study of the major novels by Dostoievsky and Tolstoy. 3 lects.; one term
Prerequisite: Open to students in Level II and above; or permission of the Department. Not available to students with credit in Russian 2A06.

RUSSIAN 2C06 INTERMEDIATE LANGUAGE STUDY
4 hrs.; two terms
Prerequisite: Grade 13 or OAC Russian, or Russian 1Z06; or permission of the Department.

RUSSIAN 3C06 ADVANCED LANGUAGE STUDY
4 hrs.; two terms
Prerequisite: Russian 2C06.

RUSSIAN 3D03 RUSSIAN DRAMA SINCE 1800
An introduction to the major works of Russian theatre (in translation). 3 lects.; one term
Prerequisite: Open to students in Level II and above. Same as Drama 3DD3.

RUSSIAN 3K03 TWENTIETH-CENTURY RUSSIAN LITERATURE IN TRANSLATION
A study of Russian literature of the 1920’s and 1930’s with special attention to Akhmatova, Sholokhov, and Bulgakov. 3 lects.; one term
Prerequisite: Open to students in Level II and above. Not available to students with credit in Russian 3K06.

RUSSIAN 3K03 CONTEMPORARY RUSSIAN LITERATURE IN TRANSLATION
A study of contemporary Russian literature since 1955, with special attention to Pasternak, Solzhenitsyn and Yevtushenko. 3 lects.; two terms
Prerequisite: Russian 3K06.

RUSSIAN 4G03 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 (2 hrs.); one term
Prerequisite: Russian 2C06.

RUSSIAN 4H03 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 Russian programme, and permission of the departmental Independent Study Committee.

RUSSIAN 4I03 TOPICS IN RUSSIAN LITERATURE II
Previous topics include: Soviet Plays of the 1920’s. Consult the Department concerning topic to be offered. Seminar (2 hrs.); one term
Prerequisite: Russian 2C06.

RUSSIAN 4J03 TOPICS IN RUSSIAN LANGUAGE
Previous topics include: Morphology, Study of Russian Vocabulary. Consult the Department concerning topic to be offered. 3 lects.; one term
Prerequisite: Russian 2C06.

RUSSIAN 4K03 may be repeated, if on a different topic, to a total of six units.

RUSSIAN 4L03 TOPICS IN RUSSIAN LANGUAGE
Previous topics include: Sociology of English. Consult the Department concerning topic to be offered. 3 lects.; one term
Prerequisite: Russian 2C06.

RUSSIAN 4M03 may be repeated, if on a different topic, to a total of six units.

Sanskrit

(See Religious Studies, Sanskrit)

Science

These Science courses are primarily designed for students in the Humanities and Social Sciences, to give an appreciation of important areas of modern science. These courses do not assume any specific background in science. Enrolment in each is limited to 100 students, but most of the courses are not oversubscribed.

Other Science courses that may be of interest to students in the Humanities and Social Sciences are offered by Department. They are:

Biochemistry 2E03 Introductory Biochemistry
Biology 1G06 Introduction to Biology
Chemistry 1C03 General Chemistry
Chemistry 2D03 Introductory Organic Chemistry
Computer Science 1Z03 Introduction to Computing and Computer Use
Geography 1A06 Physical Geography
Geology 1A03 Surveys of Geological Sciences
Geology 1C03 Earth Processes
Physics 2J03 Physics of Musical Sound
Physics 2K03 Mechanics
Statistics 1A03 Introduction to Statistical Reasoning

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. 3 lects.; one term
Prerequisite: Registration in Level II, III, or IV of a non-science programme. No mathematics is required.
Social Science

SOC SC 2B03 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.
3 hrs. (lects. and discussions); two terms
Prerequisite: Open

SOC SC 2C03 GENOCIDE AND ETHNOCIDE
The general sociological and political issue of genocide approached through the analysis of three types: (1) ethnoicide (Armenian, Jews, Gypsies), (2) politicide (the Ukraine, Cambodia), (3) ethnocide of indigenous peoples in settler societies.
3 hrs; one term
Prerequisite: Open

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 multinational corporations 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.
3 hrs; one term
Prerequisite: Open

SOC SC 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.
3 hrs. (lects. and seminars); one term
Prerequisite: Open. 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 SC 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 Social Science 2E03.)
3 hrs. (lects. and seminars); one term
Prerequisite: Open. 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, 1991
J. McEvoy Macintyre/Acting Director

Professors Emeriti
Cyri Greenland/M.Sc. (North Wales), Ph.D. (Birmingham)
Harry L. Perry/Dip. Theol. (Union College, British Columbia), B.A., M.S.W. (British Columbia)

Professor

Associate Professors
Kalervo I. Kinnair/Dip. S.W. (Helsinki), B.A. (McMaster), M.S.W. (British Columbia)
J. McEvoy Macintyre/B.A., M.S.W. (British Columbia), D.S.W. (Southern California)
Sally Palmer/B.A. (Western), B.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
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)
Roy Caine/B.S.W., M.S.W., Ph.D. (McGill)
James W. Gladstone/B.A. (McGill), M.S.W. (British Columbia), 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
S.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 Basbourn/B.A. (Sir George Williams), M.S.W. (McGill)
Donna P. Carroll/B.A. (Brock), M.S.W. (Wilfrid Laurier)
Richard P. Cslennik/B.A., B.S.W. (McMaster); M.S.W. (Toronto)
Mary Ciotti/B.S.W. (Western), M.S.W. (Toronto), C.C.C.W. (Fanashaw)
Mary Ann Covi/B.A. (State University of New York at Buffalo), M.S.W. (Toronto)
Mary Forster/B.A., M.S.W. (Wilfrid Laurier)
Heather M. Gaulden/B.Sc. (London), M.S.W. (Carleton)

Gordon Greenway/B.A., M.S.W. (Carleton)
Paul Haalboom/B.A. (McMaster), M.S.W. (Carleton)
Dave A. Jewell/B.A., B.S.W. (Windsor), M.S.W. (Toronto)
Bob Lang/B.A., B.S.W. (McMaster), M.S.W. (Wilfrid Laurier)
Steve McCann/B.A. (York), M.S.W. (Wilfrid Laurier)
Diane O'Hara/B.A., M.S.W. (Toronto)
R. Malcolm Powell/B.A., B.S.W. M.A. (SWP), (McMaster)
Tony Quick/B.A. (St. Mary's), M.S.W. (Dalhousie)
Katrina Renahaw/B.A., B.S.W. (McMaster), M.S.W. (McGill)
Brenda Simmons-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)
Emily C. Weiss/B.A., B.S.W. (McMaster), M.S.W. (Toronto)
Margie Woods/B.A., B.S.W., M.S.W. (Toronto)

Department Notes:
I. 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.
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 Labour Studies 2B03 and Term 2 is the same as Labour Studies 2B03. Students in a Social Work programme must register for this course as Social Work 2B06.

SOC WORK 2C03  THEORY FOR SOCIAL WORK PRACTICE
Knowledge base; social work values, fields of practice and types of intervention.
Lectures, films, discussions, small task-groups; one term
Prerequisite: Not available to students with credit in Social 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. Not available to students with credit in Social Work 2C06. Enrolment is limited.

SOC WORK 2E03  HUMAN GROWTH AND DEVELOPMENT IN THE SOCIAL ENVIRONMENT
Human development throughout the life span with emphasis on the interaction between the personal and social contexts and social work concerns at each developmental stage.
Lectures and discussion (3 hrs.); one term
Prerequisite: Completion of or registration in Psychology 2A03.

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
Optional of equivalent summer block in combination with Social Work 3D06 (summer).
Priority for summer block given to B.S.W. (Second Degree) students.
Prerequisite: Social Work 2B06, 2C03, 2D03, Psychology 2A03, and registration in Social Work 3D06. Not available to students with credit in Social Work 3D09.
Credit in this course is dependent on achieving a minimum grade of C + in Social Work 3D06 and a Pass in Social Work 3D06. Enrolment is limited.

SOC WORK 3D06  FIELD PRACTICUM I
Field practice to develop basic intervention and interviewing skills, particularly in the formation of relationships with individuals, families, groups and communities.
Independent research, individual readings and honours essays to independent research, individual readings and honours essays to study 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 3E03**  SOCIAL WORK PRACTICE II
Role of values and assumptions in the development of welfare policies. The role of values and assumptions in determining policies and procedures.
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 upholding 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 strategies of intervention in working with individuals and groups in social work.
Seminars; one term
Prerequisite: Enrolment in, or completion of, Psychology 2A03. Not available to students with credit in Social 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 role; 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.
Time: two terms
Prerequisite: Permission of the supervising instructor and course co-ordinator.

SOC WORK 3R03  SOCIOLOGICAL APPROACH TO SOCIAL STRUCTURES
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 4D06  THE PRACTICE OF GENERAL SOCIAL WORK II
Seminars to deepen understanding and further develop practice skills.
Two terms
Optional of equivalent block placement in combination with Social Work 4D12.
Prerequisite: Social Work 3D06, 3D06 and registration in Social Work 4D06.
Not available to students with credit in Social Work 4D12.
Credit in this course is dependent on achieving a minimum grade of C + in Social Work 4D06 and a Pass in Social Work 4D06. Enrolment is limited.

SOC WORK 4D12  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.
Optional of equivalent block placement in conjunction with Social Work 4D06.
Prerequisite: Registration in Social Work 4D06. This course is evaluated on a "Pass"/"Fail" basis.
Credit in this course is dependent on receiving a "Pass" in Social Work 4D12 and a minimum grade of C + in Social 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. Enrolment is limited.

SOC WORK 4H03  HUMAN SERVICE ORGANIZATIONS: STRUCTURES AND PROCESSES
 Relationships of structures and processes to patterns of service delivery. Knowledge and skills necessary for organizational diagnosis; empirical study of an organization is required.
Seminars; one term

SOC WORK 4J03**  SOCIAL CHANGE AND INSTITUTIONAL PRACTICE
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.
SOCIOLOGY

SOCIETY WORK 4003* 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.

SOCIETY WORK 4003 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 Social Work 3D06 and 3D06, or 3D09; or permission of the instructor.

SOCIETY 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 Social Work 3D06 and 3D06, or 3D09.

SOCIETY 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
Prerequisite: Registration or credit in Social Work 3D06 and 3D06, or 3D09; or permission of the instructor.

SOCIETY 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

SOCIETY WORK 4W03 CHILD WELFARE
This course examines 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: Social Work 2B06, 2C06, 2E06 and Psychology 2A03.

SOCIETY 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: Registration in, or credit in, Social Work 3D06 and 3D06, or 3D09; or permission of the instructor. Not available to students with credit in Social Work 3M03.
Enrolment is limited.

SOCIETY 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
Prerequisite: Not available to students with credit in Social Work 3K03.

SOCIETY 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 of 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, 1991
A. A. Hunter/Chair

Professors Emeriti
Howard M. Broit/B.A., M.A. (Chicago), Ph.D. (London)
Peter C. Finer/B.A. (University of British Columbia), M.A. (McGill), Ph.D. (Chicago)

Professors
Carl J. Cuny/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. (Free Universität, 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. Blum/R.B.A., M.A. (City College, N.Y.), Ph.D. (Oregon)
Richard A. Beymer/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. Homotz/B.S.P., M.A. (University of British Columbia), Ph.D. (SUNY, Buffalo)
Graham K. Knight/B.A. (Kent), M.A., Ph.D. (Carleton)
Jack Richardson/B.A., M.D. (Toronto)
Gerald Rosenblum/B.A. (California, Berkeley), M.S. (Oregon), A.M., Ph.D. (Princeton)
Jane Synge/M.A. (London), Ph.D. (London)
Vivienne Wallen/B.A., M.A. (Sheffield), Ph.D. (McGill)

Assistant Professors
Margaret Denton/B.A., M.A. (McMaster)
Rhonda Lenton/B.A. (Winim) M.A. (Manitoba), Ph.D. (Toronto)
Charlene Mail/B.A. (Ottawa), M.A. (Calgary), Ph.D. (York)
Dorothy Pawluch/B.A. (Laurentian), M.A., Ph.D. (McGill)
R.H. Storey/B.A., M.A. (Dalhousie), Ph.D. (Toronto)

Lecturers
Gregory Brown/B.A., M.A. (Guelph), Ph.D. (expected (Waterloo)

Associate Members
Roy Cairn (Social Work) B.S.W., M.S.W., Ph.D. (McGill)
P. Donnelly (Physical Education) B.A. (N.Y.), M.A., Ph.D. (Massachusetts)
John Eyres (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)

Department Notes:
1. Students should consult the Department's Handbook for Undergraduates, 1990-91, which will be available prior to registration, for fuller course descriptions and any changes in the list of courses offered in 1990-91. Students should check the Handbook in order to find the term in which 'one term' courses are offered.
2. Sociology 1A06 and several other courses are divided into independent sections. For more information, see the Sociology Department's Handbook for Undergraduates, 1990-91. This booklet gives course sections for the various Sociology 1A06 sections.

SOCIETY 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.
2 lecs., 1 tut., two terms
Prerequisite: Open.

SOCIETY 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.
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor.
Enrolment is limited.

SOCIETY 2D06 THE HUMAN GROUP
An examination of the individual in social interaction, with emphasis upon relationships between this and social structure.
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIETY 2E06 RACIAL AND ETHNIC GROUP RELATIONS
The course deals with the study of racial and ethnic group relations in Canada and the United States.
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIETY 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.
3 hrs. (lects. and discussion); two terms
Prerequisite: Open.

SOCIETY 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.
Same as Labour Studies 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIOL 2K03 CURRENT PROBLEMS IN SOCIOLOGICAL ANALYSIS
Same as Sociology 2J03.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

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 individuals.
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIOL 2006 SOCIAL STRATIFICATION
A broad comparative study of social class and social mobility.
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIOL 2P06 THE SOCIOLOGY OF EDUCATION
A comprehensive analysis of educational institutions in modern society.
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor.
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).
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor.
Enrolment is limited.

SOCIOL 2506 INTRODUCTION TO SOCIOLOGICAL THEORY
An introduction to the foundations, rise and development of sociological theory.
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor. Not open to students with credit in Sociology 2S03 or 3A06.

SOCIOL 2U06 SOCIOLOGY OF THE FAMILY
An analysis of kinship and family units in comparative, historical, and contemporary perspective.
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor.
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.
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor.

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. Not open to students with credit for this topic if taken as an English 3R03.
Same as English 3R03.
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.
3 hrs. (lects. and discussion); one term
Prerequisite: Registration in any programme in Sociology; or permission of the instructor.
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.
3 hrs. (lects. and discussion); one term
Prerequisite: Registration in any programme in Sociology; or permission of the instructor.
Enrolment is limited.
Same as Anthropology 2203.

SOCIOL 3A03 EUROPEAN SOCIOLOGICAL THEORY
An advanced examination of classical and contemporary European sociological theory.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 2S06; or permission of the instructor. Not open to students with credit in Sociology 3A06.

SOCIOL 3A03 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor. Not open to students with credit in Sociology 3A06.

SOCIOL 3B03 SELECTED TOPICS IN THE SOCIOLOGY OF EDUCATION
An examination of selected topics in the sociology of education.
3 hrs. (lects. and discussion); one term
Prerequisite: At least 18 units of Sociology, or permission of the instructor.

SOCIOL 3B03 MAJOR DENOMINATIONS IN CANADA
A study of the major denominations in Canada, their history and their relation to national, regional and class identity.
2 lects., 1 tut; one term
Prerequisite: Any Level I course in Anthropology, Philosophy, Religious Studies, Sociology.
Same as Religious Studies 3B03.

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.
3 hrs. (lects. and seminars); two terms
Prerequisite: At least 18 units of Sociology, or any Level II course in Political Science, or permission of the instructor.
Same as Political Science 3C06.

SOCIOL 3D03 SPECIAL TOPICS IN THE SOCIOLOGY OF THE FAMILY
A detailed study of selected topics in the sociology of the family.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.
Enrolment is limited.

SOCIOL 3E03 SPORT AND SOCIAL DEVELOPMENT
Macro-analysis of sport and culture, considering the place of sport and leisure in cultural transmission and change.
3 hrs. (lects. and discussion); one term
Same as Physical Education 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.
Enrolment is limited.

SOCIOL 3E03 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.
3 hrs. (lects. and discussion); one term
Same as Physical Education 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.
3 hrs. (lects. and discussion); two terms
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIOL 3G03 SOCIOLOGY OF HEALTH CARE
Selected issues concerning forms of providing health care.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIOL 3H06 RESEARCH TECHNIQUES AND DATA ANALYSIS
A comprehensive introduction to the principles of research methods and data analysis in the social sciences.
3 hrs. (lects. and labs.); two terms
Prerequisite: Registration in any programme in Sociology, or permission of the instructor.
Students in Honours Anthropology, Gerontology and Labour Studies will have second priority. Not open to students who have taken, or are currently enrolled in, any of the following: Chemical Engineering 4C03; Commerce 2Q3A; Economics 2B03, 3D06; Geography 2103, 2106, 3L03; Political Science 2F06; Psychology 2G03, 2R06, Sociology 2Y03; all Statistics courses except 2D03, 3S03, 3U03, 4H03, 4K03, 4R03.
SOCIOL 3HH3  SOCIOLOGY OF HEALTH
Sociological approaches to the study of health and illness.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor. Not open to students with credit in Sociology 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIOL 3K03  SPECIAL TOPICS IN SOCIOLOGICAL ANALYSIS II
Same as Sociology 3J03.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIOL 3L03  SELECTED TOPICS IN OCCUPATIONAL SOCIOLOGY
An advanced course allowing detailed study of one or more topics of special interest.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIOL 3L13  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.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

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.
3 hrs. (lects. and discussion); two terms
Prerequisite: Any course in Anthropology, Philosophy, Religious Studies or Sociology.

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.
3 hrs. (lects and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIOL 3O03  ADVANCED SOCIOLOGICAL RESEARCH
This course will provide a detailed study of selected qualitative methods in Sociology.
3 hrs. (lects. and discussion); one term
Prerequisite: Registration is restricted to Honours Sociology; or permission of the instructor.
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 Sociology 3W03.

SOCIOL 3P03  AMERICAN SOCIOLOGICAL THEORY
An advanced examination of classical and contemporary American sociological theory.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 2506; or permission of the instructor.

SOCIOL 3P33  CANADIAN SOCIOLOGICAL THEORY
An examination of the more or less unique contributions of English Canadians into sociological theory. Emphasis is on the Toronto schools, and its left-nationalist progeny and critics.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 2506; or permission of the instructor.

SOCIOL 3Q03  NATIVE AND ETHNIC RELIGIONS IN CANADA
A study of the effect of religion on native and ethnic identities, frontier religion and the new sects and cults.
2 lects.; 1 tut; one term
Prerequisite: Any course in Anthropology, Philosophy, Religious Studies or Sociology.
Some as Religious Studies 3N03.

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.
3 hrs.; one term
Prerequisite: Open. Not available to students with credit in this topic if taken as English 3K03.
Some as 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.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

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.
3 hrs. (lects. and discussion); one term
Prerequisite: At least 18 units of Sociology including Sociology 1A06; or permission of the instructor.

SOCIOL 3W03  HISTORICAL METHODS IN SOCIOLOGY
An examination of methods for incorporating historical data and archival sources into sociological argument.
3 hrs. (seminar and discussions); one term
Prerequisite: Registration is restricted to Honours Sociology; or permission of the instructor.
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 Sociology 3G03.

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.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

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 Sociology 2303.
3 hrs. (lect. and discussion); one term
Prerequisite: Sociology 2103; or permission of the instructor.

SOCIOL 3Z03  ETHNIC RELATIONS
An analysis of political, social and economic change in selected locales.
3 hrs. (lects. and discussion); one term
Prerequisite: Sociology 1A06; or permission of the instructor.

SOCIOL 4A03  ETHNIC/RACIAL TENSIONS
The course will investigate the processes by which racial and/or ethnic tensions develop in various societies.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology; or permission of the instructor.
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.
3 hrs. (seminar); two terms
Prerequisite: Registration in Level IV Honours Sociology; or permission of the instructor.
Enrolment is limited.

SOCIOL 4C06  SELECTED PROBLEMS IN SOCIOLOGICAL RESEARCH
Students will undertake a class project which involves quantitative materials.
3 hrs. (seminar); two terms
Prerequisite: Sociology 3H06.
Enrolment is limited.

SOCIOL 4D03  CRITIQUES OF SOCIOLOGICAL THEORY
A discussion of various sociological and non-sociological critiques of sociological theory.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology; or permission of the instructor.
Enrolment is limited.

SOCIOL 4F03  SELF AND IDENTITY
A consideration of theoretical and empirical questions relating to self and identity viewed from historical, cross-cultural and cross-disciplinary perspectives.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology; or permission of the instructor.
Enrolment is limited.

SOCIOL 4G03  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.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology; or permission of the instructor.
Enrolment is limited.

SOCIOL 4H03  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.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology; or permission of the instructor.
Enrolment is limited.
SOCIOLOGY

SOCIO 4G03  SPECIAL TOPICS IN THE SOCIOLOGY OF DEVIANC
An advanced course allowing detailed study of selected topics in the Sociology of Deviance. Topics will vary from year to year.
3 hrs. (seminar); one term
Prerequisite: Sociology 2G06; Registration in Level IV Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 4H03  SELECTED TOPICS IN THE SOCIOLOGY OF
ORGANIZATIONS
An advanced course allowing detailed study of aspects of organizational analysis of special interest.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology and Sociology 2E03; or permission of the instructor.
Enrolment is limited.

SOCIO 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.
3 hrs. (seminar); one term
Prerequisite: Sociology 2G06, and Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 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.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 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.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 4L03**  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: Permission of the instructor and registration in Level IV Honours Sociology, or permission of the Department.

SOCIO 4M03**  DIRECTED RESEARCH 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.
Two terms
Prerequisite: Permission of the instructor and registration in Level IV Honours Sociology, or permission of the Department.

SOCIO 4N03**  DIRECTED RESEARCH II FOR HONOURS STUDENTS
Same as Sociology 4M03.
One term
Prerequisite: Permission of the instructor and registration in Level IV Honours Sociology, or permission of the Department.

SOCIO 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, policy, and theoretical approaches in social gerontology.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 4Q03  INDIVIDUAL AND SOCIETY I
An intensive examination of selected problems involving the relationship of individuals to social structures.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 4R03  INDIVIDUAL AND SOCIETY II
An intensive examination of selected problems involving the relationship of individuals to social structures.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 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.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 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.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 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.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 4V03  ISSUES IN THE SOCIOLOGY OF OCCUPATIONS AND THE PROFESSIONS
An advanced course allowing detailed study of one or more topics of special interest.
3 hrs. (seminar); one term
Prerequisite: Sociology 2G06; Registration in Level IV Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 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.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 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.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

SOCIO 4Y03  THE SOCIOLOGY OF CORPORATIONS
This course will analyze the modern corporation as a vehicle through which economic, social and political power is wielded.
3 hrs. (seminar); one term
Prerequisite: Registration in Level IV Honours Sociology, or permission of the instructor.
Enrolment is limited.

For Graduate Courses see Calendar, School of Graduate Studies.

Spanish
(See Hispanic Studies)

Statistics
(See Mathematics and Statistics)

Women's Studies
The Honours B.A. Women's Studies and Another Subject Programme is co-ordinated by an interdisciplinary Committee of Instruction.

Faculty Advisors:
Joan Coldwell (English)/Director of Women's Studies
(on leave 1991-92)
Mary O'Connor (English)/Acting Director of Women's Studies, 1991-92
Maroussia Ahmed (French)
Jane Aronson (Social Work)
WOMEN'S STUDIES

Sylvia Bowerbank (Arts & Science)
Vera Choultnard (Geography)
Sally Coie (Anthropology)
Joanne Fox (Nursing)
Ruth Fraser (History)
Donald Goldthwait (English)
Elizabeth Inman (Drama)
Rhonda Lenton (Sociology)
Julia O'Connor (Sociology)
Adèle Reinhardt (Religious Studies)
Lisa Schnell (English)
Kari Sreedstad (Anesthesia)
Vivienne Walters (Sociology)
Lorraine York (English)
Isik Zeytinolu (Business)

Sessional Instructors
Kathy Gorey/ B.A. (East Anglia), M.A. (McMaster), Ph.D. (Toronto)
Rose Janson/B.A. (Waterloo Lutheran), M.A. (Toronto)
Leila Ruan/B.A., M.A., Ph.D. (McMaster)
Jane Vosk/B.A. (Laurentier), M.A. (McMaster)
Geraldine Voros/B.A. (Guelph), M.A. (McMaster)

WOMEN ST 2A06 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 inquiry include health, law, politics, history, women and work, representation of women in literature, Canadian women artists and musicians.
3 hrs. (2 lects. and tut.); two terms
Prerequisite: Open.

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 may include anti-slavery, temperance and suffrage movements, prison and labor reform, women's peace movements, health collectives and ecofeminism.
3 hrs. (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 in Western European society from the late classical era to the early twentieth century. Whether examined from a historical, social or cultural perspective, the female role will be seen in relation to the major political changes taking place during this period.
3 hrs.; two terms
Prerequisite: Women's Studies 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/son relationships and moral development.
3 hrs.; two terms
Prerequisite: Women's Studies 1A06.
Enrolment is limited. (Preference will be given to programme students.)

WOMEN ST 2D03 REPRODUCTIVE BIOLOGY
This course presents a medical study of human reproductive anatomy and physiology, with particular emphasis on intrinsic control mechanisms and extrinsic mechanisms of regulation of reproduction. It also explores feminist approaches to this subject.
3 hrs.; 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 Wolf, Stone, Steiner, de Beauvoir, Woolf, Daly, Gilligan, Chodorow, and Kristeva.
3 hrs. (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
1991-92: Women and Drama
An exploration of women and drama as seen in the roles women have played in the theatre and in how they have been presented in dramatic literature. The approach will be historical but with particular emphasis on the contemporary scene.
3 hrs.; 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 3BB3 TOPICS IN WOMEN AND THE ARTS II
This course explores women's achievements in any one of the following fields: film, literature, music, visual arts. Interrelationships between these fields will also be examined where appropriate.
3 hrs.; two terms
Prerequisite: Registration in the Women's Studies Programme, or permission of the Director of Women's Studies.

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 explored through examining such topics 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.
3 hrs.; 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 examining 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.
3 hrs.; 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
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.
3 hrs.; 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 TOPICS IN WOMEN, THE ECONOMY AND THE STATE
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.
3 hrs.; 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 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 Studies 4A06.
3 hrs.; two terms
Prerequisite: Registration in Level III or IV of the Women's Studies Programme, or permission of the Director of Women's Studies.

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 Studies 4A06.
3 hrs.; two terms
Prerequisite: Registration in Level III or IV of the Women's Studies Programme, or permission of the Director of Women's Studies.

Academic Services and Research Facilities

Academic Services

THE UNIVERSITY LIBRARY

G.R. Hill, B.A. (Newcastle), M.A. (Lancaster), M.L.S. (Western)/University Librarian

The University Library System consists of Mills Memorial Library (Arts), 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 Reads Map Library/Urban Documentation Centre located in the Burke Science Building and the Health Sciences Library housed in the Health Sciences Centre. Union catalogues covering all libraries are available and stacks are open to all library users.

Business materials, the H.G. Thode Library of Science and Engineering, the Burke material. Current periodical titles number about 13,870.

Subject related seminars are given 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 30,000 volume collection of eighteenth-century British material is the major Canadian collection in the field, and has been complemented for over twenty years by the lectures, seminars and publications of the McMaster Association for Eighteenth-Century Studies. Library fellowships in Eighteenth-Century Studies are being offered annually. Among more modern materials are the papers of Vera Brittain, Marian Engel, Anthony Burgess, Pierre Berton, Farley Mowat, Peter Newman, Matt Cohen and many others. Business interests are reflected in such files as the General Steel Works 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 C.S.W.A. Local 1005, U.S.W.A. 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

Ball, Kathryn, B.A. (Laurentian), M.L.S. (Western)/Business Librarian
Bayley, Elizabeth Grace, B.A. (McMaster), M.L.S. (Western)/Cataloguing Librarian, Health Sciences Library
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Moulder, Cathy, B.A. (McMaster)/Documentalist, Lloyd Reeds Map Library/Urban Documentation Centre
Nunn, Victor, B.A. (York), M.L.S. (Western)/Assistant University Librarian for Collections Management and Development
Ouellette, Michael J., Library Personnel Officer
Panton, Linda W., B.A. (Mount Allison), M.L.S. (Western)/Coordinator of Hospital Libraries
Parke, Valerie Jeanette, B.A., M.L.S. (Western)/Librarian, Reference Services
Passi, Narendar Nath, M.A. (Punjab), M.L.S. (Dalhi and Toronto)/Head of Reference Services
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Racheter, Carol B., B.L.S. (Toronto)/Director of Processing Services
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Stewart-Murphy, Charlotte A., B.A. (Toronto), M.A. (McMaster), M.L.S. (Western)/Director of Archives and Research Collections
Thomson, Donna K., B.A. (York), M.L.S. (Toronto)/Database Development Librarian Services
Tuite, Elaine M., B.A., M.L.S. (Western), M.Sc. (Dalhousie)/Reference Librarian, Science & Engineering
Trainor, Mary Anne, B.A. (McMaster), M.L.S. (Toronto)/Acquisitions and Serials Librarian, Health Sciences
Wlinch, John/Library Preservation Specialist

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ACADEMIC AND RESEARCH FACILITIES

COMPUTING AND INFORMATION SERVICES: C.I.S.
Drake, John, M.A., M.Sc., Ph.D./Assistant Vice-President, C.I.S.
Gowland, Doug, C.A., C.M.C./Director, Computing & Information Services

Operations
O'Day, Pat, B.A., Assistant Director

Communications and Networks
Bryce, Jim, B.Sc./Assistant Director

User Services
Grifin, Robin, B.Sc., Ph.D./Assistant Director

Data Services
Matterson, John, B.Sc., M.B.A./Assistant Director

Administration
Yacobino, Barb, B.A./Assistant to the Director, C.I.S.

C.I.S. provides computing services in support of both academic (instruction and research) and administrative activities. The facilities available for academic use include a VAX 6420, and a Multilow Trace 14/300 (Unix-based) and an IBM VM System, as well as several microcomputer laboratories. C.I.S. manages a campus-wide Ethernet and ROM data service as well as a number of associated communication services such as Datapac access. The campus Ethernet is linked to CA NET, allowing access to resources across North America, including the CRAY in Toronto. Administrative computing is run on an IBM MVS system and a VAX 4000.

Student workstation areas are located in the Burke Sciences Building, Rooms 240-245, the John Hodgins Engineering Building, Rooms 234 and 326, the Arthur Bourns Building, Room 166 and the Kenneth Taylor Hall, Rooms B110, B111, B120 and B123. Student consultants are available to assist users in each of these terminal areas. Assistance is also available in the main C.I.S. office located in Arthur Bourns Building, Room 122, and in each Faculty's particular requirements, to assist faculty and student members and to undertake projects of interest to the Faculty. C.I.S. 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.

C.I.S. services for the University community include a computer conference service (VAX notes), an electronic mail system and access to Netnorth, a worldwide University Network as well as to CA NET through ONet the Ontario Research Network (tcp/ip).

C.I.S. also administers a number of University site licences for software such as SAS, SPSS, and some Board programmes.

In addition to the facilities operated by C.I.S., there are numerous minicomputers and micro processors located in Departments to support academic programmes.

UNIVERSITY ART GALLERY
K.G. Nett, B.A., M.Lit., MMST/Director and Curator
G. Loney, B.A./Registrar
J. Petteplace, B.A./Gallery Technician

Opened in 1967, the University Art Gallery is located in Togo Salmon Hall, Room 114. 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 4,000 Canadian and European art works with a specialized collection of over 200 German Expressionist prints.

The Gallery is open daily except Saturdays. Call Local 3081 for further information.

THE INSTRUCTIONAL DEVELOPMENT CENTRE
A.C. Blizzard, B.Sc., M.Sc., Ph.D./Director
R.M. Metaile, B.A., M.A./Educational Consultant
A. Lax, B.A., M.A./Educational Consultant
S. Ristay, Secretary

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 N.S.U. 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 teaching and learning 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 program 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, in General Sciences, Room 217, telephone ext. 4540.

AUDIO VISUAL SERVICES
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, high speed tape duplication; A/V equipment distribution (all kinds of projectors, audio and video tape recorders, etc.); film reservations; A/V equipment repair; graphics - for design, charts and graphs for publication, display or poster presentations, computer graphics - B/W laser prints/high resolution 35 mm colour slides; full line of desktop publishing services offered; photography including location and studio photography, black and white or colour copy, slides, film processing and slide duplication.

For further information, please refer to the AV Services located in the Health Sciences Complex, Room 1G1, telephone ext. 2301, or Burke Sciences Bldg., Room 8281, telephone ext. 2761.

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 cooperative 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.

Centre for Materials Research
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

The MiRO will provide a basic research centre for the development of new micromachined electronic and optoelectronic devices with special emphasis on Computer Integrated Manufacturing.

Telecommunications Research Institute of Ontario

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 ARTHRITIC DISEASES

Dr. Peter Tugwell/Director of Hamilton Rheumatic Disease Program
Dr. William Benson/Director of Rheumatic Disease Unit, St. Joseph's Hospital

Dr. Charlie Goldsmith/Professor of Biostatistics, McMaster University

Arthritic disease and musculoskeletal disorders are the leading causes of disability in Canada today. These diseases affect people of all age groups and from all walks of life. The burden of function and disability and pain resulting from arthritic diseases extends beyond individual patients to families, employers and the Canadian economy in general. Despite the severe burden of these illnesses, preventive strategies and curative treatments are not known. Specialized treatment units are needed to manage the complex problems of arthritic patients and their families; research into the causes, diagnoses, efficient management including prevention of arthritic diseases must be mounted; and training of future health care professionals should emphasize an interdisciplinary approach.

To meet these identified needs, McMaster University, Chedoke-McMaster and St. Joseph's Hospitals in collaboration with the Regional Rheumatology and Community Programme has established an exemplary centre designed specifically to address the combined approach of clinical care, research and training needs specific to arthritic diseases. This is the first centre of this kind in Canada and it will provide a model for the advancement of knowledge in clinical care, research and training of health professionals. The Centre is based on a strong Rheumatic Disease program with (i) a three Rheumatic Disease Units (RDUs) designated and partially funded by the Arthritis Society, which includes a multidisciplinary day hospital, (ii) major outpatient program at all three RDUs, (iii) an extensive community service provided by the Arthritis Society and Home Care; (iv) a major Rheumatic Disease research team with expertise in clinical trials, health economics, and policy analysis; (v) a strong Immunology group which has existed at McMaster since the Host Resistance Academic Research Program was established in 1969. Currently the appointment of new faculty has capitalized on the expertise of key members of the program; (vi) a newly developed Pharmacology program supported by the University to study disease mechanisms; (vii) a Royal College approved Residency Training program as well as a Clinical and Basic Science Postgraduate program for physicians and health professionals, with strong emphasis on International Health. The above program will (i) provide leadership in research into the prevention, diagnosis and treatment of rheumatic diseases; (ii) link research to current clinical care and training of health professionals; (iii) promote links between hospital and community; hospital and hospital; treatment, research and training; across disciplines (Medicine, Nursing, Physiotherapy, Occupational Therapy, Social Work); wet lab and dry lab; and cultures (both nationally and internationally).

CENTRE FOR ELECTROPHOTONIC MATERIALS AND DEVICES

Dr. D.A. Thompson, BSc., Ph.D./Director

The Centre for Electrophotonic Materials and Devices (CEMD) has been established in order to enhance research into new semiconductor devices and device structures associated with optical data transmission and processing. Materials research problems associated with all technologies required to develop suitable integrated optical systems are being studied. Devices, both high speed electronic and optoelectronic are being designed and characterized. The objectives are to attain improved performance of communications systems as a result of integrating semiconductor light sources, modulators, detectors, waveguides and optical switches on the same substrate along with active electronic components. This so-called third phase of semiconductor development requires specialized equipment, trained manpower and an understanding of the basic sciences governing the performance of the elements involved. Within the CEMD we have in place, most of the state-of-the-art equipment necessary for such research. A central focus for our programme will be a unique Molecular Beam Epitaxy (MBE) System. This MBE system itself is designed for the (Ga,In) (As,P) group of materials that are of major interest for optical communications systems. Many other facilities are available and work is being carried out on ion implantation, ohmic and Schottky contacts, optical waveguides, device failure processes and laser processing.

Current CEMD manpower include 12 faculty from various departments, 3 Industrial Affiliates, and 7 research scientists and technicians. There are about 35 graduate students from various departments carrying out their research within the Centre.

CENTRE FOR FLEXIBLE MANUFACTURING RESEARCH AND DEVELOPMENT

Dr. Hoda A. ElMaraghy, B.Eng., M.Eng., Ph.D., P.Eng./Director

Flexible automation is a key factor in improving manufacturing productivity, competitiveness and product quality and reducing production cost. It increases the flexibility and ability of companies to respond to changing market demands and product design. The Centre for Flexible Manufacturing Research and Development was established at McMaster University in recognition of the strategic importance of flexible automation to the Canadian discrete parts manufacturing sector. A contribution of $500,000 was granted in August 1984 by the Canadian Federal Government, as part of the Centres of Specialization Fund, to launch the project.

The activities of the Centre are multi-disciplinary which combine mechanical and electrical engineering, computing, and management expertise. The mandate of the Centre is to conduct basic and applied research in flexible manufacturing, develop human resources through graduate and undergraduate education and cooperate with industry for effective technology transfer.

The Centre contains a flexible assembly cell with two robotic workstations (an Adept 1 and a Puma 560), a Bosch palletized computerized conveyor, IRD-D56 grey scale vision system, force and tactile sensors, and a network of SUN computer workstations. Researchers at the Centre are involved in various industry and government supported projects for basic and applied research in areas related to flexible manufacturing systems and product and systems design, and their implementation and justification. Studies focus on feature-based modelling of products, sensor-based robotics and automated assembly, computer aided process planning, intelligent robotics, design tolerance analysis, expert systems and artificial intelligence, control and off-line simulation and programming of robots, automated inspection and design automation. Work underway includes intelligent automation, the application of artificial intelligence and expert systems to robots, computer simulations, knowledge-based modelling of flexible manufacturing systems with graphic animation, robotic vision and assembly, flexible manufacturing, feature-based modelling, expert systems and intelligent design. As a research and educational unit of the Faculty of Engineering at McMaster University, the Centre employs six full-time research professionals, a secretary and, on the average, ten Masters and Doctoral students pursue their studies at the Centre. Research funding in 1989/90 exceeded $850,000. The director, Dr. Hoda A. ElMaraghy, is a Professor of Mechanical Engineering and a Principal Investigator in the Manufacturing Research Corporation of Ontario — A Centre for Research Excellence. She is also a principal Investigator in IRIS, the Institute for Robotics and Intelligent Systems, a node of the National Network of Centres of Excellence. Dr. ElMaraghy was recently elected as an active member of CIRP, the International College for Production Engineering Research; she is the only female member, and one of two active members in Canada.

CENTRE FOR HEALTH ECONOMICS AND POLICY ANALYSIS

Dr. G.L. Stoddart/Co-ordinator
Professor J. Lomas/Associate Co-ordinator

CHEPA is a multidisciplinary Centre, located in the Faculty of Health Sciences, created to stimulate and conduct research in health economics and health policy analysis, to provide training opportunities in these fields and to improve the exchange between researchers and policy-makers. The Centre's research, education and service activities bring together on a project basis faculty and staff from several departments and faculties on campus including Clinical Epidemiology and Biostatistics, Economics, Political Science, Geography and Business. Specific research objectives of the Centre include the development and application of methods
ACADEMIC AND RESEARCH FACILITIES

to evaluate the costs, risks, benefits and utility of specific health services; the
design and evaluation of different systems of organization and financing for
the delivery of health and health care services; and the study of the behaviour of
professionals, providers and other decision-makers in the health and health care
systems. The Centre organizes and sponsors a variety of academic activities
including research seminars, policy seminars, continuing education workshops,
a health policy commentary series and an annual health policy conference.

CENTRE FOR INTERNATIONAL HEALTH
Dr. Victor R. Neufeld/ Director

The Centre for International Health (CIH) was approved by the McMaster University Senate in March, 1989, and by the Board of Gov-
ernors in April, 1989. The staff for the CIH office includes Dr. Victor R.
Neufeld, Director; Drs. Don and Liz Hillman, Project Officers; Mr. Dan
Pugliese, Management and Resource Development; Ms. Helena Collins,
Administrative Assistant; Mrs. Shirley Ferguson, Project/Financial
Assistant; and Miss Kim Vine, Secretary, Mailing Address Room 3N448,
Health Sciences Centre. Telephone: (416) 525-9140, Ext. 2899.

The primary focus of activities within the CIH will be on developing
areas and countries. Priority will be given to activities that explore local
or global health issues that are defined as important by the target community.
Together with McMaster International (MI), the CIH will promote and
facilitate international health activities within the Faculty of Health Sciences.
Through education and research, support human resources development in the field of international health through education,
and critical analysis of the principles and practices of development, initiate,
facilitate, prioritize and review international health projects with a special
emphasis on multidisciplinary collaboration; and establish linkages with
universities, organizations and funding agencies working in international
health and development.

CENTRE FOR PEACE STUDIES
Dr. Graeme MacQueen, Ph.D./ Acting Director

The Centre for Peace Studies was established in June 1989 to further
education and research in peace and conflict studies.

Twenty undergraduate and two graduate courses are listed under Peace
Studies in this Calendar. Students enrolled in degree programmes
may take unofficial concentrations in the area. B.A. and M.A. pro-
grammes in Peace Studies are being developed.

The Centre organizes lectures and seminars, including the annual Ber-
trend Russell Peace Lectures, for students, faculty and the wider community.
The Centre’s first international conference, on “Nonviolence in Violent Contexts,”
was hosted in June 1989. Members of the Centre regularly give lectures and workshops off campus.

Several research projects have been initiated by members of the Centre. An interdisciplinary project on unarmed peacekeeping is under-
way, as is research for a profile of local peace organizations. Research
and publication is ongoing on social movements, religious and philo-
sophical approaches to peace and conflict, alternative security, and public
attitudes to conflict and related issues.

The Centre’s office is housed in Divinity College, Room 237, and 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.

COMMUNICATIONS RESEARCH LABORATORY
Simon Haykin, B.Sc., P.H.D., D.Sc., F.R.S.C., F.I.E.E./ Director

The Communications Research Laboratory (CRL) operates in the Facul-
ty of Engineering. It has a membership of 13 faculty, 20 full-time researchers, 12 technicians and students and a graduate student popula-
tion of over 45 students, and several vis-
titing scientists/scholars.

The research programme of the CRL is devoted to signal processing,
technologies and devices applied in the areas of microwaves, antennas,
opics, high-speed networks, radar, sonar, digital radio, monolithic
microwave integrated circuits, very large scale integration, neural net-
works and expert systems. The CRL has pioneered many new theoretical
concepts and system designs with practical applications. Indeed, the
CRL is one of the leading centres of research in signal processing and
digital communications, for which it is recognized both nationally and
internationally. In late 1987, CRL became a founding member of the
Telecommunications Research Institute of Ontario (TRIO), a provincial
Centre of Excellence. The CRL is also a participant in the Canadian Insti-
tute for Telecommunications Research (CITR).

The CRL has established invaluable links with many government
research laboratories and companies. It derives its funding from research
grants awarded by the Natural Sciences and Engineering Research
Council, and contracts with government, TRIO and industries. CRL’s
total research funding is in excess of 2.5 million dollars per annum. The
CRL building was recently expanded to 20,000 square feet.

In the formation of its research programmes and activities, the CRL
regularly consults with industrial and government organizations.

GERONTOLOGICAL STUDIES

There are four components of Gerontological Studies at McMaster:
The Office of Gerontological Studies; the Educational Centre for Aging and
Health; the R. Samuel McLaughlin Centre for Gerontological Health
Research; and the Undergraduate Degree Studies in Gerontology.

Office of Gerontological Studies
Dr. Ellen B. Ryan, B.A., M.A., Ph.D./Director
Professor Karl Kinanen, Dipl.S.W., B.A., M.S.W./Associate Director

The Office of Gerontological Studies (OGS) is involved in the promotion
and development of multidisciplinary research and educational pro-
grammes 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 and private foundations. The Under-
graduate Degree Studies in Gerontology programme is administered by this
Office. The various degree options are described in this calendar in the section
Faculty of Social Sciences, Gerontological Studies.

The Office mandate is as follows:

1. To serve as the communication centre regarding gerontological edu-
cation and research activities at McMaster University. Regular
information about gerontological activities is provided through the
quarterly newsletter Gerontology Update and the annual Inventory of
Gerontological Research.

2. To coordinate 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.

4. To actively participate in provincial and national gerontological or-
ganizations and initiatives.

5. To initiate and support the development of new gerontological proj-
ects with older adults, community agencies, students, staff and faculty.

6. To promote educational opportunities for older adults in the Ham-
ilton/Wentworth region, especially at McMaster University.

Educational Centre for Aging and Health
Dr. A.(Sandy) Macpherson, M.D., M.Sc./Director

The overall mission of the Educational Centre for the Aging and Health
at McMaster University has three facets: (i) to increase the number and
proportion of skilled health professionals in Ontario who are committed
to promoting health and providing excellent care for aging individuals;
(ii) to develop collaborative interdisciplinary educational approaches
and models concerning aging and health and to evaluate their effective-
ness; and to ensure that health professionals develop attitudes (values,
behaviors), knowledge, leadership, and clinical skills to enhance the
quality of life of the aging population. This mission is being accom-
plished by strengthening the gerontological input in educational pro-
grammes, especially continuing education of practicing health professionals. Aside from continuing education, other educational pro-
grammes include: Undergraduate Programmes for Health Profession-
als, namely the M.D., B.Sc.N., B.H.Sc. (O.T./P.T.) and B.S.W. (Social
Work) programmes; Post-graduate (Residency) Education; Graduate
Education; Faculty of Social Sciences, Health Sciences, and M.B.A.
Programme in Gerontology (Faculty of Social Sciences); and the M.B.A.
programme - Health Services Management Stream (Faculty of Business).

Students interested in further information should consult directly with
the specific programme office of interest.

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R. Samuel McLaughlin Centre for Gerontological Health Research
Larry W. Chambers, Ph.D./Director

The objectives of The R. Samuel McLaughlin Centre for Gerontological Health Research are as follows:
1. support research training of persons with expertise in caring for seniors and recruit research faculty for the Faculty of Health Sciences;
2. promote research aimed at improving health care and preventive care for the elderly;
3. sponsor educational conferences and workshops for university faculty, health care managers, service providers and government officials;
4. publish periodical reports on the Centre’s activities, and distribute these to supporters of the Centre, health care agencies, and government divisions with a gerontological health care interest;
5. 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 for the appointment of new faculty researchers to the Faculty of Health Sciences.

McMaster Institute for Energy Studies
Dr. M.L. Kliman/Director

The Institute was established in 1980 by a group of engineers, scientists and social scientists at McMaster who recognized the inter-disciplinary nature of the problems involved in producing and using energy. Its purpose is to co-ordinate, promote and support energy research and energy education. The MIES Office provides assistance in the organization and finance of research projects, organizes seminars and conferences and publishes the Energy Studies Review three times yearly.

McMaster Institute for Materials Research
A.J. Bertilisky, M.Sc., Ph.D./Director

The Institute for Materials Research (IMR) is responsible for promoting interdisciplinary materials research in the Faculties of Science and Engineering at McMaster. The Institute has about 50 members, mainly from Physics, Chemistry, Engineering Physics, Materials Science and Engineering and Chemical Engineering.

The IMR supports facilities in high temperature crystal growth, metallography, x-ray diffraction and electron microscopy. It also maintains the helium liquifier and operates the Science and Engineering Electronics Shop. Each year the IMR Seminar and Distinguished Lecturer Series sponsor lectures on the latest and most interesting developments in materials science.

The main areas of research within the IMR are: high temperature crystal growth, high temperature superconductors, neutron, x-ray and electron diffraction, surface science, optoelectronic materials, (particularly GaAs grown by molecular beam epitaxy), ion beam methods such as Rutherford backscattering and channelling, physical metallurgy, ceramics, metal matrix composites, corrosion research and polymer science and engineering.

The IMR is responsible for administering the McMaster programs of the Ontario Centre for Materials Research (OCMR) which is one of the Province of Ontario’s Centres of Excellence. The OCMR began operating in January of 1988 with a five year budget of $434 M. About one third of the research activities of the OCMR take place at McMaster. The OCMR also sponsors lecture programs and graduate scholarship programs, as well as a competitive program for seed funding of new projects.

McMaster Institute for Molecular Biology and Biotechnology
Dr. J.A. Hassell, B.Sc., Ph.D./Director

The purpose of the Institute is to promote and strengthen research and teaching in molecular biology at the University, and to develop links with industry so that research ideas can be exploited commercially. Research in molecular biology is an active focus for faculty members in departments within the Faculties of Science, and Health Sciences and includes studies of: gene expression; development and differentiation; membrane and organelle biogenesis; viral and cellular oncogenes; virus replication; and applied topics such as development of monoclonal antibodies and recombinant DNA techniques for diagnostic purposes. The Institute brings faculty members in these research areas together to exchange ideas and techniques. It also allows the development of new areas of research and serves to foster the research of biologists not at present using the techniques of molecular biology. As a part of these roles, the Institute operates a central laboratory facility and serves as a teaching resource for graduate and senior undergraduate courses in molecular biology and biotechnology.

McMaster Institute for Polymer Production Technology
Dr. A.E. Hamielec/Director
Dr. J.F. MacGregor/Associate Director

Polymers are found in products which affect every aspect of our lives: synthetic fibres; latex in paints and adhesives; specialty polymer coatings; synthetic rubbers; contact lenses; bio-medical implants; baby diapers.

The McMaster Institute for Polymer Production Technology (MIPPT) is a research institute that places a major emphasis on reaction engineering and computer process control in industrial polymer production processes. This has resulted in a current roster of industrial members which includes 18 of the world's leading polymer companies: Akzo Chemie (Netherlands); Diversi-Tech General (USA); DSM (Netherlands); Esso Chemical Canada; Gates Rubber & Tire Co. (USA); GenCorp (formerly General Tire) (USA); B.F. Goodrich (USA); Goodyear (USA); ICI (Great Britain); S.C. Johnson & Son (USA); Nalco Chemical (USA); Neste Oy (Finland); Polysar Ltd. (Canada); Grupo Primex (Mexico); Rohm & Haas (USA); Union Carbide (USA).

Seven faculty members from the Department of Chemical Engineering, Chemistry, Mechanical Engineering and the Faculty of Business are associated with the Institute as well as 21 graduate students, 5 post doctoral fellows, 4 visiting scientists, 2 research associates, and 9 support staff.

The Institute facilities include: a fully instrumented, computer controlled pilot plant with 7 stainless-steel reactor vessels; local control computers and access to a VAX for computer control and computer simulation studies; advanced analytical facilities that allow the complete characterization of polymer samples; an ampoule laboratory in which small-scale studies are performed.

There are currently 30 research projects underway in the areas of: mathematical modelling for the purpose of predicting the behaviour of industrial processes and thereby developing improved or completely new processes; industrial control of polymer plants; studies of water soluble polymers (for example, for fines retention in the pulp and paper industry); research on a novel high temperature process for the production of specialty polymers used in the coatings industry; development of polymer reactor models for safety calculations; an investigation of reaction injection moulding (RIM) of thermoplastics as an alternative to the traditional methods of producing molded polymer parts (such as for the automobile industry); polymer modification in extruders; methods development for the characterization of polymers.

McMaster International
Dr. Gary Warner/Director
Mr. Bill Radford, Project Officer
Ms. Laurine Mollinga, Administrative Assistant

In recent years, 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.
ACADEMIC AND RESEARCH FACILITIES

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 MANAGEMENT OF TECHNOLOGY AND INNOVATION INSTITUTE
Walter F. Petruchuk, P.Eng., Ph.d./Director
The McMaster Management of Technology and Innovation Institute is a co-operative industry/university centre focusing on the management of technology. The Institute has been created as a resource center of expertise in the technology challenge that Canadian industry faces in the years ahead. Funded through the federal government and industry contributors, the Institute has been designed with the close co-operation of industry. A Board of Directors, composed of senior managers from leading Canadian firms and representatives from McMaster and other institutions now guides the centre.

Since its inception, the Management of Technology and Innovation Institute's unique mission has been to promote the competitiveness of Canadian firms - through more effective management of technology and through the creation of an environment in which innovation flourishes.

In addressing this mission, the leadership of MTI has recognized a need to segment “Management of Technology” into smaller, more understandable components. This thought process has led MTI to identify three broad areas of subject matter:

POLICY
Issues dealing with the strategic direction of an enterprise.

PROCESS
Issues dealing with methods or practices within an enterprise.

PEOPLE
Issues dealing with how the human element impacts on the success of an enterprise.

These areas provide a structure for specific subjects which themselves form the basis for a comprehensive program of management seminars, in-house programs, consulting and research.

All these are designed to help plan, assess, modify and chart the innovation process from idea generation through the major strategic advantage.

Public seminars pave the way for consulting in each of the subject areas by emphasizing the rationale of the “Why”... of each issue.

In-house seminars introduce the consulting process by tailoring generalized instructional material to the specific needs of a client.

MTI can then move on to consulting on the “How” implementation of these ideas in the context of the client’s own enterprise.

MTI is committed to provide a balance between practical experience and academic theory.

The academics who participate in our program are all respected leaders in specialized areas of knowledge, and have growing or high-profile reputations as effective seminar leaders.

The seasoned manufacturing and marketing professionals have all had extensive hands-on experience in industry, and have successfully solved a wide range of practical problems.

Canada faces unprecedented foreign competition for international and domestic markets. To win in these arenas, we must learn to innovate effectively at unprecedented speeds, to manufacture more competitively, to achieve higher standards of quality and to market with entrepreneurial energy and imagination.

MTI’s ultimate aim is to assist Canadians to achieve these objectives by sharing the knowhow of those who already have.

MCMASTER NUCLEAR REACTOR (MNR)
Collins, Malcolm F., M.A., Ph.D./Director, MNR, and Professor of Physics
Butler, Michael Paul, B.Eng., M.Eng., P.Eng./Chief Reactor Supervisor
Emst, Peter C., B.Eng., M.Sc./Reactor Manager
Harvey, John W., B.Sc., Ph.D./Senior Health Physicist
Pidluczyn, Alice E., B.Sc./Manager, Centre for Neutron Activation Analysis

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 radiotopes, and many other areas.

MNR is an MTR open pool-type research reactor producing neutron fluxes up to $1 \times 10^9$ neutrons/cm²/second when operating at a power output of 5 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 TANDEM ACCELERATOR LABORATORY
Dr. J.A. Davies M.A., Ph.D./Director

The McMaster Accelerator Laboratory is a large facility used for research in materials research, molecular spectroscopy, experimental nuclear physics and nuclear medicine. There are two principal accelerators: an 11 million volt tandem Van de Graaff accelerator and a smaller single- ended 3 million Van de Graaff.

In the tandem accelerator, singly charged negative ions are accelerated to the positive terminal of the machine. There they are stripped in flight of two or more electrons and are then repelled from the same terminal. In this manner, energetic beams can be produced of most materials with atomic number less than 20. These beams are directed to one of many experimental target locations. The facilities consist of areas for radioisotope production for nuclear medicine, a hydrogen-profiling location, a large heavy-particle spectograph, several general purpose chambers, a cryogenic target for molecular spectroscopy studies, a gamma-ray spectrometer and a molecular beam epilaxy unit.

Since the sophisticated measurements call for the extensive use of remote automatic data acquisition as well as off-line analysis, the laboratory has several computers (the largest being a VAX II/750).

Although the facility is used primarily by research scientists and graduate students, several undergraduate students assist with some of the experiments.

PROGRAMME FOR QUANTITATIVE STUDIES IN ECONOMICS AND POPULATION
Mr. Frank T. Denton, B.A., M.A., F.R.S.C./Director

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 forty faculty members from various departments of the University and interdisciplinary cooperation 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, both 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. The Programme has been in existence since 1981.
Student Services and Organizations

Dean of Student Affairs
Rudy Heinz/Dean

The Dean of Student Affairs heads a variety of specialized student service offices. These offices include the Student Counselling Service, International Students' Advisor, Student Health Service, Student Financial Aid and Scholarships, Conference Services and Residence Services. 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, telephone extension 4649.

RESIDENCES
Mr. Ron Coyne/Director of Residences
Leanne Piper/Residence Admissions Co-ordinator

The University owns and operates ten on-campus residences accommodating a total of 2765 students. The nine traditional-style residences consist of three women's residences (762), one men's residence (102), four co-educational residences (1153), and Matthews Hall consisting of a co-educational International House (107) and a co-educational Quiet Houses (142). These residences are for single undergraduate students and are provided with staple articles of furniture including desks, chairs, beds, mattresses, pillows and bedding. Students provide their own towels and are responsible for the cleanliness of their individual rooms although a linen change is made weekly.

Sixty per cent 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 food plan which provides for 12 meals per week, Monday to Sunday, with a choice of breakfasts, lunches, and dinners in any combination for the full academic year (Christmas holidays excluded). Optional 14-meal and 19-meal plans are also available.

In addition, an apartment-style residence (Bates Residence) accommodates 498 men and women 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 Residences. The Director determines policy, budgets and appoints a Hallmaster from the University community to serve as a mentor and leadership figure in each residence. The Director of Residences 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 Residences is located in the Commons Building, Room 101, telephone ext. 4223.

The Residence Admissions Co-ordinator is responsible for admissions systems, withdrawals, medical and grade appeals and waiting lists. The Co-ordinator reports to the Director of Residences. Enquiries for residence information should be directed to the Admissions Co-ordinator, Residence Services Office in the Commons Building, Room 101, 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. Offers of acceptance into residence will be confirmed upon receipt of a deposit, which will be applied to the student's residence fees.

Students interested in residing on campus any time between May 3 and August 28 should apply directly to the Conference Office, Commons Building, Room 115. Applications and advance reservations are available from March 1 each year.

OFF-CAMPUS HOUSING
The Off-Campus Housing office is a free listing service provided by the University. 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 Room 118, Wentworth House.

This office operates in conjunction with the Student Tenants Association 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 Residence Services office and can be contacted at extension 4086.

STUDENT COUNSELLING SERVICE
Dr. W. Wilkinson/Director
L. Barlow/Career Counsellor
Dr. A. Eisen/Counsellor
N. Gibson/Career Counsellor
D. Lawson/Career Counsellor
Dr. D. Nifakis/Counselling Psychologist
Dr. D. Palmer/Academic Skills Counsellor

The Student Counselling Service is a resource provided by the University to promote the personal, academic and career development of McMaster students. The service offers many counselling, assessment and information services to help students deal with personal 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 feelings such as anxiety, and stress, loneliness, anger or depression - all of which can interfere with concentration and academic performance.

The department also helps students define their interests and abilities in order to make decisions about academic choices and career goals. Students often discover that 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 experience dissatisfaction with their academic performance, their effectiveness in studying or managing their time, or in reading, note-taking, or writing essays, the department provides counselling oriented toward effective learning and specific academic skills.

In addition to individual counselling, the department provides group programs, workshops and presentations in such areas as educational and career planning, the employment search process, applying to professional and graduate programs, assertive communication skills, writing skills, stress management, building self-confidence, speaking in public, procrastination, writing tests and exams, preparing for university, and other academic skills.

The department maintains a Resource Centre of career, educational and study-abroad information for use by all members of the University community and general public.

This is an administrative centre for such frequently required academic tests as the Graduate Record Examination, 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 helping sources both on and off campus.

Students are invited to visit the office in Hamilton Hall, Room 302, Monday through Friday, 9:00 a.m. to 5:00 p.m. to arrange to talk with
a counsellor, to inquire about current programs, or to use the Resource Centre. The telephone number is 525-9140, extension 4711.

INTERNATIONAL STUDENTS' ADVISOR
Patrick J. Fernandez/Advisor
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. Fernandez, Divinity College, Room 145, (416) 525-9140 or 529-7070, Extn. 4748.

STUDENT HEALTH SERVICE
Dr. M. Skinlarland/Manager
Health care is available to all university students year-round at the Student Health Service, located on the ground floor of McKay Hall Residence. During the academic year, the health service is open Monday and Tuesdays from 9:00 A.M. to 4:30 P.M.; Mondays and Wednesdays from 9:00 A.M. to 7:30 P.M.; and Fridays from 10:00 A.M. to 4:30 P.M. In the summer months, the service is open from 10:00 a.m. to 4:00 p.m. Monday through Friday. Appointments can be made by calling 529-7070 or 525-9140, extension 7700 or 7701.

Health services include: comprehensive primary medical care with attention to the physical, psychosocial and health educational needs of individual patients. Services include medical assessment and treatment; annual health examinations; 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; rapid strep tests; and education and counselling for personal health concerns such as nutrition, weight control, sexuality, smoking, alcohol or drug abuse, and physical fitness.

An extensive selection of pamphlets on common health problems is maintained in the waiting room of the Student Health Service, and students are encouraged to take any pamphlets that are of interest to them. A health educator is available for lectures, seminars, or small group discussions on health related issues or concerns or request by students. Further information can be obtained by calling the Student Health Service office at 525-9140 ext. 4441.

CONFERENCE SERVICES
Mrs. J. Gowland/Manager
Year round, all non-academic events, meeting space, parties, receptions etc. for students, faculty and staff are handled by Conference Services, Commons Building 115, extension 4781.

During the summer months, accommodation, food services and meeting facilities are available on campus for conventions, and touring groups in addition to residence for summer students and casual visitors. For conference information, contact the conference office at extension 4783.

The Front Desk, located in the Commons Building, is open for housing registration 7:00 a.m. to 12:00 midnight daily, early May to late August. Conference Services, Commons Building, Room 115, telephone.

STUDENT FINANCIAL AID AND SCHOLARSHIPS
Mr. J. Edwards/Manager; Mrs. E. Ellis/Coordinator and Office Manager
The Office administers a variety of programs which are accessed by nearly half of all full-time students as well as a large number of part-time students attending University. These programs include the Ontario Student Loan and Grant Program, Canada Student Loan Programs, Undergraduate Scholarships Programme, Ontario Work Study Program, Ontario Special Bursary Program, University Bursary and Emergency Loan programs, 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. Appointments and drop-in style counselling are available. The office is located in Hamilton Hall, Room 401, telephone ext. 4319. For more detailed profiles of programme offerings, please refer to sections Undergraduate Academic Awards and Student Financial Aid.

Services to Students
OFFICE OF THE OMBUDSMAN
The McMaster Students Union, in cooperation with the McMaster University Staff Association and McMaster Association of Part-Time Students, employs the Ombudsman. The Ombudsman provides information and advice relating to complaints, disputes and appeals between students and other 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 human rights concerns including sexual harassment. The office is in Hamilton Hall, Room 212, telephone extension 2003.

UNIVERSITY CHAPLAINS
Catholic and Protestant chaplains on campus provide a wide range of student services in worship, discussion groups, pastoral counselling, 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 198; telephone extension 4207, or 4785.

Chapel Services: The Chaplaincy Centre sponsors a variety of Chapel services on campus, including mid-day ecumenical chapel 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.

STUDENT PLACEMENT SERVICE
The Student Placement Service works together with the Counselling Service to help undergraduate and graduate students and recent alumni of all faculties find permanent, temporary and part-time employment.

On-campus Recruitment Program
The Placement Service coordinates this program in which 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 Placement System Network and on Bulletin boards in appropriate locations
* 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 program should register at the Placement Service in early September.

Job Postings
A direct referral service to immediate part-time, summer and permanent jobs offered by employers who do not visit the campus is provided year round. Job notices are posted regularly on bulletin boards outside the Placement Service and at other appropriate locations on campus. These notices should be checked by students seeking up-to-date employment opportunities.

Presentations and Workshops
The staff work in conjunction with career counsellors throughout the year to provide workshops and presentations on career planning, resume development, preparing standardized application forms for on-
FOOD SERVICES

Under contract with the University, Marriott Corporation of Canada (Food and Services Management Division) operates many dining areas on campus offering a wide variety of nutritious food at reasonable prices.

Students living in residence (except Bates apartment-style building) are required to purchase a meal plan. Off-campus students and other members of the University community may purchase a meal plan at the Food Services main office located in the Commons Building, Room B101B.

All meal card holders achieve the best value for their food dollar by taking advantage of Marriott’s “unlimited seconds” policy for meals in the Refectory or in the Commons dining rooms.

Three full-service cash cafeterias with dining rooms are located strategically around campus on the lower levels of Togo Salmon Hall, Kenneth Taylor Hall, and A.N. Bourns Building.

A Tim Hortons Kiosk is located in the basement lobby of Chester New Hall; coffee shops are located on the second floor of the Burke Science Building as well as in the Rathskeller (in the Refectory basement).

Vending machines at many locations around campus supplement these facilities. Inquiries are welcome by Food Services at extn. 4410.

PARKING

CAMPUS PARKING FACILITIES ARE LIMITED AND THE AVAILABILITY OF SPACE 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 & Parking Regulations. Violations are subject to fines and/or towaway. Disregard of violation charges may result in suspension of parking privileges, towaway at owner’s expense, sanction of transcripts and/or prosecution under the general law, the Trespass to Property Act and the City of Hamilton Private Parking Bylaw No. 89-75.

BOOKSTORE

The University Bookstore, owned and operated by the University. First and second year textbooks are located in the auxiliary store located in Togo Salmon Hall, Room B203. Third, fourth and graduate textbooks are located in the basement 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.

POST OFFICE

The McMaster University Sub Post Office is located in the Bookstore. The Post Office offers full postal service, from 8:30 a.m. to 4:30 p.m., Monday to Friday. Post Office Boxes may be rented by faculty, staff, and students for the duration of their stay at McMaster.
STUDENT SERV. AND ORGS.

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, 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 Ombudsman 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 both owned and operated by the McMaster Students Union Inc. The MSU funds over 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 Info Office (room 226, Hamilton Hall) and at the MSU General Offices (room 217, Hamilton Hall, 525-9140, 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 from 10:00 a.m. to 9:00 p.m. Monday to Thursday, 10:00 a.m to 2:00 p.m Friday, when classes are in session. MAPS Executive Director, Ms. Judy Worsley, is available to help students. If you have a question pertaining to university procedure or a problem of any kind, Judy or the MAPS staff, can either supply the answer or put you in touch with someone who can.

The part-time student newsletter, LINK, is published on a regular basis, and is sent 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. COPUS, the Canadian Organization of Part-time University Students, works at the provincial and national levels to improve programme availability, financial aid, transferability of credits and equality under the tax laws for part-time students. MAPS is a member of this group of universities.

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, telephone 525-9140, ext. 2021.
Undergraduate Academic Awards

The University Senate, acting on behalf of generous benefactors and donors to the University, bestows academic awards on entering, in-course and graduating students in order 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 conditions attached to individual academic awards. These general conditions are outlined below and at the beginning of each section which describes the various types of award. The general conditions have been established in order to ensure both equity in competition and an adequate overall academic standing. Any interpretation of the conditions attaching to academic awards is solely the prerogative of the Undergraduate Council.

TERMINOLOGY

(A complete explanation of the terminology used to describe Academic Awards is provided in the sections of the Calendar described below.)

The Winter Session is the period from September to April as defined in the Sessional Dates at the beginning of the Calendar.

Baccalaureate degrees are those listed under Degrees and Programmes, the abbreviations of which start with the letter 'B'. Continuing, Occasional, and Post-degree Students are defined under Admission Requirements and are students not registered in degree programmes.

University Average (UA), Cumulative Area Average (CAA), Graduation Average (GA), Level, and Restenning Period are defined under Academic Regulations.

The Sessional Average is the weighted average of the grades in all courses (excluding any designated "Extra") taken during the Winter Session immediately prior to the May review.

A 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) or, if the Calendar does not specify the programme work by individual levels, the average number of units per level.

For information contact:
Student Financial Aid and Scholarships Office
Hamilton Hall, Room 401
McMaster University
Hamilton, Ontario L8S 4K1
Telephone: (416) 525-9140, extension 4319
John Edwards, Director
Denise Ellis, Co-ordinator/Office Manager

1. General Conditions Relating to All Academic Award Recipients

1.1 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, Occasional Students, and Post-degree Students, and students who obtained a baccalaureate degree from an institution other than McMaster University, are not eligible for these awards.

1.2 A student may be named the winner of an unlimited number of University Academic Awards but may retain the monetary benefits of:
a. travel scholarships and awards such as books and medals; and
b. awards continued from a previous year (including entrance scholarships), except as provided by the particular terms of an award; and
c. 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 the monetary benefits because of the conditions listed above, the next student eligible to receive both the award and its monetary benefits will be named the winner of the award.

1.3 All awards for which a student is named the winner and receives the monetary benefits will be shown on the student’s official record; all awards for which a student is named the winner but does not retain the monetary benefits will be shown on the student’s official record honoris causa.

1.4 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.

1.5 The monetary benefits of other awards will be disbursed only if the recipient is then registered as a full-time student in a baccalaureate degree programme at McMaster University in the next Winter Session after the award was earned and then will be allocated in the following manner:
   a. first the monetary benefits 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 specified in the Calendar for the level and programme in which the student is registered;
   b. then amounts in excess of the above will be disbursed directly to the student in November or December.

1.6 Awards credited to the student’s academic fees account are not refundable in cash under any circumstances.

1.7 Awards credited to the student’s academic fees account may be used only to defray academic fees for baccalaureate degree courses taken during the 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 deferments are not normally granted for more than one calendar year.

1.8 Students holding four-year full-fees scholarships who choose to accelerate their programme and to complete their degree earlier than normal by completing 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.

1.9 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.

1.10 The particular terms for University Academic Awards are listed below in the following sections:

SECTION 2. AWARDS FOR ENTERING STUDENTS
   The McMaster Scholars Programme
   Other Scholarships Open to Canadian Students
   Scholarships Open to Ontario Students
   Merit Awards Open to Ontario Students

SECTION 3. AWARDS FOR FULL-TIME IN-COURSE STUDENTS
   Medal
   General Scholarships and Prizes
   Senate Scholarships
   Residence Scholarships
   Travel Scholarships

SECTION 4. AWARDS FOR PART-TIME IN-COURSE STUDENTS

SECTION 5. SINGLE ACHIEVEMENT AWARDS FOR FULL-TIME AND PART-TIME STUDENTS

SECTION 6. AWARDS FOR GRADUATING STUDENTS
   Medals
   Ring
   Scholarships and Prizes

INDEX OF ACADEMIC AWARDS

In order to find a specific award, use the Index for Academic Awards.
2. Academic Awards for Entering Students

2.1 These awards are provided exclusively for students qualifying for admission to Level I of a first baccalaureate degree programme.

2.2 In order to be considered for an entrance scholarship, 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 within not more than two years of completion of their secondary school studies will automatically be considered as applicants for entrance scholarships, unless a separate application is explicitly required by the particular terms of the award.

2.3 In addition to meeting the General Conditions listed in Section 1, entrance scholarship recipients will begin their studies in the next 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.

2.4 Unless otherwise specified, recipients may retain an entrance scholarship 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 scholarships, students must complete during each successive Winter Session at the University a full load corresponding at least to:
   a. either the minimum number of units specified in the Calendar for their level and programme;
   b. or, if the Calendar does not specify the programme work by individual levels, the average number of units per level;
   and must maintain a University Average of at least 9.5 and obtain no F grades.

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 15 McMaster Scholars registered in undergraduate programmes. Applications are required and must be submitted not later than February 28. 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.

THE GEORGE AND NORA ELWIN SCHOLARSHIPS

Established in 1979 by bequest of George and Nora Elwin of Hamilton.

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.

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.

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.
UNDERGRADUATE ACADEMIC AWARDS

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.

THE LLOYD MEMORIAL SCHOLARSHIP
Established in 1956 in memory of Harry Hoyes and Lizzie Lloyd by their children. Grade 13/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.

THE ALBERT MATTHEWS SCHOLARSHIP
Established in 1920. Grade 13/OAC subjects to be included are Latin and a language other than English.
Value: Up to four years' academic fees.

THE HAROLD MATTHEWS MEMORIAL SCHOLARSHIP
Established in 1917. Grade 13/OAC subjects to be included are French and either German or Spanish.
Value: Up to four years' academic fees.

THE ISABELLA CAMPBELL MCNEE SCHOLARSHIP
Established in 1915 and augmented in 1926. Grade 13/OAC subjects to be included are three credits of Mathematics and Physics.
Value: Up to four years' academic fees.

THE MOUTON COLLEGE ENTRANCE SCHOLARSHIP
Established in 1980 from funds originally subscribed by the Alumnae of Mouton 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.

THE ALVIN I. OGLIVIE 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.

JOHN CHARLES STRADWICK SCHOLARSHIP
Established in 1908 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.

THE D.E. THOMSON SCHOLARSHIP
Established in 1909 and augmented in 1915. Grade 13/OAC subjects to be included are English and either Latin or French.
Value: Up to four years' academic fees.

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.

THE WHEELER SCHOLARSHIP
Established in 1915. Grade 13/OAC subjects to be included are: History, English and a language other than English.
Value: Up to four years' academic fees.

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 extra-curricular activities and work. Applicants must be in Grade 13 in the current school year.

THE McMaster MERIT AWARDS
Made available from time to time by authorization of the Board of Governors of the University.
Value: Forty awards of $800 each.

THE CATHERYN E. KAAKE MERIT AWARD
Established in 1968 in memory of Catheryn E. Kaake ('78) by family and friends.
Value: $800.

THE RAYMOND C. LABARGE MERIT AWARDS
Value: $800.

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.

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 judgement of the Department of Geology, has demonstrated interest in the study of Earth Sciences.
Value: $800.

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.

3. Academic Awards for Full-time In-Course Students

The following awards are based on competition across the University or within a faculty or programme.

3.1 These awards, which are granted in June or November, are provided exclusively for 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 their graduating session.

3.2 In addition to meeting the General Conditions listed in Section 1, a student must complete during the Winter Session immediately prior to the May review a full load of work corresponding at least to:
   a. either the minimum number of units specified in the Calendar for their level and programme;
   b. or, if the Calendar does not specify the programme work by individual levels, the average number of units per level; and must obtain a University Average of 8.0 and no F grades.

3.3 For students who complete a full load of work in the Winter Session as described above a Sessional Average will be computed, which is the weighted average of the grades in all courses (excluding any designated Extra) taken during that Session. 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.

3.4 The Sessional Average will be used to break any tie in the competition for awards which are based on another academic 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.

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 Area Average.
Value: $25.

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 95).
Value: $1,400.

THE ASSOCIATION OF PROFESSIONAL ENGINEERS UNDERGRADUATE SCHOLARSHIPS
Established in 1961 by the Ontario Professional Engineers Foundation for Education. Two scholarships to be awarded to students with the highest Sessional Average in Engineering programmes after the completion of each of: (a) Engineering; (b) Level I and 35-55 units; or (c) Level I and 70-90 units.
Value: $500 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 Civil Engineering 3G04 and 3J04, taken in one Session.
Value: $200.

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 Statistics 3D05.
Value: $400.
UNDERGRADUATE ACADEMIC AWARDS

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 attained high standing in Commerce 3F1A3 and 3F1B3, taken in one Session.
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. 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 with the highest Sessional Average and is entering Level II of Honours Biochemistry, Honours Chemistry, Honours Biochemistry and Chemistry or Honours Applied Chemistry programme. Value: $300.

THE LOUISE E. BETTGER SCHOLARSHIPS IN MUSIC
Established in 1982 in memory of Louise E. Bettger of New Hamburg, Ontario, by her husband and father. To be awarded to a student who is entering her graduating year and who has demonstrated an interest in a career in working with the mentally handicapped. Value: $1,100.

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 Area Average or Cumulative Engineering Average of at least 10.0. 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 60-75 units of an Honours programme in Classics, Drama, English, French, German, Hispanic Studies, Italian, or Russian. Student in all programmes except Music I must have completed Linguistics 1A06 or Anthropology 1B06 and achieved in it a grade of at least B-.
Value: $600.

THE BRAMPTON BRICK LIMITED CERAMIC SCHOLARSHIP
Established in 1980. To be awarded to the student who has completed Level I and 30-90 units of the Ceramic Engineering programme with the highest Sessional Average (at least 9.5). Value: $1,000.

THE BRIEN SCHOLARSHIP IN PHILOSOPHY
Established in 1941 by Dr. J. W. Brien of Windsor. To be awarded to the student who has completed Level I and 30-45 units of an Honours programme in Philosophy and who attains the highest Cumulative Area Average.
Value: $450.

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.

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 30-45 units of an Honours programme in Mathematical Sciences who attains the highest Cumulative Area Average and is not the holder of an award of greater monetary value than this Scholarship. Tenable in Levels II 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).

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 30-75 units of an Honours Programme in Philosophy who, in the judgment of the Department of Philosophy, has demonstrated outstanding academic achievement.
Value: $1,100.

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.

THE ELLA HALSTEAD CAMPBELL PRIZE
Established in 1978 by Mrs. Verna Caskey and Mrs. 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 Music 1D04, 2D04, 3D04 or 4D04 who is outstanding in the judgment of the Department of Music.
Value: $200.

THE CANADA BRICK SCHOLARSHIPS
Established in 1988. Two scholarships to be awarded to students in the Ceramic Engineering and Management programme who, in the judgement 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.

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.

THE CANADIAN REFRACTORY SCHOLARSHIPS
Established in 1975 by the Canadian Refractories Division. Dresser Industries Canada, Limited. Two scholarships to be awarded to students who have completed Level I and at least 30 units of the Ceramic Engineering programme and who, in the judgment of the Department of Materials Science and Engineering, show particular promise in the field of ceramic engineering or materials science.
Value: $500 each.

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 70-85 units of a programme in Chemical Engineering and who attains the highest Cumulative Engineering Average.
Value: $50, medal and certificate.

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 60-80 units: (a) one to a student in an Honours programme in Chemistry, Honours Applied Chemistry, or Chemistry Major who attains a high standing in chemistry; (b) one to a student in the Honours Biochemistry or Honours Biochemistry and Chemistry programmes who attains a high standing in biochemistry and organic chemistry.
Value: $100.

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.

THE NORMAN C. CASKEY MEMORIAL PRIZE
Established in 1983 by Mrs. Verna Caskey and Mrs. June Caskey in memory of husband and father. To be awarded to a student who has completed Music I or Level I and 30-75 units of an Honours programme in Music and who, in the judgment of the Department of Music, has demonstrated musical excellence.
Value: $100.

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 30-45 units of a programme in Commerce and who, in the judgment of the Faculty of Business, has attained an outstanding Sessional Average and a high standing (a grade of at least A+) in Commerce 2A03.
Value: $150.

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 30-50 units: (a) one to a student in an Honours programme 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.

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 36-90 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.
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 60-75 units of an Honours programme in Social Sciences and attains the highest Sessional Average.
Value: $1,200.

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 30-45 units of an Honours programme in Humanities and of an Honours programme in Science, and who has attained an outstanding Sessional Average.
Value: $750.

THE CLASS OF ’30 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 30-45 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.

THE CLASSICAL STUDIES PRIZE
Established in 1978 by Professor D.M. Shephard. To be awarded to the student who has completed Level I and 30-45 units of an Honours programme in Classical Studies and who, in the judgment of the Department of Classics, shows most promise.
Value: $100.

THE CONSUMERS CLASS 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.

THE EDITH GRACE COMBS MEMORIAL SCHOLARSHIP
Established in 1989 by Lois Taylor Brown. To be awarded to a full-time or part-time student entering Level IV of an Honours Programme in Art or Art History. who, in the judgment of the Department of Art and Art History, is outstanding. Preference will be given to a student from the Regional Municipality of Hamilton-Wentworth.
Value: $500.

THE COOPERS AND LYBRAND SCHOLARSHIP
Established in 1986. To be awarded to a student who has completed Level I and 60-75 units of a programme in Commerce, with an average of at least 10.0 in the Level III accounting courses in their Session, and who, in the judgment of the Faculty of Business, has demonstrated high academic achievement and leadership.
Value: $850.

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 71-73 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.

THE DANTE ALIGHIERI CENTRE OF HAMILTON SCHOLARSHIP
Established in 1987 by the Directors of the Dante Alighieri Centre of Hamilton on behalf of the Italian community. To be awarded to a student who has completed Level I and 30-45 units of an Honours programme in Italian and who, in the judgment of the Department of Modern Languages, attains notable academic achievement and an average of at least 10.0 in at least 12 units of required courses in Italian, taken in one Session.
Value: $500.

THE DATA GENERAL (CANADA) INC. SCHOLARSHIP
Established in 1987. To be awarded to a student who has completed Level I and 30-45 units of an Honours programme in Computer Science and who, in the judgment of the Department of Computer Science and Systems, has achieved notable standing (Sessional Average of at least 9.5) and demonstrated leadership ability and involvement in extracurricular activities.
Value: $1,000.

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.

THE DIGITAL EQUIPMENT OF CANADA LIMITED AWARD OF MERIT
Established in 1984. To be awarded to a student who has completed Level I and 35-50 units of a programme in Computer Engineering with a High Cumulative Engineering Average.
Value: $250 and certificate.

THE ROSEMARY DOUGLAS-MERCER MEMORIAL PRIZE
Established in 1989. To be awarded to a student who has completed Level I and 30-45 units of an Honours programme in French and who has attained the highest average in French 2A03 and one of 2F03 or 2A13 and one of 2W03 or 2W43.
Value: $225.

THE DOW CHEMICAL CANADA INC. SCHOLARSHIP
Established in 1976. To be awarded to the student who has completed Level I and 40-75 units of the Chemical Engineering programme who attains notable academic standing, and who has demonstrated leadership in extracurricular activities. The recipient may not be a holder of another scholarship.
Value: $900.

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 60-75 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.

THE EAST HAMILTON ROTARY CLUB SCHOLARSHIP
Established in 1989. To be awarded to a student who has completed Level I and 30-75 units of a programme in the Faculty of Science who, in the judgment of the Faculty, has demonstrated outstanding academic achievement and involvement in extracurricular activities who has attained a Sessional Average of at least 9.5. Preference will be given to a student from the East Hamilton area.
Value: $1,500.

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 Level III of the Honours Geography and Environmental Science Programme; and (b) one to a student entering Level II 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.

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 30-45 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 2A43.
Value: $350.

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 Electrical Engineering 3NA3 and 3SA3, taken in one Session.
Value: $200.

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.

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 returning 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 University Average of at least 8.0 and no F grades in the review at the end of the Winter Session immediately prior to entering the Third Year Elsewhere Programme.
Value: $100.

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 30-45 units of the three-level Chemistry programme with the highest Cumulative Average Area.
Value: $150.

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 30-75 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.

THE GENERAL REFRACTORIES OF CANADA CERAMIC SCHOLARSHIP
Established in 1980. To be awarded to the student entering Level II of Ceramic Engineering with the highest Sessional Average attained at the completion of Engineering I.
Value: $500.
UNDERGRADUATE ACADEMIC AWARDS

THE R. LOUIS GENTILECORE PRIZE
Established in 1989 by the family and friends of Professor R. Louis Gentilec 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.

THE GEOLOGY BOOK PRIZE
Established in 1955 by bequest of Year '47 student of Earth Sciences C.E. Burke. To be awarded to a student who has completed Level I and 30-45 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.

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 Area Averages to students who have completed Level I and 60-75 units of Honours B.Sc. programmes. Ordinarily, not more than one scholarship will be awarded in any one discipline.
Value: $300 each.

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 1964. To be awarded to a student who has completed Level I and 60-75 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.

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.

THE H.B. GREENING PRIZE
Established in 1989 by bequest of Gladys Powis Greening in memory of her husband, Harold Benjamin Greening. To be awarded to the student who has completed Level I and 30-45 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.

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 60-75 units of an Honours or Major programme in Computer Science, or Level I and 70-90 units of a programme in Computer Engineering, and who attains the highest Cumulative Area Average or Cumulative Engineering Average.
Value: $200.

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.

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 30-45 units of an Honours programme in Chemistry and who attains the highest Cumulative Area Average.
Value: $200.

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 the Cumulative Commerce Average: two to students who have completed Level I and 30-45 units, and two to students who have completed Level II and 60-75 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).

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 30-45 units of a programme in Commerce and who, in the judgment of the Faculty of Business, has achieved high standing in the required Level II Commerce courses, taken in one Session.
Value: $400.

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 30-45 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.

THE DR. THOMAS HOIBLEY PRIZE
Established in 1956 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.

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. Eighty awards were made in 1989.
Value: $1,400 each.

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 70-90 units of a programme in Electrical Engineering who attain the highest and second highest Cumulative Engineering Averages.
Value: $150 and $50, each.

THE INTERMETCO LIMITED SCHOLARSHIP
Established in 1977. To be awarded to the student who has completed Level I and 70-90 units of a programme in Mechanical Engineering and who, in the judgment of the Department of Mechanical Engineering, has attained notable standing.
Value: $600.

THE ITALIAN MINISTER OF EDUCATION SCHOLARSHIP
Established in 1987 by the Italian Minister of Education through the office of the Director of the Italian Cultural Institute in Toronto. To be awarded to the student who has completed Level I and 50-75 units of an Honours programme in Italian and who has attained the highest Cumulative Area Average in the Italian component of the programme.
Value: $500.

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 60-75 units of an Honours programme in Italian. The recipient must have graduated from a secondary school in the Hamilton area.
Value: $150.

THE IVY SCHOLARSHIP
Established in 1971 by Professor and Mrs. G.S. French in memory of Mr. and Mrs. I.E. Ivy, the parents of Mrs. French. To be awarded to a student who has completed Level I and 110-130 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.

THE KATHLEEN MARY JOHNSTON MEMORIAL PRIZE
Established in 1964 by Lawrence D. Johnston in memory of his wife. To be awarded to the student who has completed Level I and 30-45 units of an Honours programme in Religious Studies and who attains the highest Cumulative Area Average.
Value: $125.

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 60-75 units of an Honours programme in Religion and who, in the judgment of the Department of Religion, has attained notable standing.
Value: $150.

THE STANFORD N. KATAMBALA GEOLOGY PRIZE
Established in 1965 by contributors 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 student who has completed Level I and 60-75 units of the Honours Geology programme and who attains high standing in geology.
Value: $50.
THE GEORGE P. AND LEATHA M. KEYS SCHOLARSHIPS
Established in 1962 by Mrs. Leatha Keys. Three scholarships to be awarded to students who, in the judgment of the Department of Computer Science and Systems, have demonstrated outstanding achievement in Honours and Major programmes in those Departments: (a) one to a student who has completed Level I and 30-75 units of the Computer Science programme; (b) one to a student who has completed Level I and 60-75 units of a programme in Mathematics; and (c) one to a student who has completed Level I and 60-75 units of a programme in Statistics.
Value: $400 each.

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 60-75 units of an Honours programme in English on the basis of Cumulative Area Average.
Value: $200.

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.

THE MEGAN LAWRENCE SCHOLARSHIP
Established in 1988 by the Zonta Club of Hamilton I 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 60-85 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: $700.

THE RAY LAWSON SCHOLARSHIPS
Established in 1975 by the Honourable Ray Lawson, O.B.E., O.C.L., LL.D., K.G.S.T.J., Lieutenant-Governor of Ontario from 1946 to 1952. Two scholarships to be awarded for the highest Cumulative Engineering Averages in an Engineering and Management programme: (a) one to a student who has completed Level I and 70-90 units, and (b) one to a student who has completed Level I and at least 110 units beyond Level I.
Value: $400 each.

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 60-75 units in an Honours programme in Sociology and who, in the judgment of the Department of Sociology, is the most promising student.
Value: $100.

THE LIANNE MARSH 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 60-75 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.

THE A.V. MASON SCHOLARSHIP
Established in 1988 by Hamilton Porcelains Limited in honour of its former President. To be awarded to a student entering Level II of the Ceramic Engineering and Management programme who, in the judgment of the Department of Materials Science and Engineering, has achieved notable academic standing.
Value: $500.

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 70-85 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.

THE MCGREGOR-SMITH-BURR MEMORIAL SCHOLARSHIP
Established in 1930 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 60-75 units of the Honours English and History programme and who has the highest Sessional Average.
Value: $450.

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 thirty-three years of service to the McMaster University. To be awarded to a student who completed Level I and 60-75 units of an Honours Classics or Classical Studies 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: $575.

THE BOYD McLAY SCHOLARSHIP IN PHYSICS
Established in 1977 to commemorate the contributions of Dr. A. Boyd Mc Lay (°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 60-75 units of an Honours or Major programme in Physics with a high Sessional Average.
Value: $400.

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 70-85 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.

THE MCBABB 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 60-75 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: $3,000.

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 35-50 units of a programme in Civil Engineering. Awards are based on scholarship and evidence of practical engineering experience and background.
Value: $650 each.

THE PETER McPHATER MEMORIAL SCHOLARSHIP
Established in 1986 by Peter McPhater's friends in recognition of his art, craftsmanship and humanism. To be awarded to a student who has completed Level I and 60-75 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.

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 Cumulative Area Average and a grade of at least A- in Biology 3E03 in Level III.
Value: $400.

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 60-75 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.

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.

THE MOULTON COLLEGE SCHOLARSHIPS
Established in 1957 from funds originally subscribed by the Alumni 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 30-43 units, and (b) one after completion of Level I and 60-75 units.
Value: $500 each.

THE MURATA ERIE NORTH AMERICA, LTD. SCHOLARSHIPS IN CERAMICS AND ELECTRONICS
Established in 1982. Two scholarships to be awarded on the basis of scholarship, general technical awareness and participation in university and community activities: (a) one to a student who attains the highest Sessional Average on completion of Level I and 70-85 units of the Ceramic Engineering programme and who, in that Session, attains a grade of at least A- in Materials 3E04, and (b) one to a student who attains the highest Sessional Average on completion of Level I and 70-85 units of the Electrical Engineering programme and who, in that Session, attains an average of at least 10.0 in Electrical Engineering 3F03 and 3F04.
Value: $600 each.

THE ANNE MURRAY SCHOLARSHIP
Established in 1985 in memory of Anne M. Murray (°92) by her family. To be awarded to the student who has completed Level I and 60-75 units of an Honours programme in German with the highest Sessional Average.
Value: $300.

UNDERGRADUATE ACADEMIC AWARDS
UNDERGRADUATE ACADEMIC AWARDS

THE THOMAS NEILSON SCHOLARSHIP
Established in 1986 in memory of Professor T. Neilson by his family, friends, colleagues and students. To be awarded to a student entering Level IV of a programme in Honours Biochemistry who, in the judgment of the Department of Biochemistry, shows particular promise as an experimental scientist.
Value: $800.

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 Cumulative Average at the completion of Level I and 38-55 units of the Nursing programme.
Value: $500.

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 60-75 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.

THE ONTARIO HYDRO SCHOLARSHIP IN ELECTRICAL ENGINEERING
Established in 1986. To be awarded to the student who has completed Level I and 35-55 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.

THE PAININ SCHOLARSHIP
Established in 1957 in memory of Barney David Painin ('33), by Mrs. Barney David Painin and Morris Painin. To be awarded to the student who has completed Level I and 60-75 units of the Honours History programme and who attains the highest Cumulative Area Average.
Value: $200.

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 Classics or Classical Studies who, in the judgment of the Department of Classics, demonstrates outstanding achievement in Greek or Latin.
Value: $50.

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 70-85 units of the Civil Engineering programme, or Level I and 110-150 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.

THE PEVENSING SCHOLARSHIP
Established in 1987 by David C. Hannaford ('64). To be awarded to a student who has completed Level I and 60-75 units of an Honours programme in Economics and who, in the judgment of the Department of Economics, has attained notable academic standing.
Value: $500.

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 Gerontology 1A06) and who, demonstrates leadership in the field of Gerontology.
Value: $300.

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 60-75 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.

THE PSYCHOLOGY SOCIETY PRIZES
Established in 1965 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 60-75 units with the highest Cumulative Average: (a) one in the Honours Psychology P.A. programme; (b) one in the Honours Psychology B.Sc. programme; and (c) one in a combined Honours programme in Psychology.
Value: $50 each.

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 30-45 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 2X06 (Canadian History).
Value: $600.

THE SHAHRON 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: $250.

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 students who have completed Level I and 30-75 units of the Honours English or the Honours English and History programmes and who, in the judgment of the Department of English, has attained high academic standing. Recipients must not be holders of another scholarship.
Value: $1,250 each.

THE HERBERT A. RICKER SCHOLARSHIPS
Established in 1982 by bequest of Mrs. Ethel 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 35-90 units of a programme in Engineering, and (b) two to students who have completed Natural Sciences I, or Level I and 35-75 units of a programme in Science. The recipients must not be holders of another scholarship.
Value: $1,250 each.

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 60-75 units of an Honours programme in Geography and who, in the judgment of the Department of Geography, has attained high academic standing.
Value: $350.

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 contributions to the Department of History. To be awarded to the student who has completed Level I and 60-75 units and who, in the judgment of the Department of History, attains notable standing in an Honours programme in History.
Value: $100, for each.

THE BEN SAUDER SCHOLARSHIP
Established in 1984 by Mr. Ben Sauder. To be awarded to a student entering Level II of a programme in Commerce on completion of Business I with an outstanding Sessional Average. The recipient must not be a holder of another scholarship.
Value: $700.

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 60-75 units of the Honours English programme, and who attains the highest Cumulative Area Average.
Value: $400.

THE GRACE SENA-FONTES MEMORIAL PRIZE
Established in 1989 by the graduating class (88) in association with the McMaster University Nursing Alumni Executives, in memory of Grace Sena-Fontes ('88) of Toronto. To be awarded to a student who has completed Level I and 70-85 units of the Nursing programme and who, in the judgement 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.

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.

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 extracurricular activities. For one of the awards, the student must also demonstrate interest in Women's Studies, Native Studies and/or one of Canada's other disadvantaged groups.
Value: $2,000.

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.
THE GERALD AND Verna 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 30-45 units of the Honours Physics or the Honours Chemistry and Physics program with a high Cumulative Area Average. Value: $300.

THE PATRICIA L. Smye Memorial Prizes
Established in 1972 by the Patricia Smye Memorial Fund Committee. Two scholarships are to be awarded to students who have completed Level I and 30-45 units and who attain the highest Sessional Average: (a) one in the third-year English programme and (b) one in the three-level Psychology B.A. programme. Value: $250 each.

THE SOCIETY OF MANAGEMENT ACCOUNTANTS OF ONTARIO Scholarship
Established in 1983. To be awarded to the student who has completed Level I and 60-75 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.

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 30-45 units and who, in the judgement of the Department of Modern Languages, has attained notable standing in an Honours programme in Italian. Value: $600.

THE SOUTH ONTARIO Economic Development Council Scholarships
Established in 1973 by the South Ontario (formerly Niagara) Economic Development Council. Two scholarships are to be awarded, normally one in each of the B.A. and B.Sc. programmes, to the student who has completed Level I and 60-75 units of the Honours Geography programme and who elect Geography 400E6 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.

THE SALVATORE Spitale Memorial Prize
Established in 1984 by the Spitale family. To be awarded to the student who has completed Level I and 30-75 units of an Honours programme in Italian and who, in the judgement of the Department of Modern Languages, has demonstrated academic excellence and an active involvement in community life. Value: $100.

THE S.L. Squire Scholarships
Established in 1938 by bequest of S.L. Squire of Toronto. Four awards are to be made to students in any Level I programme who attain the highest standing in any two of Mathematics 1A06, 1B05, 1H05, 1N06, and in other tests provided for this scholarship by the Department of Mathematics and Statistics. Value: $400 each.

THE CLARENCE L. Starr Prize
Established in 1946 in memory of Dr. C.L. Satt, 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.

THE MABEL STOAKEY 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 30-45 units of any programme and who gives evidence of outstanding academic achievement and leadership. Value: $400.

THE MABLE L. Stock Scholarship
Established in 1967 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 60-75 units of an Honours programme in French and who, in the judgement of the Department of French, has achieved notable academic standing. Value: $400.

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 70-85 units of a Nursing programme with the highest Sessional Average. Value: $100.

THE JANITA LeBarre Symington Scholarship
Established in 1981 by The Women’s Art Association of Hamilton in memory of Janita LeBarre Symington. To be awarded to the student entering the graduating Session of the Honours Art programme with the highest Cumulative Area Average. The recipient must be from the Halton-Wentworth Region. Value: $300.

THE T.H.B. Symons Scholarship in Canadian Studies
Established in 1978. To be awarded to the student who attains the highest Cumulative Area Average in Canadian Studies after completion of Level I and 60-75 units of a programme in Canadian Studies. Value: $525.

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 30-45 units of the Honours Geography or the Honours Geography and Geology programme with the highest Sessional Average. Value: $200.

THE D.R. A. Thompson Prize in Mathematics

THE THORNE, ERNST AND Whinney Scholarship
Established in 1966 by Pettie, 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 60-75 units of a programme in Commerce. Preference will be given to students who plan to continue their studies after graduation with a practicing firm of chartered accountants. Value: $350.

THE Touche Ross and Co. Scholarship
Established in 1962. To be awarded to the student who has completed Level I and 60-75 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: $300.

TRAC Scholarships
Established in 1984 by the Retirees’ Association of Canada. Two scholarships are to be awarded to students who have completed Level I and 35-50 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.

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 60-75 units of an Honours programme in History and who, in the judgement of the Department of History, has achieved notable academic standing in medieval history and a high Sessional Average. Value: $600.

THE UNIVERSITY Women’s Club of Hamilton Scholarship
Established in 1945 by the University Women’s Club of Hamilton. To be awarded to the woman student who attains the highest Sessional Average in the penultimate level of any programme. Value: $750.

THE UWC Past Presidents’ Prize
Established in 1980 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 70-90 units of a programme in Engineering with the highest Cumulative Engineering Average. Value: $100.

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 judgement of the Department of Biology, shows an innovative approach to the study of ecology. Value: $250.

THE F.W. Waters Scholarship in Philosophy
Established in 1990 by the former students, colleagues and friends of Dr. F.W. Waters, Professor from 1935-1959. To be awarded to the student entering Level IV of the Honours Programme in Philosophy who, in the judgement of the Department of Philosophy, shows the most academic promise. Value: $800.

THE WEISZ FAMILY Foundation Scholarship
Established in 1982. To be awarded to the student who has completed Level I and 60-75 units of the Honours Commerce programme and who attains the highest Sessional Average (at least 9.5). Value: $1,500.

THE EmMANUEL 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 30-45 units of an Honours programme in Physics with the highest Cumulative Area Average. Value: $800.

UNDERGRADUATE ACADEMIC AWARDS
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 30-45 units of the Honours History programme and who attains the highest Cumulative Average. Value: $50.

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 30-45 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: $200 each.

THE WOMEN'S CANADIAN CLUB OF HAMILTON SCHOLARSHIP
Established in 1962 by the Women's Canadian Club of Hamilton. To be awarded to a student in Canadian Studies 1A06 who has attained the highest Sessional Average provided the grade in Canadian Studies 1A06 is at least A-. Value: $500.

THE ROYAL YWNEE MEMORIAL PRIZE
Established in 1971 in memory of Ivar Wynne, Dean of Students. To be awarded to a student who has completed Level I and 60-75 units of the Physical Education programme and has demonstrated outstanding achievement in the programme. Value: $300.

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 70-85 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.

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 Section 3, above. In 1991, 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 in each. In 1999, 220 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.

THE EDWIN MARVIN DALLEY MEMORIAL SCHOLARSHIPS
Established in 1965 by bequest of Edwin Marvin Dalley of Hamilton.

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.

THE HAMILTON INDUSTRIAL SCHOLARSHIPS
Established in 1958.

THE BERTRAM OSMER HOOPER SCHOLARSHIP
Established in 1957 by bequest of Isobel F. Hooper. To be awarded in Arts.

THE NINA LOUISE HOOPER SCHOLARSHIP
Established in 1959 by bequest of Bertram O. Hooper.

THE CLAUDE G. LISTER SCHOLARSHIP
Established in 1990 by bequest of Pauline Dewler Lister in memory of her husband. To be awarded to a student in a programme in the Faculty of Business.

THE TONY PICKARD MEMORIAL SCHOLARSHIP

ROTARY CLUB OF HAMILTON SCHOLARSHIP
Established in 1989.

THE HILDA SAVAGE MEMORIAL SCHOLARSHIP
Established in 1960 by bequest of Bertha Savage.

THE SOMERVILLE SCHOLARSHIPS

THE STOBO SCHOLARSHIP
Established in 1957 by bequest of William Q. Stofo.

THE UNIVERSITY SCHOLARSHIPS
Made available from time to time by authorization of the Board of Governors of the University.

THE MARGUERITE Z. YATES SCHOLARSHIP
Established in 1960 by bequest of Mrs. W.H. Yates of Hamilton.

THE YATES SCHOLARSHIPS

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 1992, in recognition of her outstanding contribution to the University community, including 25 years of service.

In addition to meeting the conditions noted in Section 3 (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:

Sheila Scott Scholarships for Brandon Hall (2 awards)
Sheila Scott Scholarship for Wallingford Hall
Bates Residence Scholarship
Edwards Hall Residence Scholarship
Matthews Hall Residence Scholarship
McKay Hall Residence Scholarship
Whidden Hall Residence Scholarship
Woodstock Hall Residence Scholarship


In 1991, 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 Greg Alexander. Two scholarships to be awarded to students who have completed Level I and 60-75 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 Winter Session. Value: $5,000 each.

THE CLASS OF '37 TRAVEL SCHOLARSHIP IN ARTS AND SCIENCE
Established in 1989 by the Graduating Class of 1937 in celebration of their fifth anniversary and augmented by friends of the Arts and Science Programme. To be awarded to a student who has completed Level I and 30-72 units of an Honours programme in the Arts and Science. 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.

THE JOAN JACKSON DUNBAR TRAVEL SCHOLARSHIP
Established in 1960 by Mayor Lloyd D. Jackson (109), 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 60-75 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 Winter Session.

Value: $4,000.

THE HOWARD P. WHIDDEN SCHOLARSHIP
Established in 1941 by the Honourable Jacob Nicol (20) 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: $500.

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 60-75 units of an Honours or Major 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, 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 Winter Session in travel and study outside Canada.

Value: $5,000.

UNDERGRADUATE ACADEMIC AWARDS

THE TRAVEL SCHOLARSHIPS
4. Academic Awards for Part-time In-Course Students

The following awards are based on competition across the University or within a faculty or programme.

4.1 These awards, which are granted in November, are provided exclusively for part-time students regularly registered in fewer than 24 units in any session and qualifying on the basis of work included at the most recent review in other than their graduating session.

4.2 In addition to meeting the General Conditions listed in Section 1, a student must obtain at the most recent review a University Average of at least 8.0 and no F grades.

4.3 The University Average will be used to break any tie in the competition for these 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 2H04 (American Literature).
Value: $50, for books.

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 University Average at the most recent review.
Value: $350 each.

THE WILLIAM J. McCALLON SCHOLARSHIPS
Five scholarships named in 1984 in honour of Professor McCallon (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 University Average at the most recent review.
Value: $250 each.

THE ANNE STEIN MEMORIAL PRIZE
Established in 1981. To be awarded to the part-time student who successfully completes Social Work 3003 and attains the highest grade in Social Work 3006 in the same session.
Value: $100.

THE UNIVERSITY SCHOLARSHIPS
Established in 1978. Twenty scholarships to be awarded to part-time students who have attained the highest University Average at the most recent review.
Value: $250 each.

5. Single Achievement Awards for Full-time and Part-time Students

The following awards are based on competition across the University or within a faculty or programme.

5.1 These awards, which are granted in June or November, are provided for either full-time or part-time students qualifying on the basis of achievement during the Summer or Winter Sessions immediately preceding the May review (or deferred examinations resulting therefrom).

5.2 In addition to meeting the General Conditions listed in Section 1, a student must obtain at the most recent review a University Average of at least 8.0 and no F grades.

5.3 The University 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 Geography 2B03 (Geography of Canada).
Value: $150.

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.

THE 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 II English course.
Value: $50.

UNDERGRADUATE ACADEMIC AWARDS

THE CANADIAN CLUB OF HAMILTON SCHOLARSHIP
Established in 1956 by the Canadian Club of Hamilton. To be awarded to the student who, in the judgment of the Department of History, attains notable standing in a Level II course in Canadian History.
Value: $150.

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.

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.

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 Comparative Literature.
Value: $150.

THE CONSUL GENERAL OF ITALY BOOK PRIZE
Established in 1982. To be awarded to in-course students for excellence in Italian studies.

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 3P03 and to the student who achieves the highest standing in Italian 4P03.
Value: $75.

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.
Values: (a) $150; (b) $100.

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.

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.

THE GERMAN EMBASSY BOOK PRIZE
To be awarded from time to time for in-course students for proficiency in Level II or III German.

THE GILMOUR MEMORIAL PRIZE
Established in 1927 by Yeo. 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 Religious Studies 2E06.
Value: $100.

THE GREEK COMMUNITY OF BURLINGTON AND DISTRICT SCHOLARSHIP
Established in 1983. To be awarded to the student who obtains the highest standing in Greek 1206.
Value: $250.

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 Engineering 1C04.
Value: $100.

THE HAMILTON PRIZE
Established in 1958 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 2M03.
Value: $100, for books.

THE MUNICIPAL CHAPLAIN OF HAMILTON, I.O.D.E., PRIZE
Established in 1944 by the Municipal Chaplain 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.

THE INTER NATIONES (BONN) BOOK PRIZE
To be awarded from time to time to in-course students for proficiency in German studies.
UNDERGRADUATE ACADEMIC AWARDS

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 judgement of the department has demonstrated achievement in Mathematics 3A06 or 3006. Value: $400.

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 judgement of the Arts and Science Programme Awards and Review Committee, best reflects scholarship and the spirit of inquiry. Value: $175.

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 Social Work 2B06. Value: $50.

THE DR. S.P. KLIMASKO PRIZE
Established in 1973. To be awarded to the student who attains the highest standing in Ukrainian 2A06. Value: $50.

THE LATIN PRIZE
Established in 1987 by Dr. John B. Ciment. To be awarded to a student who, in the judgment of the Department of Classics, has demonstrated notable achievement in Latin 1206. Value: $100.

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.

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.

THE MACGIBBON SCHOLARSHIP
Established in 1970 by bequest of Professor Duncan A. MacGibbon ('08). To be awarded to the student in an Honours programme in Economics who, in the judgment of the Department of Economics, stands highest in courses in economic history. Value: $350.

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 Economics 3006 (Economic Development) or, in exceptional circumstances, for work in a related area. Value: $200.

THE ELEANOR DORBUSH 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 History 3V03. Value: $100.

THE ELEANOR DORBUSH 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 2C03. Value: $100.

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 2B06. Value: $100.

THE JOHN MCDARMID PRIZE
Established in 1966. To be awarded to the student in Engineering I who obtains the highest standing in Physics 1D03. Value: $100.

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 Geography 4F03; and (b) the student who attains the highest grade in Geography 4I03. Value: $175 each.

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 Metallurgy 4C04. Value: $100.

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.

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.

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 30-60 units who, in the judgement of the Selection Committee for Part-Time Awards, has made a significant contribution to the University life of part-time students. Value: $300.

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.

THE PROCTOR 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 Russian 3B06. Value: $150.

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 60-75 units who, in the judgment of the Department of English, has made the most noble original contribution to student publications. Value: $250.

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 3B06 or Sociology 2X03. Value: $150.

THE MORRIS AND SARAH ROSENHEAD MEMORIAL PRIZE
Established in 1998 by bequest of Sarah Rosenhead of Hamilton. To be awarded to the student who attains the highest standing in English 1D06. Value: $150.

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.

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 judgement 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.

THE SERBO-CROATIAN BOOK PRIZES
Established in 1985. Three prizes to be awarded to the in-course students who achieve the highest standing in Serbo-Croatian 1Z06.

THE SOCIAL WORK PRIZE
Established in 1982. To be awarded to the student who attains the highest grade in Social Work 2D03. Value: $50.
UNDERGRADUATE ACADEMIC AWARDS

THE ANNE STEIN MEMORIAL PRIZE
Established in 1971 by friends and colleagues of Anne Stein. To be awarded to the student who successfully completes Social Work 3D06 and attains the highest average in Social Work 3D06 in the same session.
Value: $100.

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 Dean's Honour List and who has made the most outstanding contribution to undergraduate activities.

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.

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.

THE ASSOCIATION OF PROFESSIONAL ENGINEERS GOLD MEDAL
Established in 1961 by the Ontario Professional Engineers Foundation for Education. To be awarded to the graduating student in a programme in Engineering who attains the highest Grade Point Average.

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 Faculty of Business, has displayed outstanding achievement in accounting and has attained an average of at least 10.0 in four terms of Commerce 4A03, 4B03, 4C03, 4D03, 4E03, 4F03.

THE EUGENIO CAPPADOCIA MEDAL
Established in 1986 by Professor E. Cappadocia on the occasion of his retirement from the Department of History. To be awarded to the graduating student 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.

THE J.G. GRAHAM MEDAL
Established by the Faculty of Social Sciences in 1982 in recognition of Professor J.G. Graham 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 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 graduates, and who has completed the programme primarily on a part-time basis.

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.

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.

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 graduates.

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 Dean's Honour List and who has made the most outstanding contribution to undergraduate activities.

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.

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 judgement of the Department of Modern Languages, has achieved notable academic standing.

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 judgement of the Department of Anthropology, has demonstrated outstanding academic achievement.
Value: $50.

6. Academic Awards for Graduating Students

The following awards are based on competition across the University or within a faculty or programme.

6.1 These awards, which are granted in May, are provided exclusively for graduating students qualifying on the basis of achievement in their baccalaureate degree programme.

6.2 In addition to meeting the General Conditions listed in Section 1, a student must obtain:
   a. a Graduation Average of at least 8.0;
   b. at the most recent review a University Average of at least 8.0;
   c. no F grades in the courses last taken equal to:
      i. either the number of units specified in the Calendar for the usual 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 His Excellency the Governor General of Canada. To be awarded to the student graduating from a first baccalaureate degree programme who had achieved the highest standing throughout the programme.
UNDERGRADUATE ACADEMIC AWARDS

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 graduating student who, in the judgment of the Department of History, has attained notable standing in the Honours History programme. Value: $200.

THE MARION BATES BOOK PRIZE
Established in 1967. Centennial Year, by the Alumni members of the McMaster Alumni Association in honour of Marion Bates, Dean of Women from 1947 to 1965. To be awarded to: (a) a graduating student from a programme in the Faculty of Humanities, Science, or Social Sciences who, in the judgment of the Department of History, has demonstrated outstanding achievement in Canadian History courses consistently throughout the degree programme. Value: $100, for books.

THE ABE BLACK MEMORIAL PRIZES
Established in 1992 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 Graduation Average in an Honours B.A. programme in Psychology; (b) one to the student who attains the highest Graduation Average in the Honours B.Sc. programme in Psychology; (c) one to the student who attains the highest Graduation Average in the Honours Biology and Psychology (Life Sciences) programme; (d) one to the student who, in the judgment of the Department of Psychology, has demonstrated outstanding achievement in Psychology 4D06 (Honours thesis). Values: (a) $75; (b) $75; (c) $75; (d) $100.

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 Graduation Average. The Prize is a set of engraved sterling silver coffee spoons.

THE CANADIAN ASSOCIATION OF OCCUPATIONAL THERAPISTS BOOK PRIZE
Established in 1985. To be awarded to the student who has attained the highest Graduation Average in the Occupational Therapy programme. Value: $75, for books.

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 Faculty of Business, has displayed outstanding achievement in accounting and has attained an average of at least 1.0 in Commerce 3A03, 3B03, 4A03 and 4B03. Value: $150.

THE DENTON COATES MEMORIAL SCHOLARSHIP
Established in 1982 in memory of Denton E. Coates ('70) by his friends. To be awarded to the graduate 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 Materials 4K04. Value: $300.

THE LAURA DODSON PRIZE
Established in 1985 by Lauren 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 sciences. Value: $150.

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.

THE EUROPEAN HISTORY PRIZE
Established in 1986 by Professor Eto 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.

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 Faculty of Business, has demonstrated outstanding achievement in courses in finance. Value: $500.

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.

THE HERITAGE HAMILTON FOUNDATION SCHOLARSHIP
Established in 1987 by the Heritage Hamilton Foundation. To be awarded to a graduating student in a programme in Arts, Science, Humanities, or Social Sciences, in support of the student's academic studies or for the purchase of a book, to help the student complete their degree and contribute to the student's continued academic achievement. Value: $100

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.

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 Graduation Average in a programme in Commerce. Value: $150.

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 graduating student from an Honours programme in French who, in the judgment of the Department of French, has demonstrated outstanding academic achievement. Value: $50.

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 Graduation Average in an Honours programme in Sociology. Value: $50.

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.

THE FELIKS LITOWSKI PRIZE IN POLITICAL SCIENCE
Established in 1987 by Albert Litowski ('78) and Richard Litowski ('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.

THE AGNES AND JOHN MACNEILL MEMORIAL PRIZE
Established in 1946 by bequest of Annie 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.

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.

THE PILAR MARTINEZ PRIZE
Established in 1985 by Dr. Pilar Martinez. To be awarded to the student who has attained the highest Graduation Average in a programme in Hispanic Studies. The Prize is a handcrafted object.

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 Graduation Average in an Honours programme in Biology. Value: $200.

THE JOHN R. MCCARTHY SCHOLARSHIP
Established in 1987 by John 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 enrols 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.

THE A.G. McKay PRIZE IN CLASSICAL STUDIES
Established in 1990 by Professor Emertius 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.
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 graduating student graduating in an Honours programme in Geology who, in the judgment of the Department of Geology, has attained the highest standing in Materials 4D03 (Corrosion). Value: $50.

THE R. McLAUGHLIN MEMORIAL PRIZE
Established in 1938 in honour of Dean McLaughlin, by his daughter, Mrs. R.R. McLaughlin (Marjorie McLaughlin '25) and further enlarged in 1950 by A.H. Wilson of Woodstock. To be awarded to the student who attains the highest Graduation Average in an Honours programme in English. Value: $250.

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 highest standing in Materials 4D03. Value: $50.

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 Social Work 4D06 and 4D06. Value: $125.

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 Graduation Average in the Physiotherapy programme. Value: $100, for Books.

THE ONTARIO SOCIETY OF OCCUPATIONAL THERAPISTS PRIZE
Established in 1987. To be awarded to the graduating student graduating in the Occupational Therapy programme who attains the highest grade in Health Sciences 4D03. Value: Plaque.

THE ONTARIO SOCIETY OF OCCUPATIONAL THERAPISTS NEUROLOGY PRIZE
Established in 1989 by the OSOT Neurology Interest Group (Toronto Branch). To be awarded to a graduating student from an Occupational Therapy programme who, in the judgment of the Department, attains an outstanding average in Health Sciences 4C03 and Health Sciences 4D03 (Neurosciences). Value: $75 in books.

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 graduating with the highest Graduation Average in the Social Work programme. Value: $50.

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.

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.

THE PIONEER 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 each.

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 Political Science 4G06. Value: $50.

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 Graduation Average in an Honours B.A. programme in Geography; (b) one to the student who attains the highest Graduation Average in an Honours B.Sc. programme in Geography; (c) one to the student who attains the highest Graduation 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 Geography 4C06. Value: $50 each.

THE RELIGIOUS STUDIES PRIZES
Established in 1989 by the Toronto Branch. To be awarded to the student graduating from the Nursing Programme who, in the judgment of the Nursing Department, has demonstrated outstanding achievement in Nursing Science 4D03. Value: $50.

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 Religious Studies 4G03. Value: $50.

THE SHELL CANADA PRIZES IN ENGINEERING AND MANAGEMENT
Established in 1982. Two 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.

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 student graduating in an Honours Anthropology programme who, in the judgment of the Department, has demonstrated outstanding academic achievement. Value: $50.

THE SOCIOLOGY PRIZES
Established in 1982. Two prizes to be awarded to students with the highest Graduation Average: (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 the programme primarily on a part-time basis. Value: $50 each.

THE SOCIETY OF CHEMICAL INDUSTRY MERIT AWARDS
Established in 1961. Three plaques to be awarded: (a) one to a Chemical Engineering graduate; (b) one to an Honours Biochemistry or Honours Biochemistry and Chemistry graduate; and (c) one to an Honours Applied Chemistry, Honours Chemistry, Honours Chemistry and Geology, or Honours Chemistry and Physics graduate, who have attained the highest Graduation Average (at least 9.5) and have completed the programme in the normal number of years.

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.

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.

UNDERGRADUATE ACADEMIC AWARDS
Student Financial Aid

For information on any of the programmes which follow contact:

Student Financial Aid and Scholarships Office
Hamilton Hall, Room 401
McMaster University
Hamilton, Ontario L8S 4K1
Telephone: (416) 525-9140, extension 4319
John Edwards, Director
Denise Ellis, Coordinator/Office Manager

Ontario Student Assistance Program

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 five plans.

Ontario Study Grant Plan
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 residence in Ontario. The amount of financial aid awarded is determined by a need-testing procedure.

It is strongly recommended that students apply by June 30th to ensure that their applications are processed by September. It currently takes 8-10 weeks to process a regular OSAP application.

All of the government programs described in this text are modified by an annual assessment procedure.

ONTARIO STUDY GRANT PLAN

A plan which primarily helps students from less affluent families complete undergraduate work and not incur significant debt. Grants under this plan are not contingent upon a student taking a government loan and are limited to a student's first eight academic terms of post-secondary study. After that, generally at professional or graduate levels of study, students are expected to assume more responsibility for educational costs or to turn for assistance to student loans plans outlined below.

Grants are available to both full-time and part-time students, who are resident in Ontario, and enrolled at recognized post-secondary institutions anywhere in Canada.

CANADA STUDENT LOANS PLAN

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 60% 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 recently expanded its Canada Student Loans Plan to include 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

A plan which 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.

Loans are available to students enrolled at recognized post-secondary institutions in Ontario only.

ONTARIO SPECIAL BURSARY PLAN

A plan which helps exceptionally needy students who are unable to attend school full-time but need post-secondary training to improve their job prospects. A student participating in this plan will not receive assistance through the Ontario Study Grant Plan.

Bursaries are available to such part-time students enrolled at recognized post-secondary institutions in Ontario only.

Work-Study Program

A recent addition to the OSAP package which is intended to complement the original four plans. 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 grant/loan maximums or, who do not wish to borrow further due to high debt load.

Costs of this plan are shared equally 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 401, from November 1st to November 30th 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.

TOM ANDERSON MEMORIAL BURSARY

Established in 1985, 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.

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.

Value: $700.00

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.

THE AVESTEL CREDIT UNION LIMITED BURSARIES

Established in 1989 by members in celebration of fifty 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.

Value: $700.00

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.

THE SIDNEY L. BLUM BURSARY

Established in 1998 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 Years III or IV of the Bachelor of Arts/Social Work Programme or Year II of the Bachelor of Social Work Programme.
THE CLASS OF '35 BURSARIES
Established by the Class of '35 in honour of their fifth class reunion. To be awarded to a student in good academic standing who is a Canadian citizen or permanent resident.

THE DORIS PARTRIDGE COLE BURSARY
Established in 1981, this bursary is to be awarded to a worthy student in memory of Doris Partridge Cole (’50).

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.

PARTICIA ANNE DIOCCIO 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.

THE EDITH E. FERRIE BURSARIES
Established in 1955 by the late Edith E. Ferrie. To be awarded to students in any programme.

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.

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.

THE HAWKRIGG FOUNDATION BURSARIES
Established in 1988. To be awarded to an outstanding student in Business I or Physical Education I.

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.

THE HAMILTON CITIZENS’ MEMORIAL BURSARIES
Established in 1947 by the Hamilton Citizens' Committee for War Services. Proceeds are used to assist undergraduate students who are residents of the Hamilton-Wentworth Region.

THE HARBWOOD BURSARIES
Established in 1990 by bequest of Dr. William Harwood of Hamilton in memory of his beloved wife Grace and devoted daughter Willie Ruth Laurie (’50). A variable number of bursaries to be awarded to students studying Music who demonstrate financial need: value not to exceed $1,000.00.

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.

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).

THE EDWIN W. HILBORN BURSARY
Established in 1965 by bequest of Edwin W. Hilborn. To be awarded to a student in any programme.

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.

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.

THE KHULI UNIVERSITY AND YOUNG MEN’S CHRISTIAN ASSOCIATION MEMORIAL BURSARIES
Established in 1921 by the Khuil 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.

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 and/or general community affairs. Students should describe their qualifications for this bursary in the covering letter.

3M CANADA INC. BURSARY
Established in 1980, two bursaries to be awarded annually, one to an MBA student and one to a student in Science.

THE ANDREW MCAFARLANE BURSARIES
Established in 1985 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.

THE MCMASTER 1980 BURSARIES
Established in 1980 by the University to assist undergraduate students in any programme.

THE MCMASTER ALUMNAE CENTENNIAL BURSARY
Established in 1988 by the McMaster Women's Alumni, Hamilton Branch, to be awarded in his memory to a woman graduating student, who is a Canadian citizen or permanent resident and who exhibits financial need. Preference will be given to a single parent.

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.

THE MCMASTER STUDENTS' UNION BURSARIES
Established in 1982 by the McMaster Students' Union. To assist those undergraduates who demonstrate financial need.

THE MCMASTER WOMEN'S CLUB BURSARY
Established in 1965 by the McMaster Women's Club to assist a student beyond Level I in the University's B.Sc.N. Programme.

THE A.J. MELLONI MEMORIAL FUND
To be awarded to a student in any programme.

MOUNT HAMILTON ROTARY CLUB BURSARY
Established in 1987, this bursary is to be awarded to a student or students who demonstrate financial need.

THE JOHN DOUGLAS MOYER BURSARY
Established in 1986 by bequest of John Douglas Moyer to assist needy students.

THE O'SHAUGHNESSY BURSARIES
Established in 1986 by the family and friends of the late Margaret O'Shaughnessy, R.N., 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.

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.

THE PROFESSIONAL ENGINEERS' WIVES ASSOCIATION BURSARY
Established in 1963 by the Professional Engineers' Wives Association to be awarded to a student with special disability provided they demonstrate financial need. Applications should be made to the Department of Geology.

THE SERTOMA CLUB BURSARY
Established in 1988 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.

THE SAM SMURLICK BURSARY
Established in 1978 by the Smurlick family in memory of Sam Smurlick (’55). To be awarded to a student in any programme.

THE SOCIAL SCIENCES SOCIETY BURSARIES
Established in 1960 by the Social Sciences Society in recognition of Dr. Peter George and his outstanding efforts in establishing the Society. A variable number of bursaries to be awarded to full-time students enrolled in the Faculty of Social Sciences with demonstrated financial need.

THE LILLIAN R. STEGNE MEMORIAL BURSARIES
Established in 1990 in memory of Lillian Rose Stegner (’62) by family, friends and colleagues. Two or three bursaries to be awarded to handicapped students in any programme who demonstrate financial need.

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.
STUDENT FINANCIAL AID

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.

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.

BURSARIES FOR IN-COURSE VISA STUDENTS
Established in 1982 by the University to assist visa students in any programme.

THE WALLINGFORD HALL BURSARIES
Established through anonymous donations to assist needy students in any programme.

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 alumnae 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
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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 I.O.D.E. 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, I.O.D.E., in honour of Mrs. H.S. Griffen.

   Established in 1975.

c. Emma Frances Pratt Chapter, I.O.D.E., Loan Fund.
   Established in 1958. To assist female students in Level III or IV of any programme.

d. Muriel Clark Riddell Loan Fund.
   Established in 1964 by the Right Honourable Stanley Baldwin Chapter, I.O.D.E.

e. Sovereign Chapter, I.O.D.E., 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, I.O.D.E.

g. Wentworth Chapter, I.O.D.E., Loan Fund.
   Established in 1953.

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS INITIATIVE 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
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THE PI BETA PHI FRATERNITY LOAN FUND
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THE PROFESSIONAL ENGINEERS' WIVES' ASSOCIATION LOAN FUND
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THE SOCIETY OF AUTOMOTIVE ENGINEERS (ONTARIO SECTION) LOAN FUND
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THE IVOR WYNE 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.

Short-Term Emergency Loans
Assistance in the form of a short-term loan 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
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